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# Vol. 3

# LAND IN TROPICAL AMERICA
# LA TIERRA EN AMERICA TROPICAL
# A TERRA NA AMÉRICA TROPICAL

Computer Summary and Soil Profile Descriptions of the Land Systems

Resumen de Computador y Descripciones de Perfiles de Suelos de los Sistemas de Tierra

Resumo de Computador e Descrições dos Perfis de Solos dos Sistemas de Terra

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# Prologue

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Latin America, particularly South America, is known as the region of the world with the most abundant land resources in relation to its population base. At present the region has the lowest population density per hectare of arable land, as well as the lowest percentage of arable land under cultivation. Comparisons of potentially arable land in Latin America with that under tillage show that only 18 to 35 percent is presently utilized for agriculture. These figures are considerably lower than estimates for other regions of the world; however, there is a fairly wide range in figures as a result of variations in the information base utilized and the criteria used for the different studies.

Within the present land use pattern, extensive areas of land are underutilized or left fallow as most of the agricultural production takes place in the more fertile areas close to urban markets, where large mechanized farms coexist with a sizable small farm sector. In order to design an agricultural growth strategy that would utilize land, labor and capital resources efficiently, the countries in the region need to assess the following complementary development strategies and their trade-offs:

1. Intensify production by large farmers who control the more fertile areas, primarily through mechanization and greater use of inputs.
2. Intensify small-scale production through the use of improved germplasm, combined with appropriate use of inputs, to achieve higher, more stable yields.
3. Expand crop and livestock production onto the less fertile frontier lands through the use of adapted germplasm and appropriate use of inputs.

As a first step toward providing the necessary information to design such a strategy, CIAT and EMBRAPA have collaborated in the systematization of existing information on the central lowlands of tropical South America, which constitute the major frontier area of the continent. Although there is abundant information on the area, much of it is contained in unpublished technical reports from diverse sources and is not necessarily compatible. An attempt has been made to systematize all this information in this report, complementing it where necessary with primary data, within the framework of a "land systems approach," where information on climate, soils, topography and vegetation is reported systematically for purposes of comparison. The data base has been computarized to facilitate information retrieval and analyses of aggregates. The data are presented here in the form of maps and tables, with text in English, Spanish and Portuguese, to permit broad access by individuals from research or rural development programs who might not have computer facilities available to them.

CIAT and EMBRAPA are pleased to make available to the scientific community and rural development planners the results of more than three years' collaborative efforts in the hope that the information contained herein, although far from perfect, will facilitate agricultural research, as well as the design of agricultural growth strategies that take into consideration the agricultural potential of these regions, thereby contributing to improved production and productivity.

As the report is based on data available at the time of the study, we would welcome new information to update the computerized files.

August 1984

Gustavo A. Nores
Deputy Director General
CIAT

Elmar Wagner
Head
CPAC-EMBRAPA

# Próiogo

*América Latina, en particular América del Sur, se conoce como la región del mundo con mayor abundancia de recursos de tierras en relación con su población. En la actualidad América del Sur posee la más baja densidad de población por hectárea de tierra cultivable, así como el porcentaje más bajo de tierra cultivable bajo explotación. Comparaciones entre estimativos de la superficie arable en América Latina con la superficie actualmente bajo cultivo muestran que solamente un 18 a 35 por ciento se utiliza actualmente en agricultura. Estas cifras se consideran inferiores a los estimativos para otras regiones del mundo; sin embargo, hay un amplio rango en los estimativos como resultado de las variaciones en la base de información utilizada y en los criterios empleados en los diferentes estudios.*

*Dentro del patrón actual de uso de tierra, hay grandes extensiones de tierras subutilizadas o inexplotadas ya que la mayor parte de la producción agrícola tiene lugar en las zonas más fértiles próximas a los mercados urbanos, donde generalmente coexiste un sector de fincas grandes y mecanizadas con un amplio sector de fincas pequeñas. Con el fin de diseñar estrategias de desarrollo agrícola que utilicen de manera eficiente los recursos de tierra, de mano de obra y de capital, los países de la región deben considerar estrategias alternativas de desarrollo, sus ventajas relativas, y su complementariedad potencial; entre ellas:*

1. *Intensificación de la producción en el sector de fincas grandes que generalmente controla las zonas más fértiles, principalmente por medio de la mecanización y mayor empleo de insumos.*
2. *Intensificación de la producción en el sector de fincas pequeñas mediante el uso de germoplasma mejorado, junto con empleo adecuado de insumos, para lograr rendimientos mayores y más estables.*
3. *Expansión de la producción agrícola y ganadera en las tierras menos fértiles de frontera mediante el uso de germoplasma adaptado y uso adecuado de insumos.*

*Como un primer paso en la obtención de la información necesaria para diseñar estrategias de desarrollo que incluyan estas regiones de frontera, CIAT y EMBRAPA colaboraron en la sistematización de la información existente acerca de las tierras bajas centrales en América del Sur tropical, las cuales constituyen el mayor territorio de frontera en el continente. Aunque hay abundante información sobre el área, en su mayor parte ésta se encuentra en informes técnicos de diversas fuentes no publicados y que contienen información no necesariamente compatible. En el presente trabajo se hizo un esfuerzo por sistematizar tal información, complementándola donde fuera necesario con datos primarios. Se utilizó un enfoque de "sistemas de tierra" en el cual la información sobre clima, suelos, topografía y vegetación se presenta en forma sistematizada a fin de hacer posibles las comparaciones.*

*La base de datos ha sido computarizada para facilitar la recuperación de la información y el análisis de agregados con objetivos específicos. En esta publicación los datos se presentan en forma de mapas y cuadros, con textos en inglés, español y portugués para hacerla ampliamente accesible a usuarios en programas de investigación y desarrollo rural que no tengan acceso a computador.*

*CIAT y EMBRAPA se complacen en poner a disposición de la comunidad científica y de los planificadores del desarrollo rural los resultados de tres años de esfuerzos conjuntos. Se espera que la información resultante, aunque diste de ser perfecta, facilite la investigación agrícola y el diseño de estrategias de desarrollo agrícola que tomen en consideración el potencial agrícola de esas regiones, contribuyendo así a una mayor producción y productividad.*

*Como el trabajo está basado en datos disponibles en el momento en que se realizó el estudio, ambas instituciones acogerán con beneplácito nueva información que permita actualizar sus archivos computarizados.*

*Agosto de 1984*

*Gustavo A. Nores*
*Director General Adjunto*
*CIAT*

*Elmar Wagner*
*Jefe*
*CPAC-EMBRAPA*

# Prólogo

A América Latina, em particular a América do Sul, é conhecida como a região do mundo com maior abundância de terras em relação à sua população. No momento, a América do Sul possui a mais baixa densidade populacional por hectare de terra cultivável, bem como a mais baixa porcentagem de terras cultiváveis sob utilização. Comparações entre o potencial de terras aráveis na América Latina com a área atualmente sob cultivo, mostram que somente 10 a 35% são utilizados para a agricultura. Estes dados são consideravelmente mais baixos do que estimativas feitas para outras regiões do mundo. Contudo, há uma variação bastante ampla nos números, resultantes das diferenças de informações básicas utilizadas e dos critérios usados pelos diferentes estudos.

Dentro do padrão atual de utilização da terra, existem grandes extensões sub-utilizadas ou inexploradas, de vez que a maior parte da produção agrícola ocorre nas áreas mais férteis, próximas a mercados urbanos, onde grandes propriedades mecanizadas coexistem com um setor razoável de pequenos produtores. Com a finalidade de estabelecer estratégias de desenvolvimento agrícola que utilizem de maneira eficiente os recursos terra, trabalho e capital, os países da região devem considerar estratégias complementares de desenvolvimento e seu potencial, em termos de vantagens relativas, a saber:

1. Intensificação da produção pelos grandes produtores que detem as áreas mais férteis, principalmente através da mecanização e do maior uso de insumos:
2. Intensificação da produção em pequena escala, através do uso de germoplasma melhorado, combinado com o uso apropriado de insumos, para a obtenção de rendimentos maiores e mais estáveis.
3. Expansão da produção agrícola e pecuária para terras menos férteis de fronteira, através do uso de germoplasma adaptado e do uso adequado de insumos.

Como um primeiro passo para a obtenção da informação necessária ao estabelecimento de estratégias de desenvolvimento que incluam esta última região, o CIAT e a EMBRAPA atuaram em colaboração na sistematização de informação disponível sobre terras baixas centrais da América do Sul tropical, as quais se constituem na maior fronteira do continente. Muito embora exista abundante informação sobre a área, a maior parte está contida em relatórios técnicos não publicados, de diversas fontes e não necessariamente compatíveis. No presente trabalho, foi feito um esforço de sistematizar estas informações, complementando-as, quando necessário, com dados primários. Foi utilizado o enfoque de "sistemas de terra", no qual as informações sobre clima, solos, topografia e vegetação são apresentadas de forma sistematizada para efeitos de comparação.

A base de dados foi computarizada para facilitar a recuperação de informações e a análise de agregados. Os dados são apresentados nas formas de mapas e tabelas, com textos em inglês, espanhol e português, para permitir amplo acesso a usuários em programas de pesquisa e de desenvolvimento rural, que podem não dispor de facilidades de computação.

O CIAT e a EMBRAPA têm o prazer de colocar à disposição da comunidade cientifica e de planejadores do desenvolvimento rural, os resultados de mais de três anos de esforços conjuntos e esperam que a informação contida neste trabalho, ainda que longe de ser perfeita, venha a facilitar a pesquisa agrícola bem como ao delineamento de estratégias para o desenvolvimento, que levem em consideração o potencial destas regiões, contribuindo, desta forma, para o aumento da produção e da produtividade.

Considerando que a trabalho se fundamentou em dados disponíveis à época do estudo, ambas as instituições acolherão, com entusiasmo, novas informações que permitam atualizar seus arquivos computarizados.

Agosto de 1984

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# Preface

This book is the third of three volumes describing and mapping land in the central lowlands of tropical South America according to its various aspects: climate, vegetation and landscape, topography, and soil factors.

Volume 1 presents a description of the project's objectives, methodology, and procedures, and then provides interpretations and guidelines for local, seed-based agrotechnology transfer using the map and land systems data.

Volume 2 includes the *Land Systems Map* (in two parts), on a scale of 1:5,000,000, and the *Legend* to the *Map*, which provides a concise summary of the soil constraints by land system. A booklet of individual zone maps, on a scale of 1:2,000,000, is also included.

Volume 3, a more complete summary of the land systems, includes computer printouts of generalized land information, specific land facet and landform descriptions, and meteorological station data; in addition, soil profile descriptions of many land systems are provided.

The following land systems are not included in the *Map*, *Legend*, or *Computer Summary*: 90-91, 115, 118-200, 231-249, 312, 314, 386-387, 487-600, 655-800. Land systems were designated by numbers used to identify them during the course of the study, and do not necessarily follow a numerical or geographical continuity.

Computer summaries are missing for the following land systems that are coded and listed in the *Map* and *Legend*: Ab 383, Ab 384, Aa 421, Fb 422, Be 486, and Fo 855. Information on these land systems was not sufficiently complete to computerize them.

The study upon which the work is based was completed over a period of four years (1977–1981) with the cooperation of many people and organizations.

The data for the study were collected from records in various countries, including Bolivia, Brazil, Colombia, Ecuador, Peru, and Venezuela, and from various small- and large-scale studies. The wide range of documents and people who assisted in this project are included in the Bibliography to Volume 1.

Special thanks, however, must be given to the staffs at EMBRAPA-CPAC and CIAT for their dedication to the tasks of compiling, computerizing, and mapping the data. For Volume 3, we are especially grateful to Yuviza Barona for typing Part 3; to Luis Alfonso Grisales for the landform diagrams in Part 1; and to Esperanza Castañeda for translations into Spanish and Portuguese.

# Prefacio

*Este es el tercero de tres volúmenes que contienen la descripción y los mapas de las tierras bajas centrales de América del Sur tropical según sus diversos aspectos: clima, vegetación y paisaje, topografía y factores edáficos.*

*El Volumen 1 presenta una descripción de los objetivos del proyecto, su metodología y procedimientos, y proporciona orientaciones y pautas para la trasferencia de tecnología agrícola local, basada en el uso de semilla mejorada, utilizando el mapa y la información sobre sistemas de tierra.*

*El Volumen 2 incluye el* Mapa de Sistemas de Tierra *(en dos secciones), a una escala de 1:5,000,000 y la* Leyenda para el Mapa, *que ofrece un resumen conciso de los limitantes del suelo en cada sistema de tierra. También se incluye un folleto de mapas de zonas individuales, a una escala de 1:2,000,000.*

*El Volumen 3 es un resumen más completo de los sistemas de tierra e incluye impresos de computador con información generalizada sobre la tierra, descripciones específicas de las facetas de tierra y de la forma de la tierra y datos de la estación meteorológica; asimismo ofrece descripciones de perfiles de suelos de varios sistemas de tierra.*

*Los sistemas de tierra que aparecen a continuación no están incluídos en el* Mapa *ni en la* Leyenda *ni en el* Resumen de Computador: *90-91, 115, 118-200, 231-249, 312, 314, 386-387, 487-600, 655-800. Los sistemas de tierra fueron designados por números utilizados para su identificación durante el transcurso del estudio y por ello no se observa necesariamente una continuidad numérica o geográfica.*

*No existen resúmenes de computador para los siguientes sistemas de tierra codificados e incluídos en el* Mapa *y en la* Leyenda: *Ab 383, Ab 384, Aa 421, Fb 422, Be 486, y Fo 855. La información para estos sistemas de tierra no fue lo suficientemente completa para computarizarla.*

*El estudio en el cual se basó el trabajo se completó con la colaboración de muchas personas y organizaciones, durante un período de cuatro años (1977–1981).*

*Los datos para el estudio fueron recolectados de los archivos de varios países, incluyendo Bolivia, Brasil, Colombia, Ecuador, Perú y Venezuela, y de varios estudios a pequeña y gran escala. En la Bibliografía del Volumen 1 se citan las personas y documentos que fueron de ayuda para este proyecto.*

*Agradecemos especialmente al personal de EMBRAPA-CPAC y del CIAT por su dedicación a la tarea de compilar, sistematizar y cartografiar la información. Para este tercer volumen agradecemos especialmente a Yuviza Barona por el trabajo de mecanografía de la Parte 3, a Luis Alfonso Grisales por los diagramas de la forma de la tierra de la Parte 1; y a Esperanza Castañeda por la traducción al español y al portugués.*

# Prefácio

Este é o terceiro de tres volumes que contém a descrição e os mapas das terras baixas centrais da América do Sul tropical segundo seus diversos aspectos: clima, vegetação e paisagem, topografia e fatores edáficos.

O Volume 1 apresenta uma descrição dos objetivos, metodologia e procedimentos, e depois oferece indicações e modelos para a transferência da tecnologia agrícola local baseada no uso de sementes melhoradas empregando o mapa e os dados em sistemas de terra.

O Volume 2 inclui o *Mapa de Sistemas de Terra* (em duas seções), a uma escala de 1:5,000,000, e a *Legenda* para o *Mapa*, que fornece um resumo conciso das limitações do solo em cada sistema de terra. Também foi incluido um folheto de mapas de zonas individuais, a uma escala de 1:2,000,000.

O Volume 3 é um resumo mais completo dos sistemas de terra, e inclui impressos de computador contendo informação generalizada sobre a terra, descrições especificas das facetas de terra, da forma da terra, dados da estação meteorológica, alem disto, oferece descrições dos perfis de solos de vários sistemas de terra.

Os sistemas de terra apresentados em seguida não se incluem no *Mapa*, na *Legenda*, e também no *Resumo de Computador:* 90-91, 115, 118-200, 231-249, 312, 314, 386-387, 487-600, 655-800. Os sistemas de terra foram designados por números utilizados para a sua identificação, durante o decurso do estudo, é esta a razão de não se observar, necessariamente, uma continuidade numérica ou geográfica.

Não há resumos de computador para os seguintes sistemas de terra codificados e registrados no *Mapa* e na *Legenda*: Ab 383, Ab 384, Aa 421, Fb 422, Be 486, e Fo 855. A informação para estes sistemas de terra não foi suficientemente completa para a computação.

O estudo em que foi baseado o trabalho, concluiu-se com a colaboração de muitas pessoas e organizações, no espaço de quatro anos (1977–1981).

Os dados para o estudo foram coletados dos arquivos de vários paises, incluindo Bolivia, Brasil, Colômbia, Equador, Peru e Venezuela, e de vários estudos em pequena e grande escala. Os documentos e pessoas que colaboraram com o projeto estão mencionados na Bibliografia do Volume 1.

Agradecemos especialmente ao pessoal da EMBRAPA-CPAC e do CIAT por sua dedicação à tarefa de compilar, computarizar e cartografar a informação. Para este terceiro volume agradecemos especialmente a Yuviza Barona pela datilografia da Parte 3; a Luis Alfonso Grisales pelos diagramas da forma da terra na Parte 1; e a Esperanza Castañeda pela tradução para o espanhol e para o português.

# How to Use this Book

The land systems numbers, with the preceding physiographic region and climatic region codes, are located on the Land Systems Map.

Find the land system number on the map and then locate it in Part 1 of these *Computer Summary and Soil Profile Descriptions of the Land Systems*. The land systems are listed in numerical order from 1 to 855. Each land system printout provides condensed information on area, altitude, landscape, topography, original and induced vegetation, U.S. Soil Taxonomy classification, physical and chemical soil properties, elements important in animal nutrition, and Fertility Capability Classification. (Refer to Chapter 6 in Vol. 1 for discussion of the procedures and additional details of the individual variables.)

For climatic data, find the name of the meteorological station on line one of the land system printout in Part 1.

The climatic data are listed in Part 2 of these *Computer Summary and Soil Profile Descriptions of the Land Systems*, in alphabetical order, by location of the nearest meteorological station. Each climatic data printout includes monthly and yearly information on mean temperature, mean relative humidity, percentage of possible sunshine, mean solar radiation, mean precipitation, potential evapotranspiration, precipitation deficit, dependable precipitation, and moisture availability index.

Codes for the abbreviations used in Parts 1 and 2 are found on pp. 3–10 and 277 of this book.

Part 3 records a series of soil profiles from diverse sources taken from a selection of the principal soils. These are arranged in numerical order by land system, and identified by land facet. The English-language description precedes the Spanish language version.

A summary of the soils on the main landscape facets of the land systems is found in the *Legend to the Land Systems Map* (Volume 2). These are arranged by physiographic region and then in numerical order within each region. The capital letter is the code for the physiographic region. In the *Legend*, physiographic regions are alphabetized *by code*.

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# Cómo Utilizar este Libro

*Los números de sistemas de tierra, con los códigos antepuestos correspondientes a la región fisiográfica y a las regiones climáticas, se encuentran en el Mapa de Sistemas de Tierra.*

*Ubique en el mapa el número del sistema de tierra y localícelo en la Parte 1 de este* Resumen de Computador y Descripciones de Perfiles de Suelos de los Sistemas de Tierra. *Los sistemas de tierra están ordenados numéricamente del 1 al 855. Cada impreso de sistema de tierra proporciona información condensada sobre área, altitud, paisaje, topografía, vegetación original e inducida, clasificación de la Taxonomía de Suelos de los Estados Unidos, propiedades físicas y químicas del suelo, elementos importantes en la nutrición animal y Clasificación por Capacidad de Fertilidad. (Diríjase al Capítulo 6 del Vol. 1 donde encontrará información más amplia sobre los procedimientos y detalles adicionales de las variables individuales.)*

*Para los datos climatológicos, busque el nombre de la estación meteorológica que aparece en la primera línea del impreso de sistema de tierra en la Parte 1.*

*Los datos climatológicos se encuentran registrados, en orden alfabético, por ubicación de la estación meteorológica más cercana en la Parte 2 de este* Resumen de Computador y Descripciones de Perfiles de Suelos de los Sistemas de Tierra. *Cada impreso sobre información climatológica incluye datos recolectados mensual y anualmente sobre temperatura media, humedad relativa media, porcentaje de brillo solar posible, radiación solar media, precipitación media, evapotranspiración potencial, déficit de precipitación, precipitación confiable e índice de disponibilidad de humedad.*

*Los códigos para las abreviaturas usadas en las Partes 1 y 2 se encuentran en las páginas 11-19 y 277 de este libro.*

*La Parte 3 registra una serie de perfiles de suelos de varias fuentes sacados de una selección de los suelos principales. Están organizados en orden numérico por sistema de tierra e indicados por faceta de tierra. La descripción en inglés precede a la versión en español.*

*En la* Leyenda del Mapa de Sistemas de Tierra (Vol. 2) *se encuentra un resumen de los suelos de las principales facetas del paisaje de los sistemas de tierra. Estos están organizados por región fisiográfica y en orden numérico dentro de cada región. La letra mayúscula representa el código para la región fisiográfica. En la* Leyenda, *las regiones fisiográficas están registradas en orden alfabético* por código.

# Como Usar este Livro

Os números de sistemas de terra, com os códigos prepostos correspondentes à região fisiográfica e às regiões climáticas, encontram-se no Mapa de Sistemas de Terra.

Procure no mapa o número de sistema de Terra e localize-o na Parte 1 deste *Resumo de Computador e Descrições dos Perfis de Solos dos Sistemas de Terra.* Os sistemas de terra estão organizados em ordem numérica de 1 a 855. Cada impresso de sistema de terra oferece informação resumida sobre área, altitude, paisagem, topografia, vegetação original e induzida, classificação pela Taxonomia de Solos dos Estados Unidos, propriedades físicas e químicas do solo, elementos importantes na nutrição animal e Classificação pela Capacidade de Fertilidade. (Veja o Capítulo 6 no Vol. 1 para uma maior informação sobre os procedimentos e detalhes adicionais das variáveis individuais.)

Para os dados climatológicos procure, na primeira linha do impresso de sistema de terra na Parte 1, o nome da estação meteorológica.

Os dados climatológicos encontram-se registrados na Parte 2 deste *Resumo de Computador e Descrições dos Perfis de Solos dos Sistemas de Terra,* em ordem alfabética, pela localização da estação meteorológica mais próxima. Cada impresso sobre informação climatológica contém dados coletados mensal e anualmente sobre temperatura média, umidade relativa média, porcentagem de brilho solar possível, radiação solar média, precipitação média, evapotranspiração potencial, deficit de precipitação, precipitação confiável e índice de disponibilidade de umidade.

Os códigos para as abreviaturas usadas nas Partes 1 e 2 são encontradas nas páginas 21–29 e 277 deste livro.

A Parte 3 registra uma série de perfis de solos de diferentes fontes, obtidos de uma seleção dos solos principais. Eles estão organizados em ordem numérica por sistema de terra e identificados por faceta de terra. A descrição em inglês vem antes da versão em espanhol

Na *Legenda do Mapa de Sistemas de Terra* (Vol. 2) aparece um resumo de solos nas principais facetas da paisagem do sistema de terra. Estão arranjados por região fisiográfica e em ordem numérica dentro de cada região. A letra maiúscula representa o código para a região fisiográfica. Na *Legenda* as regiões fisiográficas estão registradas em ordem alfabética, *por código.*

PART
PARTE
PARTE

# 1

# Land System Printouts

# Impresos de Sistemas de Tierra

# Impressos dos Sistemas de Terra

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# Glossary of Coding in the Land Systems Printouts

This glossary details the coding used on the computer printouts. Explanations of the criteria used are contained in Chapter 6 of Vol. 1, *Land in Tropical America*.

## Generalized Landscape Information

### *Climate*

The number is the computer reference to the meteorological data set compiled from data taken from the meteorological station at the site named (Hancock et al., 1979). These are the stations either in or nearest to the land systems. A land system distant from a named station occasionally has a climatic code that is different from that deducible from the meteorological data, due to observed differences in the field.

e.g.:

| | | |
|---|---|---|
| 2070 | - | metereological data set number |
| Luziânia | - | metereological station name |

### *Area*

The area in hectares (ha) of the land system, calculated by measurements made from the original 1:1,000,000 maps.

**Physiographic unit number descriptors**

BRAZIL

Central-West Brazil

1 Pratinha surface highlands
2 Pratinha eroded surface highlands
3 Tocantins highlands
4 Araguaia plains
5 Tocantins peneplain
6 Natividade highlands
7 Espigão Mestre sand-covered tablelands
8 Rio São Francisco complex
9 Goiânia peripheral depression
10 Northern basalt tablelands
11 Sand-covered basaltic tablelands
12 Campo Grande tablelands
13 Alcantilados tablelands
14 Xavantina complex
15 Araguaia pampas
16 North Mato Grosso savanna tablelands
17 North Mato Grosso forest tablelands
18 Cuiabá plains
19 Pantanal
20 Serra de Lageado highlands
21 Bodoquena surface
22 North Cuiabá eroded surface
23 Cáceres plains
24 Rio Paraná basin
25 Paracatu

Amazônia

27 Southern Guayana inter-tableland depression
28 Macapá fluviomarine plains
29 Macapá cerrados
30 Amapá flat-topped hills
31 Amapá residual tablelands
32 Northern Pará peripheral depression
33 Amazon-Orinoco interfluvial tablelands
34 Northern Amazonian dissected tablelands
35 Rio Branco Rio Negro peneplain
36 Amazonian low tablelands
37 Amazonian plains
38 Amazonian sedimentary basin tablelands
39 Rio Trombetas-Rio Negro dissected tablelands
40 Tapajós-Xingú tablelands
41 Southern Pará dissected tablelands
42 Pará-Maranhão tablelands
43 Middle Tocantins ortoclinal depression
44 Southern Pará peripheral depression
45 Cachimbo sierras and high plains
46 Tapajós residual tablelands
47 Rio Acre-Rio Javari depression
48 Guaporé residual tablelands
49 Dissected southern Amazonian tablelands
50 Mid-Amazonian depression
51 Central-Western Brazilian peneplain

PERU ECUADOR

101 Ecuadorian Amazonian clayey hills
102 Ecuadorian foothill fans
103 Peruvian-Ecuadorian sub-Andean foothills
104 Well-drained Amazonian plains
105 Poorly drained Amazonian plains
106 Low hills of the southern Peruvian Amazon
107 Southern Peruvian Amazonian plains
108 Piedmont
109 Intermontane valleys
110 Recent alluvial lands

COLOMBIA

151 Flat, well-drained savannas *(altillanuras)*
152 Undulating to hilly savannas *(altillanuras)*
153 Fluvial terraces
154 Piedmont
155 Old flood plains
156 Forest-covered plains
157 Piedmont forest lands
158 Hilly forest lands
159 Flooded forest lands
160 Recent alluvial lands

VENEZUELA

201 Andean foothills
202 Coastal mountain belt
203 Piedmont and well-drained western plains
204 Poorly drained western plains
205 Central rolling plains
206 Eastern plains
207 Poorly drained delta region
208 Guyana shield region
209 Alluvial deposits of the Orinoco river system

BOLIVIA

251 Sub-Andean foothills
252 Sub-Andean plains
253 Pampas (savannas) of Mojos
254 Brazilian shield
255 Pando tertiary plains
256 Guayamerin plains
257 Santa Cruz plains
258 North Brazilian shield plains
259 Chiquitana mountain range
260 Chaco plains

## Altitude

An approximation of the altitude in meters (m) of the major part of the land system.

## Physiographic Unit Number

A number assigned to locally recognized physiographic subdivisions of the physiographic regions. [These codes are not the same as those coded A to R on the Land Systems Map which identify broad physiographic regions.] (See codes on preceding page.)

## Generalized Classification

A quick and approximate description of the overall landscape of a land system. Listed in the order:

Altitude
Drainage
Slope
Vegetation

## Distance between Perennial Streams

In kilometers (km). Provides additional information on hydrology of the landscape and year-round water availability for livestock.

## Depth of Wells, Main Land Facet

In meters (m). The approximate depth of wells used by inhabitants for year-round drinking water; and some additional information on hydrology of the predominant land surfaces.

# Landform Diagram Information

Subdivision of landscape into facets The vegetation code used on the landform diagrams.

**Landform diagram descriptors**

| | |
|---|---|
| = | Seasonally inundated *pampas* (grasslands) |
| = | *Campo limpo + campo sujo* (grassland on well-drained lands with occasional shrubs) |
| = | *Campo cerrado* (open savanna) |
| = | *Cerrado* (intermediate savanna) |
| = | *Cerradão* (closed savanna) |
| = | Tropical rain forest |
| = | Semi-evergreen seasonal forest |
| = | (Semi-)deciduous seasonal forest |
| = | Caatinga (scrubby xerophillic woodland) |
| = | Palm forest |
| = | Other vegetation |

# Landscape Facet Information

## General Description

The general description of the landform.

**Landform descriptors**

| | |
|---|---|
| A | plateau |
| B | valley bottom |
| C | rolling terrain, slopes < 30% |
| D | depression |
| E | escarpment |
| M | hilly terrain, slopes >30% |
| N | concave sloping terrain |
| O | others[a] |
| P | plain |
| R | crest |
| T | terrace |
| V | valley |
| X | convex sloping terrain |

a. Recorded on original coding formats on file at CIAT.

## Percentage of Land System (L.S.)

Percentage of the area in a land system comprised by the land facet. Estimated during the delineation of the land systems on the original satellite or side-looking radar imagery. (Land systems were the smallest mapping units.)

## Topographic Classification (CLASS.)

Percentage of the land facet in each of four topography classes, chosen to provide a practical guide to topographic differences four use in estimating costs of mechanization.

**Topographic descriptors**

| | | Land Systems Map pattern codes |
|---|---|---|
| FLAT POOR DRAIN | flat, soils with poor drainage | |
| <8% | <8%, well-drained soils almost flat, slopes | |
| 8–30% | undulating to rolling, slopes 8–30% | |
| >30% | hilly to steep, slopes > 30% | |

## Altitude in Meters (m)

The approximate media altitude of each land facet.

## Original Vegetation Classification (CLASS.)

Probable percentage of the land facet in each of 10 broad physiognomic vegetation classes. Determined from the original satellite imagery.

### Vegetation descriptors

| | | Land Systems Map color codes |
|---|---|---|
| SEAS.IN.P. | seasonally inundated *pampas* [poorly drained savannas] | grey |
| CL + CS | *campo limpo* (grassland) and *campo sujo* (grassland with occasional shrubs)[a] [well-drained savannas] | red |
| CC | *campo cerrado* (open savanna)[a] [well-drained savannas] | red |
| C | *cerrado* (intermediate savanna)[a] [well-drained savannas] | red |
| CD | *cerradão* (closed savanna with almost continuous forest canopy)[a] [well-drained savannas] | red |
| TRF | tropical rain forest[b] | forest green |
| SESF | semi-evergreen seasonal forest[b] | yellow green |
| SDSF | (semi-)deciduous seasonal forest[b] | brown |
| CAAT | caatinga (scrubby woodland with some savanna species)[c] | yellow |
| OTHER | other vegetation | blue-green and violet |

a. Brazilian terms commonly used to clarify savanna vegetation (Eiten, 1972).
b. Terms used to classify well-drained forests (Eyre, 1968).
c. Defined by Eiten, 1972.

## *Induced Vegetation*

Approximate percentage of two types of induced vegetation in each land facet:

PASTURES
CROPS

Estimated from original satellite imagery over 4-year period (1977–1981); can be used as guide to overall magnitude of land usage during that period.

# Soil Classification

According to U.S. Soil Taxonomy (Soil Survey Staff, 1975). As explained in Chapter 2 of the book, *Land in Tropical America*, the code is accumulative:

| | | |
|---|---|---|
| Orders | O | Oxisol |
| Suborders | OUS | Ustox |
| Great Group | OUSAC | Acrustox |

### Soil classification descriptors

| Order | | Suborder | | Great Group |
|---|---|---|---|---|
| Alfisols | A | Aqualfs | AQ | Natraqualfs<br>Tropaqualfs |
| | | Udalfs | UD | Hapludalfs<br>Rhodudalfs<br>Tropudalfs |
| | | Ustalfs | US | Paleustalfs<br>Rhodustalfs<br>Haplustalfs<br>Natrustalfs<br>Tropustalfs |
| | | Xeralfs | XE | Haploxeralfs |
| Aridisols | D | Orthids | OR | Camborthids |
| Entisols | E | Aquents | AQ | Fluvaquents<br>Haplaquents<br>Hydraquents<br>Psammaquents<br>Tropaquents |
| | | Fluvents | FL | Tropofluvents<br>Ustifluvents<br>Xerofluvents |
| | | Orthents | OR | Troporthents<br>Ustorthents |
| | | Psamments | PS | Quartzipsamments<br>Tropopsamments<br>Ustipsamments |
| Inceptisols | I | Andepts | AN | Dystrandepts<br>Hydrandepts |
| | | Aquepts | AQ | Haplaquepts<br>Humaquepts |

Continued

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Continued

| Order | | Suborder | | Great Group |
|---|---|---|---|---|
| | | | | Plinthaquepts |
| | | | | Sulfaquepts |
| | | | | Tropaquepts |
| | | Tropepts | TR | Dystropepts |
| | | | | Eutropepts |
| | | | | Ustropepts |
| Mollisols | M | Aquolls | AQ | Haplaquolls |
| | | Udolls | UD | Arqiudolls |
| | | | US | Haplustolls |
| Oxisols | O | Aquox | AQ | Plinthaquox |
| | | Orthox | OR | Acrorthox |
| | | | | Eutrorthox |
| | | | | Haplorthox |
| | | | | Umbriorthox |
| | | Ustox | US | Acrustox |
| | | | | Eutrustox |
| | | | | Haplustox |
| Spodosols | S | Aquods | AQ | Tropaquods |
| Ultisols | U | Aquults | AQ | Albaquults |
| | | | | Paleaquults |
| | | | | Plinthalquults |
| | | | | Tropaquults |
| | | Udults | UD | Hapludults |
| | | | | Paleudults |
| | | | | Plinthudults |
| | | | | Rhodudults |
| | | | | Tropodults |
| | | Ustults | US | Haplustults |
| | | | | Paleustults |
| | | | | Rhodustults |
| Vertisols | V | Uderts | UD | Chromuderts |

# Soil Physical Properties

Descriptions of 11 variables.

**Slope.** In percentages. Parallel to the three topographic classes with slopes.

### Slope descriptors

| | | -%- |
|---|---|---|
| A | *alto*, high | >30 |
| M | medium | 8–30 |
| B | *bajo*, low | < 8 |

**Depth.** In centimeters. Measure of depth of soil where there are no physical inhibitions to roots, including bedrock, hardpans, or water tables.

### Depth descriptors

| | | -cm- |
|---|---|---|
| L | lithic | <20 |
| S | superficial | 20–50 |
| M | medium | 51–150 |
| P | *profundo*, deep | >150 |

**Initial infiltration rate (INIT. INFIL. RATE).** Ability of a mulched soil to absorb water during the first hour of rainfall (after the upper 50 cm has dried out). This rating expresses the potential of a soil to absorb rain water at the start of a wet season or during a dry period of the year, rather than losing it as runoff. For soils on slopes, it reflects a certain predisposition to erosion. This is the authors' "value judgment" rather than a quantitative measure.

### Initial infiltration rate descriptors

| | |
|---|---|
| A | *alto*, high |
| M | medium |
| B | *bajo*, low |

**Hydraulic conductivity (HYDRAUL. CONDUCT.).** Ability of soil to continue absorbing water over a prolonged period of time. This description is important in regions with high rainfall where some soils, such as the Alfisols and Ultisols in plains areas, may become waterlogged. A "value judgment" rather than a quantitative measure.

### Hydraulic conductivity descriptors

| | |
|---|---|
| A | *alto*, high |
| M | medium |
| B | *bajo*, low |

**Drainage.** Amount of waterlogging, or the occurrence of anaerobic conditions. Generally, waterlogging implies the long-term presence of a water table within 60 cm of the soil surface; it may also refer to annual flooding.

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### Drainage descriptors

| | | |
|---|---|---|
| B | *bueno*, good | insignificant amount of waterlogging |
| D | deficient | some waterlogging of importance to the growth of susceptible plants |
| G[a] | gleyey, poor | waterlogging to the extent that all but very water-tolerant plants are seriously affected |

a. See Fertility Capability Classification (Buol et al., 1975): g = gley condition within 60 cm of soil surface, as indication of water saturation. Also parallel to Aquic soil moisture regime definition in U.S. Soil Taxonomy (Soil Survey Staff, 1975).

**Moisture-holding capacity (MOIST. HOLD. CAP.).** In mm/100 cm soil depth.

### Moisture-holding capacity descriptors

| | | -mm/100 cm soil- |
|---|---|---|
| A | *alto*, high | >150 |
| M | medium | 75–150 |
| B | *bajo*, low | < 75 |

**Temperature regime (TEMP. REGIME).** Classified according to U.S. Soil Taxonomy (Soil Survey Staff, 1975).

### Temperature regime descriptors

| | | Mean annual temperature | Temperature variation[a] |
|---|---|---|---|
| | | -°C- | °C- |
| H | hyperthermic | > 22 | > 5 |
| T | thermic | 15–22 | > 5 |
| S | isohyperthermic | > 22 | < 5 |
| I | isothermic | 15–22 | < 5 |

a. The temperature variation is that between the three hottest months and the three coolest months of the year at a soil depth of 50 cm.

**Moisture regime (MOIST. REGIME).** In number of consecutive months. Approximate classifications according to U.S. Soil Taxonomy (Soil Survey Staff, 1975). Because it is rarely possible to obtain measured figures for these regimes, the subdivisions were based on monthly water balance figures calculated by Hargreaves' method (1971). This defines a dry month as one with an MAI (moisture availability index) of less than 0.34 [see Chapter 3 in Vol. 1 of *Land in Tropical America*]. The moisture-holding capacity of the soil was considered in marginal cases.

### Moisture regime descriptors

| | | Soil Taxonomy classification | FCC condition[a] | MAI < 0.34 |
|---|---|---|---|---|
| | | | | -no. consec. mos.- |
| U | udic | Aquic, Udic | | < 3 |
| SD | ustic | Ustic | d | 3–6 |
| XD | xeric | Aridic, Torric, Xeric | d | > 6 |

a. See Fertility Capability Classification (Buol et al., 1975): d = annual dry season of 60 days.

**Expanding clays.** Describes soils with significant amounts of expanding clays, particularly montmorillimite.

### Expanding clays descriptors

| | |
|---|---|
| V[a] | soils with > 35% clay with 50% of this clay 2:1 expanding clays; coefficient of linear expansion > 0.09 |
| O | less than V |

a. See Fertility Capability Classification (Buol et al., 1975): v = vertic.

**Texture.** In both topsoil (first letter) and subsoil (second letter). Topsoil = 0–20 cm depth; subsoil = 21–50 cm depth. Defined according to Fertility Capability Classification (Boul et al., 1975).

### Texture descriptors

| | | |
|---|---|---|
| C | clayey | > 35% clay |
| L | loamy | < 35% clay, but not loamy sand or sand |
| S | sandy | loamy sand and sand |
| R | rocky | rocks or other root-restricting layer |
| O | organic | > 30% organic matter to a depth of 50 cm or more (coded with topsoil texture for convenience) |

**Coarse material.** Percentage of presence of rock particles greater than 2 mm in diameter. In both topsoil (first letter) and subsoil (second letter). Topsoil = 0–20 cm depth; subsoil = 21–50 cm depth.

### Coarse material descriptors

| | | -%- |
|---|---|---|
| A | *alto*, high | > 35 |
| M | medium | 15–35 |
| B | *bajo*, low | < 15 |

# Soil Chemical Properties

Descriptions of both topsoil (first letter = 0–20 cm depth) and subsoil (second letter = 21–50 cm depth) for first 11 variables, and in the topsoil and subsoil combined for second 12 variables. The last variable is topsoil only.

**pH.** In water, 1:1 soil to water ratio.

### pH descriptors

| | | |
|---|---|---|
| A | *alto*, high | > 7.3 |
| M | medium | 5.3–7.3 |
| H[a] | low | < 5.3 |

a. Approximates Fertility Capability Classification (Buol et al., 1975): h = acid.

**Aluminum (Al) saturation.** Percentage of Al saturation of the ECEC (effective cation-exchange capacity).

### Al saturation descriptors

| | | -%- |
|---|---|---|
| A[a] | very high | > 70 |
| H | high | 40–70 |
| M | medium | 10–40 |
| B | *bajo*, low | < 10 |
| U | unknown | |

a. See Fertility Capability Classification (Buol et al., 1975): a = Al toxic.

**Exchangeable aluminum (Al).** In meq/100 g soil, 1*N* KCl extraction.

### Exchangeable Al descriptors

| | | -meq/100 g soil- |
|---|---|---|
| A | *alto*, high | >1.5 |
| M | medium | 0.5–1.5 |
| B | *bajo*, low | <0.5 |
| U | unknown | |

**Exchangeable calcium (Ca).** In meq/100 g soil, 1*N* KCl extraction.

### Exchangeable Ca descriptors

| | | -meq/100 g soil- |
|---|---|---|
| A | *alto*, high | >4.0 |
| M | medium | 0.4–4.0 |
| B | *bajo*, low | <0.4 |
| U | unknown | |

**Exchangeable magnesium (Mg).** In meq/100 g soil, 1*N* KCl extraction.

### Exchangeable Mg descriptors

| | | -meq/100 g soil- |
|---|---|---|
| A | *alto*, high | >0.8 |
| M | medium | 0.2–0.8 |
| B | *bajo*, low | <0.2 |
| U | unknown | |

**Exchangeable potassium (K).** In meq/100 g soil, 1*N* $NH_4Cl$ extraction.

### Exchangeable K descriptors

| | | -meq/100 g soil- |
|---|---|---|
| A | *alto*, high | >0.3 |
| M | medium | 0.15–0.3 |
| K[a] | low | <0.15 |
| U | unknown | |

a. Approximates Fertility Capability Classification (Buol et al., 1975): k = K deficient.

**Exchangeable sodium (Na).** In meq/100 soil, 1*N* KCl extraction.

### Exchangeable Na descriptors

| | | -meq/100 g soil- |
|---|---|---|
| A | *alto*, high | >0.2 |
| M | medium | 0.1–0.2 |
| B | *bajo*, low | <0.1 |
| U | unknown | |

**Total exchangeable bases (TOTAL EXCH. BASES).** In meq/100 g soil.

### Total exchangeable bases descriptors

| | | -meq/100 g soil- |
|---|---|---|
| A | *alto*, high | >6 |
| M | medium | 2–6 |
| B | *bajo*, low | <2 |
| U | unknown | |

**Effective cation-exchange capacity (CATION EXCH. CAPAC.).** In meq/100 g soil.

### ECEC descriptors

| | | -meq/100 g soil- |
|---|---|---|
| A | *alto*, high | >8 |
| M | medium | 4–8 |
| E[a] | low | <4 |
| U | unknown | |

a. Approximates Fertility Capability Classification (Buol et al., 1975): e = low ECEC.

**Percentage of (%) organic matter.** In meq/100 g soil.

### Organic matter descriptors

| | | -meq/100 g soil- |
|---|---|---|
| A | *alto*, high | >4.5 |
| M | medium | 1.5–4.5 |
| B | *bajo*, low | <1.5 |
| U | unknown | |

**Phosphorus.** In ppm, by Bray II method (Bray and Kurtz, 1945).

### P descriptors

| | | -ppm- |
|---|---|---|
| A | *alto*, high | >7 |
| M | medium | 3–7 |
| B | *bajo*, low | <3 |
| U | unknown | |

**Phosphorus fixation.** Possibility of P fixation.

### P fixation descriptors

| | | |
|---|---|---|
| I[a] | significant | soils with >35% clay, ratio of % free $Fe_2O_3$ to % clay = 0:15 |
| O | insignificant | less than above |
| U | unknown | |

a. See Fertility Capability Classification (Buol et al., 1975): i = P fixation.

**Manganese.** In ppm, 1*N* KCl extraction.

### Mn descriptors

| | | -ppm- |
|---|---|---|
| B | *bajo*, low | <8 |
| S | satisfactory | 8-35 |
| T | toxic | >35 |
| U | unknown | |

**Sulphur.** According to agronomic tests. A "value judgment" rather than a quantitative measure.

### S descriptors

| | |
|---|---|
| A | *alto*, high |
| S | satisfactory |
| B | *bajo*, low |
| U | unknown |

**Zinc.** In ppm, 1*N* KCl extraction.

**Zn descriptors**

| | | -ppm- |
|---|---|---|
| B | *bajo*, low | < 1.5 |
| S | satisfactory | > 1.5 |
| U | unknown | |

**Iron.** In ppm, 1*N* KCl extraction.

**Fe descriptors**

| | | -ppm- |
|---|---|---|
| A | *alto*, high | > 80 |
| S | satisfactory | 10–80 |
| B | *bajo*, low | < 10 |
| U | unknown | |

**Copper.** In ppm, 1*N* KCl extraction.

**Cu descriptors**

| | | -ppm- |
|---|---|---|
| B | *bajo*, low | < 0.15 |
| S | satisfactory | > 0.15 |
| U | unknown | |

**Boron.** In ppm, extraction by refluxing soil with boiling water for 10 minutes.

**B descriptors**

| | | -ppm- |
|---|---|---|
| B | *bajo*, low | < 0.3 |
| S | satisfactory | > 0.3 |
| U | unknown | |

**Molybdenum.** In ppm, 1*N* KCl extraction.

**Mo descriptors**

| | | -ppm- |
|---|---|---|
| B | *bajo*, low | < 0.5 |
| S | satisfactory | > 0.5 |
| U | unknown | |

**Free carbonates.** Observation after treatment of (mini)samples to 50-cm depth with 30% HCl.

**Free carbonate descriptors**

| | |
|---|---|
| A | no $CO_2$ effervescence |
| B[a] | $CO_2$ effervescence |
| U | unknown |

a. See Fertility Capability Classification (Buol et al., 1975): b = basic reaction.

**Salinity.** In mmhos, salinity of saturated extract of soil samples to 1-meter depth. Levels according to U.S. Soil Salinity Laboratory Staff (1954).

**Salinity descriptors**

| | | -mmhos- |
|---|---|---|
| B | *bajo*, low | 0–4 |
| S[a] | saline | > 4 |
| U | unknown | |

a. See Fertility Capability Classification (Buol et al., 1975): s = saline.

**Natric.** In percentages (%), natric saturation of CEC to 50-cm soil depth. Levels according to U.S. Soil Salinity Laboratory Staff (1954).

**Natric descriptors**

| | | % |
|---|---|---|
| B | *bajo*, low | 0–15 |
| N[a] | natric | > 15 |
| U | unknown | |

a. See Fertility Capability Classification (Buol et al., 1975): n = natric.

**Cat clay.** Presence or absence of acid sulphate clay in soil to 60-cm depth. Defined as cat clay when pH in 1:1 soil-to-water extract is > 3.5 after drying soil, or when contains jarosite mottles with hues 2.5Y or yellower and chromas 6 or more.

**Cat clay descriptors**

| | |
|---|---|
| C[a] | cat clay present |
| N | no cat clay |
| U | unknown |

a. See Fertility Capability Classification (Buol et al., 1975): c = cat clay.

**X-ray amorphous.** In the topsoil. Defined as > 35% clay and pH > 10 in 1*N* NaF extraction, or positive to field NaF test or other indirect evidence of allophane dominance in clay fraction.

**X-ray amorphous descriptors**

| | |
|---|---|
| N | not x-ray amorphous |
| X[a] | x-ray amorphous |
| U | unknown |

a. See Fertility Capability Classification (Buol et al., 1975): x = x-ray amorphous.

# Elements of Importance mainly to Animal Nutrition

Summarized from studies related to the various elements. Include:

| | |
|---|---|
| CO | Cobalt (Co) |
| I | Iodine (I) |
| SE | Selenium (Se) |
| CR | Chromium (Cr) |
| NI | Nickel (Ni) |
| Others | |

**Descriptors for elements important in animal nutrition**

| | |
|---|---|
| D | deficient |
| S | satisfactory |
| U | unknown |

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# Fertility Capability Classification

**Type and substrata types.** Same as used in Texture coding.

**Modifiers.** According to Fertility Capability Classification (Buol et al., 1975), except in all capitals rather than lower-case letters.

**FCC descriptors[a]**

| | |
|---|---|
| a | Al toxic |
| b | free carbonates basic reaction |
| c | cat clay |
| d | dry |
| e | low ECEC |
| g | gleyey |
| h | acidic |
| i | low P fixation |
| k | K deficient |
| n | natric |
| s | salinity |
| v | vertic, Vertisol |
| x | x-ray amorphous |

a. These descriptions differ somewhat from those in Buol et al., 1975. Letters corresponding to the FCC system were used when the definition approximated that in Buol et al.

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# Glosario de Codificación en los Impresos de Sistemas de Tierra

Este glosario detalla la codificación usada en los impresos de computador. Las explicaciones a los criterios empleados aparecen en el Capítulo 6 del Volumen 1, *La Tierra en América Tropical.*

## Descriptores de números de unidades fisiográficas

BRASIL
Oeste-Central de Brasil

1 Tierras altas de la superficie de Pratinha
2 Tierras altas erosionadas de la superficie de Pratinha
3 Tierras altas de Tocantins
4 Llanos do Araguaia
5 Penillanuras de Tocantins
6 Tierras altas de Natividade
7 Mesetas cubiertas de arena do Espigão Mestre
8 Complejo del Río São Francisco
9 Depresión periférica de la Guayana
10 Mesetas de basalto del norte
11 Mesetas basálticas cubiertas de arena
12 Mesetas de Campo Grande
13 Mesetas de Acantilados
14 Complejo de Xavantina
15 Pampas de Araguaia
16 Mesetas de sabana del norte del Mato Grosso
17 Mesetas con bosque del norte del Mato Grosso
18 Llanos de Cuiabá
19 Pantanal
20 Tierras altas de Serra do Lageado
21 Superficie de Bodoquena
22 Superficie erosionada del norte de Cuiabá
23 Llanos de Cáceres
24 Cuenca del Río Paraná
25 Paracatu

Amazonia
27 Depresión entre mesetas al sur de la Guayana
28 Planicies fluviomarinas de Macapá
29 Cerrados de Macapá
30 Colinas de cima plana de Amapá
31 Mesetas residuales de Amapá
32 Depresión periférica del norte de Pará
33 Mesetas interfluviales Amazonas-Orinoco
34 Mesetas desecadas al norte de la Amazonía
35 Penillanuras del Río Blanco-Río Negro
36 Mesetas bajas de la Amazonía
37 Llanuras amazónicas
38 Mesetas de la cuenca sedimentaria amazónica
39 Mesetas desecadas del Río Trombetas-Río Negro
40 Mesetas de Tapajós-Xingú
41 Mesetas desecadas del sur de Pará
42 Mesetas de Pará-Maranhão
43 Depresión ortoclinal de Tocantins medio
44 Depresión periférica del sur de Pará
45 Planicies altas y sierras de Cachimbo
46 Mesetas residuales de Tapajós
47 Depresión Río Acre-Río Javari
48 Mesetas residuales de Guaporé
49 Mesetas desecadas al sur de la Amazonía
50 Depresión de la Amazonía media
51 Penillanuras de Brasil Oeste-Central

PERU, ECUADOR
101 Colinas arcillosas de la Amazonía ecuatoriana
102 Abanicos de piedemonte ecuatoriano
103 Estribaciones sub-andinas peruano-ecuatorianas
104 Llanuras amazónicas bien drenadas
105 Llanuras amazónicas pobremente drenadas
106 Colinas bajas del sur de la Amazonía peruana
107 Llanuras amazónicas del sur del Perú
108 Piedemonte
109 Valles intermontañosos
110 Tierra aluvial reciente

COLOMBIA
151 Sabanas planas y bien drenadas (altillanuras)
152 Sabanas onduladas o montañosas (altillanuras)
153 Terrazas fluviales
154 Piedemonte
155 Llanuras antiguas inundadas
156 Llanuras cubiertas de bosque
157 Bosques del piedemonte
158 Bosques montañosos
159 Bosques inundados
160 Tierras aluviales recientes

VENEZUELA
201 Piedemonte andino
202 Cinturón costero montañoso
203 Llanuras bien drenadas del occidente y del piedemonte
204 Llanuras mal drenadas del occidente
205 Llanuras onduladas centrales
206 Llanuras orientales
207 Región delta mal drenada
208 Región del escudo Guayanés
209 Depósitos aluviales del sistema del Río Orinoco

BOLIVIA
251 Piedemonte sub-andino
252 Llanuras subandinas
253 Pampas de Mojos
254 Escudo Brasilero
255 Llanuras terciarias del Pando
256 Llanuras de Guayamerin
257 Llanuras de Santa Cruz
258 Llanuras del norte del escudo Brasilero
259 Cordilleras de Chiquitana
260 Llanuras del Chaco

# Información Generalizada sobre el Paisaje

## *CLIMATE*
## *Clima*

El número es la referencia de computador para el conjunto de datos meteorológicos compilados a partir de la información tomada de la estación meteorológica en el lugar nombrado (Hancock et al., 1979). Estas son las estaciones ubicadas en, o las más cercanas a los sistemas de tierra. Un sistema de tierra distante de una estación meteorológica citada ocasionalmente posee un código climatológico diferente del deducible de la estación meteorológica debido a las diferencias observadas en el campo.

Ej:

| | |
|---|---|
| 2070 | número del grupo de datos meteorológicos |
| Luziânia | nombre de la estación meteorológica |

## *AREA*
## *Area*

El área del sistema de tierra en hectáreas (ha) calculada por medio de las medidas tomadas de los mapas originales 1:1,000,000.

## *ALTITUDE*
## *Altitud*

Una aproximación en metros (m) de la altitud de la mayor parte del sistema de tierra.

## *PHYSIOGRAPHIC UNIT NO.*
## *Número de Unidades Fisiográficas*

Un número asignado a las subdivisiones fisiográficas localmente reconocidas dentro de las regiones fisiográficas. [Estos códigos no son los mismos que se han codificado de la A a la R en el Mapa de Sistemas de Tierra los cuales identifican a las regiones fisiográficas extensas.] (Ver los códigos en la página anterior.)

## *GENERALIZED CLASSIFICATION*
## *Clasificación Generalizada*

Una descripción rápida y aproximada de todo el paisaje del sistema de tierra. Registrada en el siguiente orden:

Altitud
Drenaje
Pendiente
Vegetación

## *DISTANCE BETWEEN PERENNIAL STREAMS*
## *Distancia entre Arroyos Perennes*

En kilómetros (km). Ofrece información adicional sobre la hidrología del paisaje y la disponibilidad de agua para el ganado durante todo el año.

## *DEPTH OF WELLS, MAIN LAND FACET*
## *Profundidad de los Pozos, Faceta Principal*

En metros (m). La profundidad aproximada de los pozos de agua potable usados por los habitantes durante el año y alguna información adicional sobre la hidrología de las superficies de tierra predominantes.

# LANDFORM DIAGRAM
# Información sobre el Diagrama de la Forma de la Tierra

Subdivisión del paisaje en facetas. Código usado para la vegetación en los diagramas de la forma de la tierra.

### Descriptores de los diagramas de la forma de la tierra

| | | |
|---|---|---|
| ⧺ | | Pampas con inundación temporal (pastizales) |
| ⧺ | | *Campo limpo* + *campo sujo* (pastizales en sabanas bien drenadas con arbustos ocasionales) |
| ⧺♀ | | *Campo cerrado* (sabana abierta) |
| ♀ | | *Cerrado* (sabana intermedia) |
| ♀ | = | *Cerradão* (sabana cerrada) |
| ♠ | = | Bosque tropical lluvioso |
| ♠ | = | Bosque estacional semi-siempre verde |
| ♠ | | Bosque estacional (semi-)deciduo |
| ψ | | Caatinga (bosque bajo de arbustos xerofíticos) |
| ♠ | = | Bosque de palmas |
| ♠ | = | Otra vegetación |

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# LANDSCAPE FACETS
# Información sobre las Facetas del Paisaje

## *GENERAL DESCRIPTION*
## *Descripción General*

Descripción general de la forma de la tierra.

**Descriptores de la forma de la tierra**

| | |
|---|---|
| A | meseta |
| B | fondo de valle |
| C | terreno ondulado, pendientes < 30% |
| D | depresión |
| E | escarpa |
| M | terrenos con colinas, pendientes > 30% |
| N | terreno con pendientes cóncavas |
| O | otros[a] |
| P | llanura |
| R | cima |
| T | terraza |
| V | valle |
| X | terreno con pendientes convexas |

a. Registrados en los formatos originales de codificación en los archivos del CIAT.

## *PERCENTAGE OF LAND SYSTEMS (L.S.)*
## *Porcentaje de los Sistemas de Tierra*

Porcentaje del área comprendida por la faceta de tierra en el sistema de tierra. Estos porcentajes se estimaron durante la demarcación del sistema de tierra en las imágenes originales de satélite o radar inclinado. (Los sistemas de tierra fueron las unidades de mapeo más pequeñas.)

## *TOPOGRAPHIC CLASSIFICATION (CLASS.)*
## *Clasificación Topográfica*

Porcentaje de la faceta de la tierra en cada una de las cuatro clases topográficas seleccionadas para proporcionar una guía práctica para las diferencias topográficas al utilizarlas en la estimación de costos de mecanización

**Descriptores topográficos**

| | | Códigos de tramas en el Mapa de Sistemas de Tierra |
|---|---|---|
| FLAT POOR DRAIN. | plano, suelos con mal drenaje | |
| <8% | suelos casi planos, con pendientes < 8%, predominantemente bien drenados | |
| 8-30% | terreno ondulante, pendientes de 8-30% | |
| > 30% | entre colinas y montañas, pendientes > 30% | |

## *ALTITUDE IN m*
## *Altitud en m*

La altitud media aproximada de cada faceta de tierra.

## *ORIGINAL VEGETATION CLASS.*
## *Clasificación de la Vegetación Original*

Porcentaje probable de la faceta de tierra en cada una de las 10 clases fisionómicas extensas de vegetación. Se determinaron a partir de las imágenes originales de satélite.

**Descriptores de la vegetación**

| | | Códigos de color en el Mapa de Sistemas de Tierra |
|---|---|---|
| SEAS.IN.P. | Pampas con inundación estacional (pastizales) [sabanas mal drenadas] | gris |
| CL + CS | *campo limpo* (pastizales) + *campo sujo* (pastizales con arbustos ocasionales)[a] [sabanas bien drenadas] | rojo |
| CC | campo cerrado (sabana abierta)[a] [sabanas bien drenadas] | rojo |
| C | *cerrado* (sabana intermedia)[a] [sabanas bien drenadas] | rojo |
| CD | *cerradão* (sabana cerrada con cobertura de bosque casi continua)[a] [sabanas bien drenadas] | rojo |
| TRF | bosque lluvioso tropical[b] | verde |
| SESF | bosque estacional semi-siempre verde[b] | |
| SDSF | bosque estacional (semi-) deciduo[b] | café |
| CAAT | caatinga (bosque con arbustos con algunas especies de sabana)[c] | amarillo |
| OTHER | otra vegetación | verde-azul y violeta |

a. Términos brasileros usados comunmente para definir la vegetación de sabana (Eiten, 1972).
b. Términos usados para clasificar los bosques bien drenados (Eyre, 1968).
c. Definición de Eiten, 1972.

## *INDUCED VEGETATION*
## *Vegetación Inducida*

Porcentaje aproximado de dos tipos de vegetación inducida en cada faceta de tierra:

| | |
|---|---|
| PASTURES | pastos |
| CROPS | cultivos |

Estimados a partir de la imagen original de satélite durante un periodo de 4 años (1977–1981); puede utilizarse como guía de la magnitud general del uso de la tierra durante ese período.

## *SOIL CLASSIFICATION*
# Clasificación de Suelos

Clasificados de acuerdo con la Taxonomía de Suelos de los Estados Unidos (Soil Survey Staff, 1975). Como se explica en el Capítulo 2 del libro *La Tierra en América Tropical*, el código es acumulativo:

| | | |
|---|---|---|
| Ordenes | O | Oxisol |
| Subórdenes | OUS | Ustox |
| Grupo Grande | OUSAC | Acrustox |

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## Descriptores de la clasificación de suelos

| Orden | | Suborden | | Gran Grupo | |
|---|---|---|---|---|---|
| Alfisols | A | Aqualfs | AQ | Natraqualfs | NA |
| | | | | Tropaqualfs | TR |
| | | Udalfs | UD | Hapludalfs | HA |
| | | | | Rhodudalfs | RH |
| | | | | Tropudalfs | TR |
| | | Ustalfs | US | Paleustalfs | PA |
| | | | | Haplustalfs | HA |
| | | | | Natrustalfs | NA |
| | | | | Rhodustalfs | RH |
| | | | | Tropustalfs | TR |
| | | Xeralfs | XE | Haploxeralfs | HA |
| Aridisols | D | Orthids | OR | Camborthids | CM |
| Entisols | E | Aquents | AQ | Fluvaquents | FL |
| | | | | Haplaquents | HA |
| | | | | Hydraquents | HY |
| | | | | Psammaquents | PS |
| | | | | Tropaquents | TR |
| | | Fluvents | FL | Tropofluvents | TR |
| | | | | Ustifluvents | US |
| | | | | Xerofluvents | XE |
| | | Orthents | OR | Troporthents | TR |
| | | | | Ustorthents | US |
| | | Psamments | PS | Quartzipsamments | QU |
| | | | | Tropopsamments | TR |
| | | | | Ustipsamments | US |
| Inceptisols | I | Andepts | AN | Dystrandepts | DY |
| | | | | Hydrandepts | HY |
| | | Aquepts | AQ | Haplaquepts | HA |
| | | | | Humaquepts | HU |
| | | | | Plinthaquepts | PL |
| | | | | Sulfaquepts | SU |
| | | | | Tropaquepts | TR |
| | | Tropepts | TR | Dystropepts | DY |
| | | | | Eutropepts | EU |
| | | | | Ustropepts | US |
| Mollisols | M | Aquolls | AQ | Haplaquolls | HA |
| | | Udolls | UD | Arqiudolls | AR |
| | | | US | Haplustolls | HA |
| Oxisols | O | Aquox | AQ | Plinthaquox | PL |
| | | Orthox | OR | Acrorthox | AC |
| | | | | Eutrorthox | EU |
| | | | | Haplorthox | HA |
| | | | | Umbriorthox | UM |
| | | Ustox | US | Acrustox | AC |
| | | | | Eutrustox | EU |
| | | | | Haplustox | HA |
| Spodosols | S | Aquods | AQ | Tropaquods | TR |
| Ultisols | U | Aquults | AQ | Albaquults | AL |
| | | | | Paleaquults | PA |
| | | | | Plinthalquults | PL |
| | | | | Tropaquults | TR |
| | | | | Hapludults | HA |
| | | Udults | UD | Paleudults | PA |
| | | | | Plinthudults | PL |
| | | | | Rhodudults | RH |
| | | | | Tropodults | TR |
| | | Ustults | US | Haplustults | HA |
| | | | | Paleustults | PA |
| | | | | Rhodustults | RH |
| Vertisols | V | Uderts | UD | Chromuderts | CH |

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*SOIL PHYSICAL PROPERTIES*

# Propiedades Físicas del Suelo

Descripción de 11 variables.

## SLOPE

**Pendiente.** En porcentajes semejantes a las tres clases topográficas con pendientes.

### Descriptores de pendiente

| | | -%- |
|---|---|---|
| A | alto | >30 |
| M | medio | 8-30 |
| B | bajo | < 8 |

## DEPTH

**Profundidad.** En centímetros. Medida de la profundidad del suelo donde no hay impedimentos físicos para el crecimiento de raíces, incluyendo la roca madre, las capas endurecidas o la capa freática.

### Descriptores de profundidad

| | | -cm- |
|---|---|---|
| L | lítico | < 20 |
| S | superficial | 20-50 |
| M | mediano | 51-150 |
| P | profundo | >150 |

## INIT. INFILT. RATE

**Tasa de infiltración inicial.** Capacidad de suelos con cobertura de residuos vegetales para absorber agua durante la primera hora de lluvia (después que los 50 cm superiores se han secado). Esta clasificación expresa el potencial del suelo para absorber agua de lluvia al principio de la estación lluviosa, o durante un periodo seco del año, en lugar de perderla como escorrentía. Esto indica que los suelos con pendientes tienen una cierta predisposición a la erosión. Esto no representa una medida cuantitativa sino una apreciación de valor de los autores.

### Descriptores de la tasa de infiltración inicial

| | |
|---|---|
| A | alto |
| M | medio |
| B | bajo |

## HYDRAUL. CONDUCT.

**Conductividad hidráulica.** Capacidad del suelo para continuar absorbiendo agua durante periodos prolongados. Esta descripción es importante en regiones con precipitación alta donde algunos suelos tales como los Alfisoles y Ultisoles en áreas de planicies, pueden anegarse. Es también una apreciación de valor de los autores y no una medida cuantitativa.

### Descriptores de la conductividad hidráulica

| | |
|---|---|
| A | alto |
| M | medio |
| B | bajo |

## DRAINAGE

**Drenaje.** Cantidad de anegación o la ocurrencia de condiciones anaeróbicas. Generalmente la anegación implica la presencia a largo plazo de una capa freática dentro de los 60 cm de superficie; puede referirse también a inundaciones anuales.

### Descriptores de drenaje

| | | |
|---|---|---|
| B | bueno | cantidad insignificante de anegación |
| D | deficiente | algo de anegación que impide el crecimiento de plantas susceptibles |
| G[a] | gleyey, pobre | anegación, hasta el grado de afectar seriamente a todas las plantas excepto aquellas muy tolerantes al agua |

a. Ver Clasificación por Capacidad de Fertilidad (Buol et al., 1975): g = condiciones de gley a los 60 cm de la superficie como indicativo de saturación de humedad. Esto se ajusta a la definición de régimen de humedad "Aquico" de la Taxonomía de Suelos (Soil Survey Staff, 1975).

## MOIST. HOLD. CAP.

**Capacidad de retención de humedad.** En mm/100 cm de la profundidad del suelo

### Descriptores de la capacidad de retención de humedad

| | | -mm/100 cm suelo- |
|---|---|---|
| A | alto | >150 |
| M | medio | 75-150 |
| B | bajo | < 75 |

## TEMP. REGIME

**Régimen de temperatura.** Clasificado de acuerdo a la Taxonomía de Suelos (Soil Survey Staff, 1975).

### Descriptores del régimen de temperatura

| | | Temperatura media anual | Variación[a] de temperatura |
|---|---|---|---|
| | | -°C- | -°C- |
| H | hipertérmico | >22 | >5 |
| T | térmico | 15-22 | >5 |
| S | isohipertérmico | >22 | <5 |
| I | isotérmico | 15-22 | <5 |

a. La variación de la temperatura es aquella comprendida entre los tres meses más calientes y los tres más fríos del año a una profundidad de suelo de 50 cm.

## MOIST. REGIME

**Régimen de humedad del suelo.** En número de meses consecutivos. Clasificaciones aproximadas de acuerdo con la Taxonomía de Suelos (Soil Survey Staff, 1975). Debido a que raramente es posible obtener cifras determinadas para estos regímenes, las subdivisiones se basaron en balances hídricos mensuales, calculados según el método de Hargreaves (1971). Este método define un mes seco como uno con un índice de disponibilidad de humedad (MAI)

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menor que 0.34 [ver Capítulo 3 del Volumen 1, *La Tierra en América Tropical*]. La capacidad de retención de humedad del suelo fue considerada para casos marginales.

### Descriptores del régimen de humedad

| | Clasificación según Taxonomía de Suelos | | Condición de CCF[a] | MAI<0.34 |
|---|---|---|---|---|
| | | | | -no. meses consec.- |
| U | údico | Aquic, Udic | | <3 |
| SD | ústico | Ustic | d | 3-6 |
| XD | xérico | Aridic, Torric, Xeric | d | >6 |

a. Ver Clasificación por Capacidad de Fertilidad (Buol et al., 1975): d = *dry*, período seco anual de 60 días.

## EXPANDING CLAYS

**Arcillas expandibles.** Describe los suelos con cantidades significativas de arcillas expandibles, especialmente montmorillonita.

### Descriptores de las arcillas expandibles

| | |
|---|---|
| V[a] | suelos con >35% de arcilla, con 50% de ésta 2:1 arcilla expandible; coeficiente de expansión lineal 0.09 |
| O | menor que V |

a. Ver Clasificación por Capacidad de Fertilidad (Buol et al., 1975): v = vértico.

## TEXTURE

**Textura.** Se refiere a la textura del suelo superficial (primera letra), con una capa de 0–20 cm de profundidad, y a la del subsuelo (segunda letra), con una capa de 21–50 cm de profundidad, definido de acuerdo a la Clasificación por Capacidad de Fertilidad (Buol et al., 1975).

### Descriptores de textura

| | | |
|---|---|---|
| C | *clayey*, arcilloso | > 35% arcilla |
| L | *loamy*, franco | < 35% arcilla, pero no arena franca o arena |
| R | rocoso | rocas u otras capas que restringen el crecimiento de raíces |
| S | *sandy*, arenoso | arena franca y arena |
| O | orgánico | >30% de materia orgánica a una profundidad de 50 cm o más (por conveniencia codificado según la textura del suelo superficial) |

## COARSE MATERIAL

**Material grueso.** Porcentaje de la presencia de partículas de roca de más de 2 mm de diámetro. En el suelo superficial (primera letra), 0–20 cm de profundidad, y en el subsuelo (segunda letra), 21–50 cm de profundidad.

### Descriptores de material grueso

| | | |
|---|---|---|
| | | -%- |
| A | alto | >35 |
| M | mediano | 15–35 |
| B | bajo | <15 |

# SOIL CHEM. PROP.

# Propiedades Químicas del Suelo

Descripciones del suelo superficial (primera letra = 0–20 cm de profundidad) y del subsuelo (segunda letra = 21–50 cm de profundidad) para las primeras 11 variables, y en el suelo superficial y subsuelo combinados para las segundas 12 variables. La última variable se refiere solamente al suelo superficial.

**pH.** En agua, con una proporción de 1:1 suelo a agua.

### Descriptores del pH

| | | |
|---|---|---|
| A | alto | >7.3 |
| M | mediano | 5.3–7.3 |
| H[a] | bajo | < 5.3 |

a. Se aproxima a la Clasificación por Capacidad de Fertilidad (Buol et al., 1975): h = ácido.

## Al SATURATION

**Saturación de aluminio.** Porcentaje de saturación de Al de la CICE (capacidad de intercambio catiónico efectivo).

### Descriptores de saturación de Al

| | | |
|---|---|---|
| | | -%- |
| A[a] | muy alto | >70 |
| H | *high*, alto | 40–70 |
| M | medio | 10–40 |
| B | bajo | < 10 |
| U | desconocido | |

a. Ver Clasificación por Capacidad de Fertilidad (Buol et al., 1975): a = tóxico por Al.

## EXCHANGEABLE Al

**Aluminio intercambiable.** En meq/100 g de suelo, extracción con KCl 1*N*.

### Descriptores de Al intercambiable

| | | |
|---|---|---|
| | | -meq/100 g suelo- |
| A | alto | 1.5 |
| M | medio | 0.5–1.5 |
| B | bajo | 0.5 |
| U | desconocido | |

## EXCHANGEABLE Ca

**Calcio intercambiable.** En meq/100 g de suelo, extracción con KCl 1*N*.

### Descriptores de Ca intercambiable

| | | |
|---|---|---|
| | | -meq/100 g suelo- |
| A | alto | >4.0 |
| M | medio | 0.4–4.0 |
| B | bajo | <0.4 |
| U | desconocido | |

## EXCHANGEABLE Mg

**Magnesio intercambiable.** En meq/100 g de suelo, extracción con KCl 1*N*.

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### Descriptores de Mg intercambiable

| | | -meq/100 g suelo- |
|---|---|---|
| A | alto | > 0.8 |
| M | medio | 0.2-0.8 |
| B | bajo | < 0.2 |
| U | desconocido | |

## EXCHANGEABLE K

**Potasio intercambiable (K).** En meq/100 g de suelo, extracción con $NH_4Cl$ 1N.

### Descriptores de K intercambiable

| | | -meq/100 g suelo- |
|---|---|---|
| A | alto | > 0.3 |
| M | medio | 0.15-0.3 |
| B[a] | bajo | 0.15 |
| U | desconocido | |

a. Se aproxima a la Clasificación por Capacidad de Fertilidad (Buol et al., 1975): B = deficiente en K.

## EXCHANGEABLE Na

**Sodio intercambiable.** En meq/100 g de suelo, extracción con KCl 1N.

### Descriptores de Na intercambiables

| | | -meq/100 g suelo- |
|---|---|---|
| A | alto | > 0.2 |
| M | medio | 0.1-0.2 |
| B | bajo | < 0.1 |
| U | desconocido | |

## TOTAL EXCH. BASES

**Total de bases intercambiables.** En meq/100 g de suelo.

### Descriptores del total de bases intercambiables

| | | -meq/100 g suelo- |
|---|---|---|
| A | alto | > 6 |
| M | medio | 2-6 |
| B | bajo | < 2 |
| U | desconocido | |

## CATION EXCH. CAPAC.

**Capacidad de intercambio catiónico efectivo (CICE).** En meq/100 g de suelo.

### Descriptores de la CICE

| | | -meq/100 g suelo- |
|---|---|---|
| A | alto | > 8 |
| M | medio | 4-8 |
| B[a] | bajo | < 4 |
| U | desconocido | |

a. Se aproxima a la Clasificación por Capacidad de Fertilidad (Buol et al., 1975): B = baja CICE.

## ORGANIC MATTER %

**Porcentaje de materia orgánica.** En meq/100 g de suelo.

### Descriptores de materia orgánica

| | | -meq/100 g suelo- |
|---|---|---|
| A | alto | > 4.5 |
| M | medio | 1.5-4.5 |
| B | bajo | < 1.5 |
| U | desconocido | |

## PHOSPHORUS

**Fósforo.** En ppm, según el método de Bray II (Bray y Kurtz, 1945).

### Descriptores de P

| | | -ppm- |
|---|---|---|
| A | alto | > 7 |
| M | medio | 3-7 |
| B | bajo | < 3 |
| U | desconocido | |

## PHOSPHORUS FIXATION

**Fijación de fósforo.** Posibilidad de fijación de P.

### Descriptores de fijación de P

| | | |
|---|---|---|
| F[a] | significante | suelos con > 35% arcilla, relación de porcentaje de $Fe_2O_3$ libre a porcentaje de arcilla = 0:15 |
| O | insignificante | menor que la especificada arriba |
| U | desconocido | |

a. Ver Clasificación por Capacidad de Fertilidad (Buol et al., 1975): F = fijación de P.

## MANGANESE

**Manganeso.** En ppm, extracción con KCl 1N.

### Descriptores de Mn

| | | -ppm- |
|---|---|---|
| B | bajo | < 8 |
| S | satisfactorio | 8-35 |
| T | tóxico | > 35 |
| U | desconocido | |

## SULPHUR

**Azufre.** De acuerdo con las pruebas agronómicas. Un "juicio" y no una medida cuantitativa.

### Descriptores de S

| | |
|---|---|
| A | alto |
| S | satisfactorio |
| B | bajo |
| U | desconocido |

## ZINC

**Zinc.** En ppm, extracción con KCl 1*N*

### Descriptores de Zn

| | | -ppm- |
|---|---|---|
| B | bajo | <1.5 |
| S | satisfactorio | >1.5 |
| U | desconocido | |

## IRON

**Hierro.** En ppm, extracción con KCl 1*N*

### Descriptores de Fe

| | | -ppm- |
|---|---|---|
| A | alto | >80 |
| S | satisfactorio | 10-80 |
| B | bajo | <10 |
| U | desconocido | |

## COPPER

**Cobre.** En ppm, extracción con KCl 1*N*

### Descriptores de Cu

| | | -ppm- |
|---|---|---|
| B | bajo | < 0.15 |
| S | satisfactorio | > 0.15 |
| U | desconocido | |

## BORON

**Boro.** En ppm, extracción por reflujo del suelo con agua hirviendo durante 10 minutos.

### Descriptores de B

| | | -ppm- |
|---|---|---|
| B | bajo | < 0.3 |
| S | satisfactorio | > 0.3 |
| U | desconocido | |

## MOLYBDENUM

**Molibdeno.** En ppm, extracción con KCl 1*N*

### Descriptores de Mo

| | | -ppm- |
|---|---|---|
| B | bajo | < 0.5 |
| S | satisfactorio | > 0.5 |
| U | desconocido | |

## FREE CARBONATES

**Carbonatos libres.** Observación de (mini) muestras hasta 50 cm de profundidad después del tratamiento con HCl al 30%.

### Descriptores de carbonato libre

| | |
|---|---|
| A | sin efervescencia de $CO_2$ |
| B[a] | efervescencia de $CO_2$ |
| U | desconocido |

a. Ver Clasificación por Capacidad de Fertilidad (Buol et al., 1975): b = reacción básica.

## SALINITY

**Salinidad.** En mmhos, salinidad de extractos saturados de muestras de suelo hasta un metro de profundidad. Niveles según el Laboratorio de Salinidad de Suelos (U.S. Soil Salinity Laboratory Staff 1954.)

### Descriptores de salinidad

| | | -mmhos- |
|---|---|---|
| B | bajo | 0-4 |
| S[a] | salino | >4 |
| U | desconocido | |

a. Ver Clasificación por Capacidad de Fertilidad (Buol et al., 1975): s = salino.

## NATRIC

**Sódico.** En porcentajes (%), saturación sódica de la CIC (capacidad de intercambio catiónico) hasta 50 cm de profundidad del suelo. Niveles de acuerdo al U.S. Soil Salinity Laboratory Staff (1954).

### Descriptores sódicos

| | | -%- |
|---|---|---|
| B | bajo | 0-15 |
| N[a] | sódico | >15 |
| U | desconocido | |

a. Ver Clasificación por Capacidad de Fertilidad (Buol et al., 1975): n = *natric*, sódico.

## CAT CLAY

**Arcilla "cat".** Presencia o ausencia de arcilla ácida sulfatada en suelos hasta 60 cm de profundidad. Se define como arcilla "cat" cuando el pH es >3.5 en un extracto de suelo/agua de 1:1 después de secar el suelo, o cuando contiene moteados de jarosita con matices de 2.5Y o más amarillo y colores cromáticos de 6 o más.

### Descriptores de arcilla "cat"

| | |
|---|---|
| C[a] | presencia de arcilla ácida sulfatada |
| N | sin arcilla ácida sulfatada |
| U | desconocido |

a. Ver Clasificación por Capacidad de Fertilidad (Buol et al., 1975): c = cat clay.

## X-RAY AMORPHOUS

**Amorfismo por rayos X.** En el suelo superficial. Se define como un suelo con >35% de arcilla y un pH >10 en una extracción con NaF 1*N*, o como respuesta positiva a pruebas de campo con NaF u otra evidencia indirecta del predominio de alófana en la fracción de arcilla.

### Descriptores del amorfismo por rayos X

| | |
|---|---|
| N | no amorfo a rayos X |
| X[a] | amorfo a rayos X |
| U | desconocido |

a. Ver Clasificación por Capacidad de Fertilidad (Buol et al., 1975): x = amorfo a rayos X.

*ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION*

# Elementos de Importancia principalmente para la Nutrición Animal

Resumidos de estudios relacionados con diferentes elementos. Incluyen:

| | |
|---|---|
| CO | Cobalto (Co) |
| I | Yodo (I) |
| SE | Silenio (Se) |
| CR | Cromo (Cr) |
| NI | Niquel (Ni) |
| OTHERS | Otros |

**Descriptores de elementos importantes en la nutrición animal**

| | |
|---|---|
| D | deficiente |
| S | satisfactorio |
| U | desconocido |

*FERTILITY CAPABILITY CLASSIFICATION*

# Clasificación por Capacidad de Fertilidad (CCF)

**TYPE AND SUBSTRATA TYPES**

**Tipo y tipos de subestrato.** La misma codificación usada en la Textura de suelos.

**MODIFIERS**

**Modificadores.** Se usaron de acuerdo con la Clasificación por Capacidad de Fertilidad (Buol et al., 1975) excepto en el uso de las mayúsculas fijas en lugar de minúsculas.

**Descriptores de CCF[a]**

| | |
|---|---|
| a | toxicidad por Al |
| b | carbonato libre |
| c | arcilla "cat" |
| d | *dry*, seco |
| e | baja CICE |
| g | gleyey |
| h | acídico |
| i | baja fijación de P |
| k | deficiente en K |
| n | *natric*, sódico |
| s | salinidad |
| v | vértico, Vertisol |
| x | amorfismo por rayos X |

a. Estos descriptores difieren de los de Buol et al., 1975. Las letras correspondientes al sistema CCF fueron usadas cuando la definición se aproximaba a la de Buol et al.

# Glossário de Codificação nos Impressos de Sistemas de Terra

Este glossario detalha a codificação utilizada nos impressos do computador. As explicações dos criterios empregados aparecem no Capítulo 6 do Volume I, *A Terra na América Tropical.*

## Descritores dos números das unidades fisiográficas

BRASIL
Centro-Oeste

1 Terras altas da superfície de Pratinha
2 Terras altas com erosão da superfície de Pratinha
3 Terras altas do Tocantins
4 Planícies do Araguaia
5 Pediplanos do Tocantins
6 Terras altas de Natividade
7 Planaltos cobertos de areia do Espigão Mestre
8 Complexo do Rio São Francisco
9 Depressão periférica de Goiânia
10 Planaltos de basalto do norte
11 Planaltos basálticos cobertos de areia
12 Planaltos de Campo Grande
13 Planaltos de Alcantilados
14 Complexo de Xavantina
15 Campos mal drenados do Araguaia
16 Planaltos de campo do norte de Mato Grosso
17 Planaltos com floresta do norte de Mato Grosso
18 Planaltos de Cuiabá
19 Pantanal
20 Terras altas da Serra de Lageado
21 Superfície da Bodoquena
22 Superfície erodida do norte de Cuiabá
23 Planalto de Cáceres
24 Bacia do Rio Paraná
25 Paracatu

Amazônia
27 Depressão entre planaltos ao sul da Guiana
28 Planícies fluviomarinhas de Macapá
29 Cerrados de Macapá
30 Colinas de crista plana do Amapá
31 Planaltos residuais do Amapá
32 Depressão periférica do norte do Pará
33 Planaltos interfluviais Amazonas-Orenoco
34 Planaltos dissecados do norte da Amazônia
35 Pediplanos do Rio Branco-Rio Negro
36 Planaltos baixos da Amazônia
37 Planícies amazônicas
38 Planaltos da bacia sedimentar amazônica
39 Planaltos dissecados do Rio Trombetas-Rio Negro
40 Planaltos do Tapajós-Xingu
41 Planaltos dissecados do sul do Pará
42 Planaltos do Pará-Maranhão
43 Depressão ortoclinal do Tocantins médio
44 Depressão periférica do sul do Pará
45 Planícies altas e serras do Cachimbo
46 Planaltos residuais do Tapajós
47 Depressão Rio Acre-Rio Javari
48 Planaltos residuais do Guaporé
49 Planaltos dissecados do sul da Amazônia
50 Depressão da Amazônia média
51 Pediplanos do Brasil Oeste-Central

PERU, EQUADOR
101 Colinas, argilosas da Amazônia equatoriana
102 Cones de dejeção dos pedemontes equatorianos
103 Pedemontes sub-andinos peruano-equatorianos
104 Planícies amazônicas bem drenadas
Planícies amazônicas mal drenadas
106 Colinas baixas do sul da Amazônia Peruana
107 Planícies amazônicas do sul do Peru
108 Pedemonte
109 Vales inter-montanos
110 Terra aluvial recente

COLÔMBIA
151 Campos planos e bem drenados (altilhanuras)
152 Campos ondulantes e montanhosos (altilhanuras)
153 Terraços fluviais
154 Pedemonte
155 Planícies antigas alagadas
156 Planicies cobertas de floresta
157 Florestas do pedemonte
158 Florestas montanhosas
159 Florestas alagadas
160 Terras aluviais recentes

201 Pedemonte andino
202 Cinturão montanhoso costeiro
203 Planícies bem drenadas do ocidente e do pendemonte
204 Planícies mal drenadas do ocidente
205 Planícies ondulantes centrais
206 Planícies orientais
207 Região do delta mal drenada
208 Região do Escudo Guianense
209 Depósitos aluviais do sistema do Rio Orenoco

BOLIVIA
251 Pedemonte sub-andino
252 Planícies sub-andinas
253 Pampas de Mojos
254 Escudo Brasileiro
255 Planícies terciárias do Pando
256 Planícies de Guayamerin
257 Planícies de Santa Cruz
258 Planicies do norte do Escudo Brasileiro
259 Cordilheiras de Chiquitana
260 Planícies do Chaco

# Informação Generalizada sobre a Paisagem

## *CLIMATE*
## *Clima*

O número é a referência do computador para o conjunto de dados meteorológicos compilados com base na informação da estação meteorológica no local mencionado (Hancock et al, 1979). Estas são as estações localizadas nos sistemas de terra ou as mais proximas. Um sistema de terra longe de uma estação meteorológica mencionada ocasionalmente possue um código climatólogico diferente do dedutível da estação meteorológica, devido às diferenças vistas no campo.

Exemplo:
2070 = número do conjunto de dados meteorológicos
Luziânia = nome da estação meteorológica

## *AREA*
## *Área*

A área do sistema de terra em hectares (ha) calculada por medidas tomadas dos mapas originais 1:1,000,000.

## *ALTITUDE*
## *Altitude*

Uma aproximação em metros (m) da altitude da maior parte do sistema de terra.

## *PHYSIOGRAPHIC UNIT NO.*
## *Número da Unidade Fisiográfica*

É um número reconhecido localmente assinalado às subdivisões das regiões fisiográficas. [Estes códigos não são os mesmos codificados da A a R no Mapa de Sistemas de Terra os quais identificam as regiões fisiográficas extensas.] (Ver os codigos na página anterior.)

## *GENERALIZED CLASSIFICATION*
## *Classificação Generalizada*

Uma descrição rápida e aproximada de toda a paisagem do sistema de terra. Registrada na seguinte ordem:

Altitude
Drenagem
Declive
Vegetação

## *DISTANCE BETWEEN PERENNIAL STREAMS*
## *Distância entre Rios Perenes*

Em quilômetros (km). Oferece informação adicional sobre a hidrologia da paisagem e a disponibilidade de água para o gado durante todo o ano.

## *DEPTH OF WELLS, MAIN LAND FACET*
## *Profundidade dos Poços, Faceta Principal*

Em metros (m). A profundidade aproximada do nível dos poços de água potável utilizados pelos habitantes durante o ano, dá alguma informação adicional sobre a hidrologia de superfícies das terras predominantes.

# LANDFORM DIAGRAM
# Informação sobre o Diagrama da Forma da Terra

Subdivisão da paisagem em facetas. O Código de vegetação usado nos diagramas da forma da terra.

**Descritores do diagrama da forma da terra**

| | | |
|---|---|---|
| ⫼ | = | Planícies com inundação temporária (pastagens naturais) |
| \|\|\| | = | Campo limpo + campo sujo (savana com arbustos ocasionais) |
| \|♀ | = | Campo cerrado (savana aberta) |
| ♀ | = | Cerrado (savana intermédiária) |
| ♀ | = | Cerradão (savana com cobertura de árvores quase contínua |
| 🌴 | = | Floresta tropical chuvosa |
| ♠ | = | Floresta tropical semi-sempre verde, sazonal |
| 🌳 | = | Floresta tropical (semi-)decidua sazonal |
| ψ | = | Caatinga (floresta caducifolia e formas arbustivas xerófilas) |
| ♣ | = | Floresta com palmeiras |
| △ | = | Outra vegetação |

# LANDSCAPE FACETS
# Informação sobre as Facetas da Paisagem

## *GENERAL DESCRIPTION*
## *Descrição Geral*

Descrição geral da forma da terra.

**Descritores da forma da terra**

| | |
|---|---|
| A | planalto |
| B | fundo de vale |
| C | terreno ondulante, declividade <30% |
| D | depressão |
| E | escarpa |
| M | terrenos colinosos, declividade > 30% |
| N | terrenos com pendentes côncavas |
| O | outros[a] |
| P | plano |
| R | crista |
| T | terraço |
| V | vale |
| X | terreno com pendentes convexas |

a. Gravados nos formatos originais de codificação no arquivo de CIAT.

## *PERCENTAGE OF LAND SYSTEM (L.S.)*
## *Porcentagem do Sistema de Terra*

Porcentagem da área abrangida pela faceta de terra no sistema de terra. Estas porcentagens foram avaliadas durante a delimitação do sistema de terra nas imagens originais de satélite ou radar de visada lateral. (Os sistemas de terra foram as menores unidades de mapeamento.)

## *TOPOGRAPHIC CLASSIFICATION (CLASS.)*
## *Classificação Topográfica*

Porcentagem da faceta de terra em cada uma das quatro classes topográficas escolhidas para oferecer um guia prático às diferenças topográficas quando forem utilizadas na estimativa de custos de mecanização.

**Descritores topográficos**

| | | Codigos da trama no Mapa de Sistemas de Terra |
|---|---|---|
| FLAT POOR DRAIN. | plano, solos mal drenados | |
| < 8% | quase planos, com declividade < 8%, solos predominantemente bem drenados | |
| 8–30% | terreno ondulante, declividade de 8–30% | |
| > 30% | montanhosos, declividade > 30% | |

## *ALTITUDE IN m*
## *Altitude em m*

A altitude média aproximada de cada faceta de terra.

## *ORIGINAL VEGETATION CLASS.*
## Classificação da Vegetação Original

Porcentagem provavel da faceta de terra em cada uma das 10 classes fisionômicas de vegetação. Foram determinadas nas imagens originais de satélite.

**Descritores da vegetação original**

| | | Códigos de Cor no Mapa de Sistemas de Terra |
|---|---|---|
| SEAS.IN.P. | planícies inundadas temporáriamente [campos mal drenados] | **cinza** |
| CL + CS | campo limpo (naturais) e campo sujo (savanas com arbustos ocasionais)[a] [campos bem drenados] | **vermelho** |
| CC | campo cerrado (savana aberta)[a] [campos bem drenados] | **vermelho** |
| C | cerrado (campo)[a] [savana bem drenada] | **vermelho** |
| CD | cerradão (cobertura de árvores quase contínua)[a] [savanas bem drenadas] | **vermelho** |
| TRF | floresta tropical[b] chuvosa | **verde escuro** |
| SESF | floresta tropical semi-sempre verde[b], sazonal | **verde amarelo** |
| SDSF | floresta tropical (semi-) decídua[b], sazonal | **café** |
| CAAT | caatinga (floresta caducifolia e formas arbustivas xerófilas[c] | **amarelo** |
| OUTRO | outra vegetação | **verde-azul e violeta** |

a. Termos brasileiros usados geralmente para definir a vegetação de campo (Eiten, 1972).
b. Termos usados para classificar as florestas bem drenadas (Eyre, (1968).
c. Definição de Eiten, 1972.

## *INDUCED VEGETATION*
## *Vegetação Induzida*

Porcentagem aproximada de dois tipos de vegetação induzida em cada faceta de terra:

| | |
|---|---|
| PASTURES | pastos |
| CROPS | cultivos |

Avaliados da imagem original de satélite num período de 4 anos (1977–1981); pode-se utilizar como guia para as variações espaciais do uso da terra durante este período.

## *SOIL CLASSIFICATION*
# Classificação de Solos

Classificação segundo a Taxonomia de Solos dos Estados Unidos (Soil Survey Staff, 1975). Como está explicitado no Capítulo 2 do livro *A Terra na América Tropical*, o código é cumulativo:

| | | |
|---|---|---|
| Ordens | O | Oxisol |
| Sub-ordens | OUS | Ustox |
| Grupo Grande | OUSAC | Acrustox |

## Descritores da classificação dos solos

| Ordem | | Sub-ordem | | Grupo Grande | |
|---|---|---|---|---|---|
| Alfisols | A | Aqualfs | AQ | Natraqualfs | NA |
| | | | | Tropaqualfs | TR |
| | | Udalfs | UD | Hapludalfs | HA |
| | | | | Rhodudalfs | RH |
| | | | | Tropudalfs | TR |
| | | Ustalfs | US | Paleustalfs | PA |
| | | | | Rhodustalfs | RH |
| | | | | Haplustalfs | HA |
| | | | | Natrustalfs | NA |
| | | | | Tropustalfs | TR |
| | | Xeralfs | XE | Haploxeralfs | HA |
| Aridisols | D | Orthids | OR | Camborthids | CM |
| Entisols | E | Aquents | AQ | Fluvaquents | FL |
| | | | | Haplaquents | HA |
| | | | | Hydraquents | HY |
| | | | | Psammaquents | PS |
| | | | | Tropaquents | TR |
| | | Fluvents | FL | Tropofluvents | TR |
| | | | | Ustifluvents | US |
| | | | | Xerofluvents | XE |
| | | Orthents | OR | Troporthents | TR |
| | | | | Ustorthents | US |
| | | Psamments | PS | Quartzipsamments | QU |
| | | | | Tropopsamments | TR |
| | | | | Ustipsamments | US |
| Inceptisols | I | Andepts | AN | Dystrandepts | DY |
| | | | | Hydrandepts | HY |
| | | Aquepts | AQ | Haplaquepts | HA |
| | | | | Humaquepts | HU |
| | | | | Plinthaquepts | PL |
| | | | | Sulfaquepts | SU |
| | | | | Tropaquepts | TR |
| | | Tropepts | TR | Dystropepts | DY |
| | | | | Eutropepts | EU |
| | | | | Ustropepts | US |
| Mollisols | M | Aquolls | AQ | Haplaquolls | HA |
| | | Udolls | UD | Arqiudolls | AR |
| | | | US | Haplustolls | HA |
| Oxisols | O | Aquox | AQ | Plinthaquox | PL |
| | | Orthox | OR | Acrorthox | AC |
| | | | | Eutrorthox | EU |
| | | | | Haplorthox | HA |
| | | | | Umbriorthox | UM |
| | | Ustox | US | Acrustox | AC |
| | | | | Eutrustox | EU |
| | | | | Haplustox | HA |
| Spodosols | S | Aquods | AQ | Tropaquods | TR |
| Ultisols | U | Aquults | AQ | Albaquults | AL |
| | | | | Paleaquults | PA |
| | | | | Plinthalquults | PL |
| | | | | Tropaquults | TR |
| | | Udults | UD | Hapludults | HA |
| | | | | Paleudults | PA |
| | | | | Plinthudults | PL |
| | | | | Rhodudults | RH |
| | | | | Tropodults | TR |
| | | Ustults | US | Haplustults | HA |
| | | | | Paleustults | PA |
| | | | | Rhodustults | RH |
| Vertisols | V | Uderts | UD | Chromuderts | CH |

34'

# *SOIL PHYSICAL PROPERTIES*

# Propriedades Físicas do Solo

Descrição de 11 variavéis

## SLOPE

**Declive.** Em porcentagens. Semelhante às três classes topográficas com pendentes.

### Descritores de declive

| | | % |
|---|---|---|
| A | alto | >30 |
| M | médio | 8–30 |
| B | baixo | < 8 |

## DEPTH

**Profundidade.** Em centímetros. Profundidade efetiva do solo onde não há impedimentos físicos para o crescimento de raízes, incluindo a rocha-mãe, as camadas endurecidas ou às camadas freáticas.

### Descritores de profundidade

| | | -cm- |
|---|---|---|
| L | lítico | < 20 |
| S | superficial | 20–50 |
| M | médio | 51–150 |
| P | profundo | > 150 |

## INIT. INFIL. RATE

**Taxa de infiltração inicial.** Capacidade do solo coberto de restos vegetais para absorver água durante a primeira hora de chuva (depois que os 50 cm superiores se tenham secado). A classificação dá uma comparação do potencial de um solo de absorver água de precipitação ao começo da estação chuvosa ou durante os períodos secos do ano, em contraste com a possibilidade de perder tais águas como escoamento. Isto indica que os solos com declive têm certa predisposição à erosão. Esta não é uma medida quantitativa, e só uma apreciação de valor dos autores.

### Descritores da taxa de infiltração inicial

| | |
|---|---|
| A | alto |
| M | médio |
| B | baixo |

## HYDRAUL. CONDUCT.

**Condutividade hidráulica.** Capacidade do solo para continuar absorvendo água durante períodos prolongados. Esta descrição é importante em regiões com precipitação alta onde alguns solos, como os Alfissolos e Ultissolos, em áreas planas, podem ser alagados. É também uma apreciação de valor dos autores, não uma medida quantitativa.

### Descritores da condutividade hidráulica

| | |
|---|---|
| A | alto |
| M | médio |
| B | baixo |

## DRAINAGE

**Drenagem.** Quantidade de encharcamento com a ocorrência de condições anaeróbicas. Geralmente isto implica na presença, por longo tempo, do lençol freático dos 60 da superfície; ou pode indicar inundações anuais.

### Descritores da drenagem

| | | |
|---|---|---|
| B | bom | quantidade não significante de encharcamento |
| D | deficiente | nível de encharcamento que impede o crescimento de plantas susceptíveis |
| G[a] | glei, pobre | encharcamento, que chega a prejudicar todas as plantas exceto aquelas muito tolerantes à água |

a. Ver Classificação pela Capacidade de Fertilidade (Buol et al., 1975): g condições de glei aos 60 cm da superfície como indicativo de saturação. Isto coincide com a definição do regime de umidade "Áquico" da Taxonomia de Solos (Soil Survey Staff, 1975).

## MOIST. HOLD. CAP.

**Capacidade de retenção de umidade.** Em mm/100 cm da profundidade do solo.

### Descritores da capacidade de retenção de umidade

| | | -mm/100 cm solo- |
|---|---|---|
| A | alto | > 150 |
| M | médio | 75–150 |
| B | baixo | < 75 |

## TEMP. REGIME

**Regime de temperatura.** Classificado segundo à Taxonomia de Solos (Soil Survey Staff, 1975).

### Descritores do regime de temperatura

| | | Temperatura media anual | Variação[a] da temperatura |
|---|---|---|---|
| | | -°C- | -°C- |
| H | hipertérmico | >22 | >5 |
| T | térmico | 15–22 | < 5 |
| S | isohipertérmico | >22 | < 5 |
| I | isotérmico | 15–22 | >5 |

a. A variação da temperatura abrange os três meses mais quentes e os três mais frios do ano a uma profundidade do solo de 50 cm.

## MOIST. REGIME

**Regime de umidade do solo.** Em número de meses consecutivos. Com classificações aproximadas segundo a Taxonomia de Solos dos Estados Unidos (Soil Survey Staff, 1975). Como não é muito factível obter cifras exatas para estes regimes, as subdivisões foram baseadas em balanços mensais de água, calculados segundo o método de Hargreaves (1971). Este método define o mês sêco como o mês com índice de disponibilidade de umidade (MAI) menor que 0,34 [ver o Capítulo 3 do Volume I no livro *A Terra na América Tropical*]. A capacidade de retenção de umidade do solo foi considerada para casos marginais.

### Descritores do regime de umidade

| | | Classificação segundo a Taxonomia de Solos | Condição de CCF[a] | MAI< 0.34 |
|---|---|---|---|---|
| | | | | -no. meses consec.- |
| U | údico | Aquic, Udic | | < 3 |
| SD | ustico | Ustic | d | 3-6 |
| XD | xérico | Aridic, Torric, Xeric | d | > 6 |

a. Ver Classificação pela Capacidade de Fertilidade (Buol et al, 1975): d = *dry*, período seco anual de 60 dias.

## EXPANDING CLAYS

**Argilas expansíveis.** Descreve os solos com quantidades importantes de argilas expansíveis, especialmente montmorilonita.

### Descritores de argilas expansíveis

| | |
|---|---|
| Va | Solos com > 35% de argila e 50% de argila expansível 2:1; coeficiente de expansão linear > 0.09 |
| O | menor que V |

a. Ver Classificação pela Capacidade de Fertilidade (Buol et al, 1975): v = vértico

## TEXTURE

**Textura.** Faz referência à textura do solo superficial (primeira letra) na camada de 0-20 cm de profundidade e à do subsolo (segunda letra) com uma camada de 21-50 cm de profundidade, de acordo à definição da Classificação pela Capacidade de Fertilidade (Buol et al. 1975)

### Descritores da textura

| | | |
|---|---|---|
| C | *clayey*, argilosa | > 35% argila |
| L | *loamy*, franca | < 35% argila, mas não areia franca ou areia |
| S | sandy, areia | areia franca ou areia |
| R | rochoso | rochas ou outras camadas que limitan o crescimento de raízes |
| O | orgânico | > 30% materia orgânica a uma profundidade de 50 cm ou mais (por conveniência, codificado segundo à textura do solo superficial) |

## COARSE MATERIAL

**Material grosseiro.** Porcentagem da presença de frações de rocha maiores que 2 mm de diametro. No solo superficial (primeira letra) de 0-20 cm de profundidade e no subsolo (segunda letra) de 21-50 cm de profundidade.

### Descritores do material grosseiro

| | | |
|---|---|---|
| | | -%- |
| A | alto | > 35 |
| M | médio | 15-35 |
| B | baixo | < 15 |

# *SOIL CHEM. PROP.*

# Propriedades Químicas do Solo

Descrições do solo superficial (primeira letra = 0-20 cm de profundidade) e do subsolo (segunda letra = 21-50 cm de profundidade) para as primeiras 11 variáveis e, no solo superficial e subsolo, combinados para as segundas 12 variáveis. A ultima variável faz referência ao solo superficial.

**pH.** Em água, à razão de 1:1 solo/água.

### Descritores de pH

| | | |
|---|---|---|
| A | alto | > 7.3 |
| M | médio | 5.3-7.3 |
| H[a] | baixo | < 5.3 |

a. Uma aproximação à Classificação pela Capacidade de Fertilidade (Buol et al., 1975): h = ácido.

## Al SATURATION

**Saturação de alumínio.** Porcentagem de saturação de Al da CTCE (capacidade de troca catiônica efetiva).

### Descritores da saturação de Al

| | | |
|---|---|---|
| | | -%- |
| A[a] | muito alto | > 70 |
| H | high, alto | 40-70 |
| M | médio | 10-40 |
| B | baixo | < 10 |
| U | desconhecido | |

a. Ver Classificação pela Capacidade de Fertilidade (Buol et al., 1975): a = Al tóxico

## EXCHANGEABLE Al

**Alumínio trocável.** Em meq/100 g de solo, extração com KCl 1*N*.

### Descritores de Al trocável

| | | |
|---|---|---|
| | | -meq/100 g solo- |
| A | alto | > 1.5 |
| M | médio | 0.5-1.5 |
| B | baixo | < 0.5 |
| U | desconhecido | |

## EXCHANGEABLE Ca

**Cálcio trocável.** Em meq/100 g de solo, extração com KCl 1*N*.

### Descritores de Ca trocável

| | | |
|---|---|---|
| | | -meq/100 g solo- |
| A | alto | > 4.0 |
| M | médio | 0.4-4.0 |
| B | baixo | < 0.4 |
| U | desconhecido | |

## EXCHANGEABLE Mg

**Magnésio trocável.** Em meq/100 g de solo, extração com KCl 1*N*.

### Descritores de Mg trocável

| | | |
|---|---|---|
| | | -meq/100 g solo- |
| A | alto | > 0.8 |
| M | médio | 0.2-0.8 |
| B | baixo | < 0.2 |
| U | desconhecido | |

## EXCHANGEABLE K.

**Potássio trocável.** Em meq/100 g de solo, extração com $NH_4Cl$ 1*N*.

### Descritores de K trocável

| | | -meq/100 g solo- |
|---|---|---|
| A | alto | > 0.3 |
| M | médio | 0.15–0.3 |
| K[a] | baixo | < 0.15 |
| U | desconhecido | |

a. Uma aproximação à Classificação pela Capacidade de Fertilidade (Buol et al., 1975): k = deficiente em K.

## EXCHANGEABLE Na

**Sodio trocável.** Em meq/100 g de solo, extração com KCl 1*N*.

### Descritores de Na trocável

| | | -meq/100 g solo- |
|---|---|---|
| A | alto | > 0.2 |
| M | médio | 0.1–0.2 |
| B | baixo | < 0.1 |
| U | desconhecido | |

## TOTAL EXCH. BASES

**Total das bases trocáveis.** Em meq/100 g de solo.

### Descritores do total das bases trocáveis

| | | -meq/100 g solo- |
|---|---|---|
| A | alto | > 6 |
| M | médio | 2–6 |
| B | baixo | < 2 |
| U | desconhecido | |

## CATION EXCH. CAPAC.

**Capacidade de troca catiônica efetiva (CTCE).** Em meq/100 g de solo.

### Descritores da CTCE

| | | -meq/100 g solo- |
|---|---|---|
| A | alto | > 8 |
| M | médio | 4–8 |
| E[a] | baixo | < 4 |
| U | desconhecido | |

a. Uma aproximação à Classificação pela Capacidade de Fertilidade (Buol et al., 1975): e = baixa CTCE.

## ORGANIC MATTER %

**Porcentagem de materia orgânica.** Em meq/100 g de solo.

### Descritores da materia orgânica

| | | -meq/100 g solo- |
|---|---|---|
| A | alto | > 4.5 |
| M | médio | 1.5–4.5 |
| B | baixo | < 1.5 |
| U | desconhecido | |

## PHOSPHORUS

**Fósforo.** Em ppm, segundo o método de Bray II (Bray e Kurtz, 1945).

### Descritores de P

| | | -ppm- |
|---|---|---|
| A | alto | > 7 |
| M | médio | 3–7 |
| B | baixo | < 3 |
| U | desconhecido | |

## PHOSPHORUS FIXATION

**Fixação de fósforo.** Possibilidade de fixação de P.

### Descritores de fixação de P

| | | |
|---|---|---|
| I[a] | significante | solos com > 35% de argila proporção de porcentagem de $Fe_2O_3$ livre a porcentagem de argila = 0:15 |
| O | insignificante | menor à indicada acima |
| U | desconhecido | |

a. Ver Classificação pela Capacidade de Fertilidade (Buol et al., 1975): i = fixação de P.

## MANGANESE

**Mangânes.** Em ppm, extração com KCl 1*N*.

### Descritores de Mn

| | | -ppm- |
|---|---|---|
| B | baixo | < 8 |
| S | satisfatório | 8–35 |
| T | tóxico | > 35 |
| U | desconhecido | |

## SULPHUR

**Enxôfre.** Segundo às análises agronômicas. Representa só uma "apreciação de valor" e não uma medida quantitativa.

### Descritores de S

| | |
|---|---|
| A | alto |
| B | baixo |
| S | satisfatório |
| U | desconhecido |

## ZINC

**Zinco.** Em ppm, extração com KCl 1*N*.

### Descritores de Zn

| | | -ppm- |
|---|---|---|
| B | baixo | < 1.5 |
| S | satisfatório | > 1.5 |
| U | desconhecido | |

## IRON

**Ferro.** Em ppm, extração com KCl 1*N*.

### Descritores de Fe

| | | -ppm- |
|---|---|---|
| A | alto | > 80 |
| B | baixo | < 10 |
| S | satisfatório | 10–80 |
| U | desconhecido | |

## COPPER

**Cobre.** Em ppm, extração com KCl 1*N*.

### Descritores de Cu

| | | -ppm- |
|---|---|---|
| B | baixo | <0.15 |
| S | satisfatório | >0.15 |
| U | desconhecido | |

## BORON

**Boro.** Em ppm, extração à refluxo de solo com água fervente por 10 minutos.

### Descritores de B

| | | -ppm- |
|---|---|---|
| B | baixo | <0.3 |
| S | satisfatório | >0.3 |
| U | desconhecido | |

## MOLYBDENUM

**Molibdênio.** Em ppm, extração com KCl 1*N*.

### Descritores de Mo

| | | -ppm- |
|---|---|---|
| B | baixo | <0.5 |
| S | satisfatório | >0.5 |
| U | desconhecido | |

## FREE CARBONATES

**Carbonatos livres.** Observação de (mini)amostras a 50 cm de profundidade depois do tratamento com HCl a 30%.

### Descritores de carbonatos livres

| | |
|---|---|
| A | sem efervescência de $CO^2$ |
| B[a] | efervescência de $CO^2$ |
| U | desconhecido |

a. Ver Classificação pela Capacidade de Fertilidade (Buol et al., 1975) b = reação básica.

## SALINITY

**Salinidade.** Em mmhos, salinidade de extratos saturados de amostras de solo a um metro de profundidade. Níveis segundo o Laboratorio de Salinidade de Solos (U.S. Soil Salinity Laboratory Staff, 1954).

### Descritores de salinidade

| | | -mmhos- |
|---|---|---|
| B | baixo | < 0–4 |
| S[a] | salino | 4 |
| U | desconhecido | |

a. Ver Classificação pela Capacidade de Fertilidade (Buol et al., 1975): s = salino.

## NATRIC

**Sódico.** Porcentagem (%) de saturação sódica da CTCE até 50 cm de profundidade do solo. Níveis segundo o U.S. Soil Salinity Laboratory Staff (1954).

### Descritores sódicos

| | | -%- |
|---|---|---|
| B | baixo | < 0–15 |
| N[a] | sódico | > 15 |
| U | desconhecido | |

a. Ver Classificação pela Capacidade de Fertilidade (Buol et al., 1975): n = *natric*, sódico.

## CAT CLAY

**Argila "cat".** Presença ou ausência de argila ácida sulfatada em solos até 60 cm de profundidade. É definido como argila "cat" quando o pH é < 3.5 num extrato de solo/água de 1:1 depois de ter secado o solo, ou quando se apresentam pintalgados (mosqueados) de jarosite com matizes de 2.5Y ou mais amarelo e cromas de 6 ou mais.

### Descritores de argila "cat"

| | |
|---|---|
| C[a] | presença de argila ácida sulfatada |
| N | sem argila ácida sulfatada |
| U | desconhecido |

a. Ver Classificação pela Capacidade de Fertilidade (Buol et al., 1975): c = cat clay.

## X RAY AMORPHOUS

**Amorfismo por raios X.** No solo superficial. É definido como um solo com > 35% de argila e pH > 10 numa extração com NaF 1*N*, ou como resposta positiva à prova de campo com NaF ou outra evidência indireta de predomínio do alofânio na fração de argila.

### Descritores do amorfismo por raios X

| | |
|---|---|
| N | não amorfo a raios X |
| X[a] | amorfo a raios X |
| U | desconhecido |

a. Ver Classificação pela Capacidade de Fertilidade (Buol et al., 1975): x = amorfo por raios X.

# *ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION*

# Elementos Importantes principalmente na Nutrição Animal

Elementos resumidos de estudos relacionados ao assunto e incluem:

| | |
|---|---|
| Co | Cobalto (Co) |
| I | Iodo (I) |
| SE | Selênio (Se) |
| CR | Cromo (Cr) |
| NI | Níquel (Ni) |
| OTHERS | Outros |

**Descritores de elementos importantes na nutrição animal**

| | |
|---|---|
| D | Deficiente |
| S | satisfatório |
| U | desconhecido |

*FERTILITY CAPABILITY CLASSIFICATION*

# Classificação pela Capacidade de Fertilidade (CCF)

### TYPE AND SUBSTRATA TYPES

**Tipo e tipos de sub-estrato.** Possui a mesma codificação usada na Textura de solos

### MODIFIERS

**Modificadores.** Foram usados segundo a Classificação pela Capacidade de Fertilidade (Buol et al., 1975) com exceção de todas as letras maiúsculas que se utilizaram no lugar das minúsculas.

**Descritores da CCF[a]**

| | |
|---|---|
| a | toxidés de Al |
| b | carbonato livre |
| c | argila "cat" |
| d | seco |
| e | baixa CTCE |
| g | glei |
| h | acídico |
| i | baixa fixação de P |
| k | deficiente em K |
| n | sódico |
| s | salinidade |
| v | vértico, Vertisol |
| x | amorfismo por raios X |

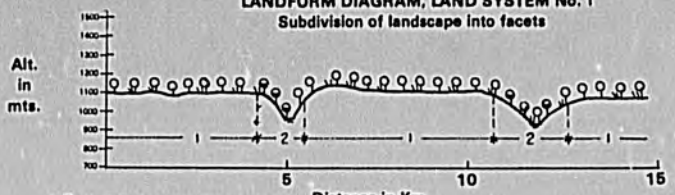
a. Estes descritores são diferentes dos de Buol et al., 1975. As letras correspondentes ao sistema CCF foram usadas quando a definição se aproximava à de Buol et al.

## Land System Bd1

CLIMATE 2070 LUZIANIA
AREA 2078400 HAS.
ALTITUDE 1100 MTS.
PHYSIOGRAPHIC UNIT NO. 1
GENERALIZED CLASSIFICATION
UPLANDS,ABOVE 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPESCR%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

LANDFORM DIAGRAM, LAND SYSTEM No. 1
Subdivision of landscape into facets




= Campo cerrado (open savanna)
= Cerrado (savanna)
= Cerradão (closed savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | V | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 90 | | |
| 8-30 % | 10 | 50 | |
| > 30 % | | 50 | |
| ALTITUDE IN MTS | 1050 | 900 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | 50 | | |
| C | 50 | 20 | |
| CD | | 80 | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 40 | 10 | |
| CROPS | 5 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSAC | OUSAC | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | A | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | I | I | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A M | A M | |
| EXCHANGEABLE AL | A M | A M | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M M | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | I | I | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | B | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | D | D | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

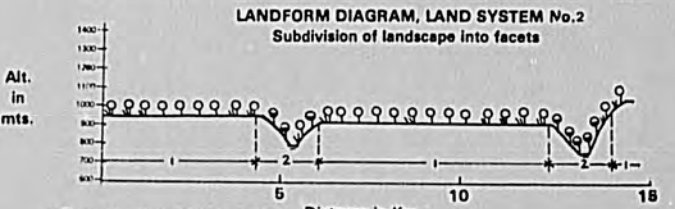
FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CC LL
MODIFIERS FACET 1 DHAKEI
FACET 2 DHAKEI
FACET 3

## Land System Bd2

CLIMATE 1920 GUARATINGA
AREA 1205100 HAS.
ALTITUDE 1000 MTS.
PHYSIOGRAPHIC UNIT NO. 1
GENERALIZED CLASSIFICATION
UPLANDS,ABOVE 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPESCR%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

LANDFORM DIAGRAM, LAND SYSTEM No.2
Subdivision of landscape into facets




= Campo cerrado (open savanna)
= Cerrado (savanna)
= Cerradão (closed savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | V | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 90 | | |
| 8-30 % | 10 | 50 | |
| > 30 % | | 50 | |
| ALTITUDE IN MTS | 1000 | 850 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | 50 | | |
| C | 50 | 20 | |
| CD | | 80 | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 40 | 10 | |
| CROPS | 5 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSAC | OUSAC | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | A | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | I | I | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | A M | |
| EXCHANGEABLE AL | A M | A M | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | I | I | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | B | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | D | D | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CC LL
MODIFIERS FACET 1 DHAKEI
FACET 2 DHAKEI
FACET 3

## Land System Bd3

CLIMATE 2070 LUZIANIA
AREA 1499900 HAS.
ALTITUDE 1000 MTS.
PHYSIOGRAPHIC UNIT NO. 2
GENERALIZED CLASSIFICATION
UPLANDS,ABOVE 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

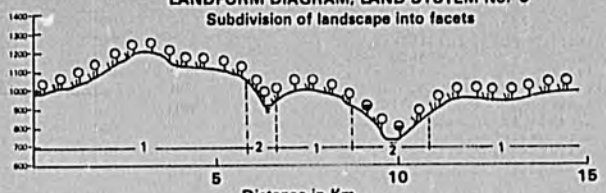
DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 20 | | |
| 8-30 % | 80 | 20 | |
| > 30 % | | 80 | |
| ALTITUDE IN MTS | 1000 | 800 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | 30 | | |
| C | 70 | 70 | |
| CD | | 30 | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 3 | 5 | |
| CROPS | 5 | | |

### LANDFORM DIAGRAM, LAND SYSTEM No. 3

Subdivision of landscape into facets




= Campo cerrado (open savanna)
= Cerradão (closed savanna)
= Cerrado (savanna)

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSAC | OUSAC | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | A | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | H | B | |
| MOIST. HOLD. CAP. | B | A | |
| TEMP. REGIME | I | I | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B H | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A M | A M | |
| EXCHANGEABLE AL | A M | A M | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | I | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | S | B | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | U | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | O | O | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CC LL
MODIFIERS FACET 1 DHAKEI
FACET 2 DHAKE
FACET 3

## Land System Bd4

CLIMATE 1920 GUARATINGA
AREA 1339800 HAS.
ALTITUDE 900 MTS.
PHYSIOGRAPHIC UNIT NO. 4
GENERALIZED CLASSIFICATION
UPLANDS,ABOVE 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

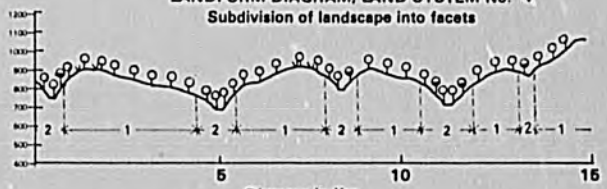
DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 75 | 25 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 15 | | |
| 8-30 % | 85 | 15 | |
| > 30 % | | 85 | |
| ALTITUDE IN MTS | 900 | 750 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | 30 | | |
| C | 70 | 70 | |
| CD | | 30 | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 30 | 5 | |
| CROPS | 5 | | |

### LANDFORM DIAGRAM, LAND SYSTEM No. 4

Subdivision of landscape into facets




= Campo cerrado (open savanna)
= Cerrado (savanna)
= Cerradão (closed savanna)

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSAC | OUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | A | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | A | B | |
| TEMP. REGIME | I | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A M | M M | |
| EXCHANGEABLE AL | A M | M B | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | U | |
| X-RAY AMORPHOUS | N | U | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | O | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

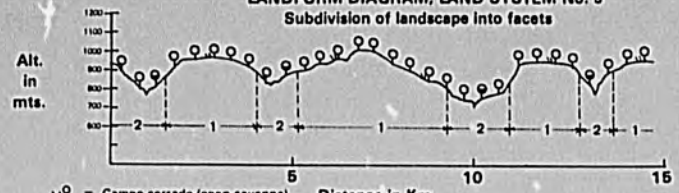
FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LL LL
MODIFIERS FACET 1 DHAKE
FACET 2 DHKE
FACET 3

## Land System Bd5

CLIMATE 1470 PIRENPOLIS
AREA 1343000 HAS.
ALTITUDE 900 MTS.
PHYSIOGRAPHIC UNIT NO. 2
GENERALIZED CLASSIFICATION
UPLANDS,ABOVE 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

LANDFORM DIAGRAM, LAND SYSTEM No. 5
Subdivision of landscape into facets




= Campo cerrado (open savanna)
= Cerrado (savanna)
= Cerradão (closed savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | Y | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 20 | 20 | |
| 8-30 % | 80 | 60 | |
| > 30 % | | 20 | |
| ALTITUDE IN MTS | 900 | 800 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | 25 | | |
| C | 75 | 60 | |
| CD | | 40 | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 30 | 30 | |
| CROPS | | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSAC | OUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | M | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | I | I | |
| MOIST. REGIME | U | SU | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A M | A M | |
| EXCHANGEABLE AL | A M | M B | |
| EXCHANGEABLE CA | B B | M B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | M B | |
| CATION EXCH. CAPAC. | E E | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | I | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | S | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | U | |
| X-RAY AMORPHOUS | N | U | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

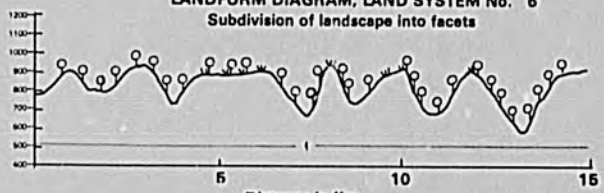
FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CC LL
MODIFIERS FACET 1 DHAKEI
FACET 2 DHAK
FACET 3

## Land System Bd6

CLIMATE 1400 FORMOSA
AREA 907900 HAS.
ALTITUDE 800 MTS.
PHYSIOGRAPHIC UNIT NO. 3
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

LANDFORM DIAGRAM, LAND SYSTEM No. 6
Subdivision of landscape into facets




W = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
= Campo cerrado (open savanna)
= Cerrado (savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | | | |
| 8-30 % | 40 | | |
| > 30 % | 60 | | |
| ALTITUDE IN MTS | 800 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 10 | | |
| CC | 20 | | |
| C | 70 | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | | |
| CROPS | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | J | | |
| SUBORDERS | OUS | | |
| GREAT GROUPS | OUSHA | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | | |
| DEPTH | M | | |
| INIT. INFIL. RATE | A | | |
| HYDRAUL. CONDUCT. | A | | |
| DRAINAGE | B | | |
| MOIST. HOLD. CAP. | A | | |
| TEMP. REGIME | I | | |
| MOIST. REGIME | SD | | |
| EXPANDING CLAYS | O | | |
| TEXTURE | L L | | |
| COARSE MATERIAL | M M | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | | |
| AL SATURATION % | A M | | |
| EXCHANGEABLE AL | A M | | |
| EXCHANGEABLE CA | B B | | |
| EXCHANGEABLE MG | M B | | |
| EXCHANGEABLE K | K K | | |
| EXCHANGEABLE NA | B B | | |
| TOTAL EXCH. BASES | B B | | |
| CATION EXCH. CAPAC. | E E | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | | |
| PHOSPHORUS | B B | | |
| PHOSPHORUS FIXATION | O | | |
| MANGANESE | U | | |
| SULPHUR | U | | |
| ZINC | U | | |
| IRON | U | | |
| COPPER | U | | |
| BORON | U | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | |
| I | U | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | U | | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LL
MODIFIERS FACET 1 DHAKE
FACET 2
FACET 3

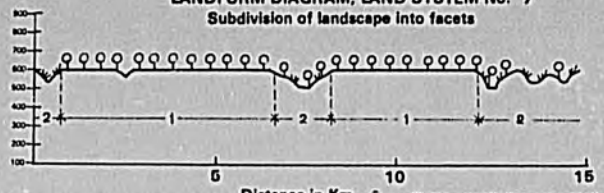
## Land System Bc7

CLIMATE 2250 PARACATU
AREA 1262000 HAS.
ALTITUDE 500 MTS.
PHYSIOGRAPHIC UNIT NO. 3
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 7

Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

ψ = Campo cerrado (open savanna)

ϕ = Cerrado (savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | V | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 90 | | |
| 8-30 % | 10 | 30 | |
| > 30 % | | 70 | |
| ALTITUDE IN MTS | 600 | 500 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 10 | 30 | |
| CC | 20 | 20 | |
| C | 70 | 50 | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDS. | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | | |
| CROPS | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OUS | EPS | |
| GREAT GROUPS | OUSHA | EPSQU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | A | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | S S | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A M | B B | |
| EXCHANGEABLE AL | A M | B B | |
| EXCHANGEABLE CA | B B | M M | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | M M | |
| CATION EXCH. CAPAC. | E E | M M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M M | |
| PHOSPHORUS | M B | M M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | SS | |
| MODIFIERS FACET 1 | DHKE | | |
| FACET 2 | DK | | |
| FACET 3 | | | |

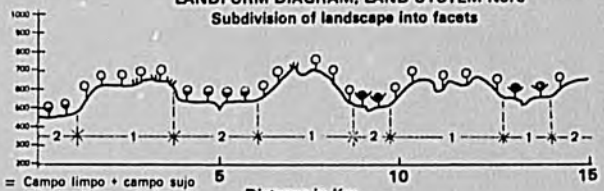
## Land System Bc8

CLIMATE 2250 PARACATU
AREA 811800 HAS.
ALTITUDE 650 MTS.
PHYSIOGRAPHIC UNIT NO. 2
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 8

Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

↑ = Tropical semi-deciduous seasonal forest

ψ = Campo cerrado (open savanna)

ϕ = Cerrado (savanna)

ϕ = Cerradão (closed savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | B | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | | 70 | |
| 8-30 % | 50 | 30 | |
| > 30 % | 50 | | |
| ALTITUDE IN MTS | 650 | 500 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 10 | | |
| CC | 30 | | |
| C | 60 | | |
| CD | | 60 | |
| TRF | | | |
| SESF | | | |
| SDSF | | 40 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 20 | |
| CROPS | | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OUS | EFL | |
| GREAT GROUPS | OUSHA | EFLUS | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | S | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | I | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | M B | M M | |
| EXCHANGEABLE MG | M B | M M | |
| EXCHANGEABLE K | K K | M M | |
| EXCHANGEABLE NA | B B | M M | |
| TOTAL EXCH. BASES | B B | M M | |
| CATION EXCH. CAPAC. | E E | M M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M M | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | S | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | DHKE | | |
| FACET 2 | D | | |
| FACET 3 | | | |

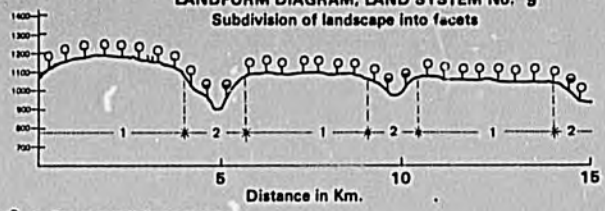
## Land System Bd9

CLIMATE 1400 FORMOSA
AREA 1317800 HAS.
ALTITUDE 1100 MTS.
PHYSIOGRAPHIC UNIT NO. 3
GENERALIZED CLASSIFICATION
UPLANDS,ABOVE 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 9

Subdivision of landscape into facets




= Campo cerrado (open savanna)
= Cerrado (savanna)
= Cerradão (closed savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | V | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 90 | | |
| 8-30 % | 10 | 70 | |
| > 30 % | | 30 | |
| ALTITUDE IN MTS | 1100 | 950 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | 10 | | |
| C | 90 | 30 | |
| CD | | 70 | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 5 | |
| CROPS | 5 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSAC | OUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | A | B | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | I | I | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A M | A M | |
| EXCHANGEABLE AL | A M | A M | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | I | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | D | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | CC | |
| MODIFIERS FACET 1 | DHAKE1 | | |
| FACET 2 | DHAKE | | |
| FACET 3 | | | |

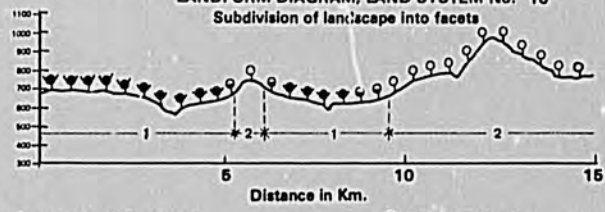
## Land System Bd10

CLIMATE 1470 PIRENPOLIS
AREA 760900 HAS.
ALTITUDE 700 MTS.
PHYSIOGRAPHIC UNIT NO. 3
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>6%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 10

Subdivision of landscape into facets




= Tropical semi-deciduous seasonal forest
= Cerrado (savanna)
= Cerradão (closed savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | B | M | |
| PERCENTAGE OF L.S. | 55 | 45 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 80 | | |
| 8-30 % | 20 | 20 | |
| > 30 % | | 80 | |
| ALTITUDE IN MTS | 650 | 850 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | 20 | | |
| TRF | | | |
| SESF | | | |
| SDSF | 80 | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 40 | 20 | |
| CROPS | 30 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSEU | OUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | A | |
| DEPTH | P | S | |
| INIT. INFIL. RATE | M | A | |
| HYDRAUL. CONDUCT. | M | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | M | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M B | A M | |
| EXCHANGEABLE AL | M B | M B | |
| EXCHANGEABLE CA | M B | B B | |
| EXCHANGEABLE MG | M M | M B | |
| EXCHANGEABLE K | M K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M M | B B | |
| CATION EXCH. CAPAC. | M M | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | B B | |
| PHOSPHORUS FIXATION | D | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | DHAKE | | |
| FACET 3 | | | |

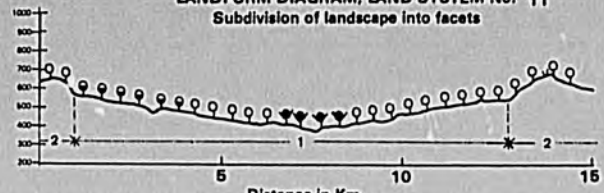
## Land System Bc11

CLIMATE 1430 GOIAS
AREA 738300 HAS.
ALTITUDE 550 MTS.
PHYSIOGRAPHIC UNIT NO. 5
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 11

Subdivision of landscape into facets




= Campo cerrado (open savanna)
= Cerrado (savanna)
= Cerradão (closed savanna)
= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | B | W | |
| PERCENTAGE OF L.S. | 75 | 25 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 60 | 10 | |
| 8-30 % | 40 | 20 | |
| > 30 % | | 70 | |
| ALTITUDE IN MTS | 550 | 550 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CL | | 20 | |
| C | 60 | 80 | |
| CD | 25 | | |
| TRF | | | |
| SESF | | | |
| SDSF | 15 | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 30 | 10 | |
| CROPS | 40 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSHA | OUSAC | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | A | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | A | |
| HYDRAUL. CONDUCT. | M | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | M | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A M | A M | |
| EXCHANGEABLE AL | M B | M B | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | M M | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | M E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B M | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | U | |
| SALINITY | B | U | |
| NATRIC | B | U | |
| CAT CLAY | U | U | |
| X-RAY AMORPHOUS | U | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | DHAK | | |
| FACET 2 | DHAKE | | |
| FACET 3 | | | |

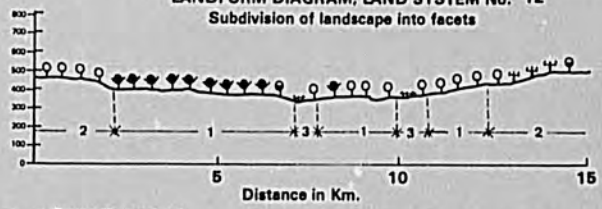
## Land System Bd12

CLIMATE 1400 FORMOSA
AREA 1451400 HAS.
ALTITUDE 400 MTS.
PHYSIOGRAPHIC UNIT NO. 5
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 12

Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)
= Cerrado (savanna)
= Cerradão (closed savanna)
= Tropical semi-deciduous seasonal forest
= Caatinga (shrubby woodland)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | C | D |
| PERCENTAGE OF L.S. | 60 | 30 | 10 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | 99 |
| < 8% | 90 | | |
| 8-30 % | 10 | 80 | |
| > 30 % | | 20 | |
| ALTITUDE IN MTS | 400 | 500 | 375 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | 99 |
| CL + CS | | | |
| CC | | | |
| C | 40 | 60 | |
| CD | 10 | 5 | |
| TRF | | | |
| SESF | | | |
| SDSF | 50 | | |
| CAAT | | 35 | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 30 | 20 | 0 |
| CROPS | 20 | 0 | 0 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | O | E |
| SUBORDERS | AUS | OUS | EAQ |
| GREAT GROUPS | AUSRH | OUSHA | EAQHY |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | B |
| DEPTH | P | P | S |
| INIT. INFIL. RATE | M | A | B |
| HYDRAUL. CONDUCT. | M | A | B |
| DRAINAGE | B | B | G |
| MOIST. HOLD. CAP. | M | B | A |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | SD | SD | SD |
| EXPANDING CLAYS | O | O | O |
| TEXTURE | C C | L S | C C |
| COARSE MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | B B | A M | B B |
| EXCHANGEABLE AL | B B | M M | B B |
| EXCHANGEABLE CA | A M | B B | A A |
| EXCHANGEABLE MG | A M | B B | A M |
| EXCHANGEABLE K | M M | K K | M M |
| EXCHANGEABLE NA | M M | B B | M M |
| TOTAL EXCH. BASES | A M | B B | A A |
| CATION EXCH. CAPAC. | A M | E E | A A |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | A M |
| PHOSPHORUS | M B | B B | M M |
| PHOSPHORUS FIXATION | O | O | O |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | U | A |
| SALINITY | B | U | B |
| NATRIC | B | U | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LS | CC |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | DHAEK | | |
| FACET 3 | DG | | |

45'

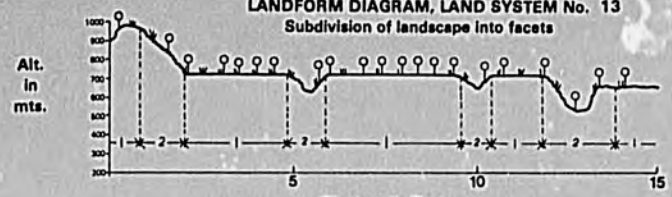
## Land System Be13

CLIMATE 1930 IBIPETUBA
AREA 5803700 HAS.
ALTITUDE 750 MTS.
PHYSIOGRAPHIC UNIT NO. 7
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
OTHERS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 13

Subdivision of landscape into facets




W = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

Campo cerrado (open savanna)

Cerrado (savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | V | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 99 | 30 | |
| 8-30 % | | 50 | |
| > 30 % | | 20 | |
| ALTITUDE IN MTS | 700 | 500 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 30 | 25 | |
| CC | 45 | 35 | |
| C | 20 | 20 | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 5 | 20 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 5 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EPS | EPS | |
| GREAT GROUPS | EPSQU | EPSQU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | R | B | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | XD | XD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S S | S S | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M B | M B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | SS | |
| MODIFIERS FACET 1 | DKE | | |
| FACET 2 | DKE | | |
| FACET 3 | | | |

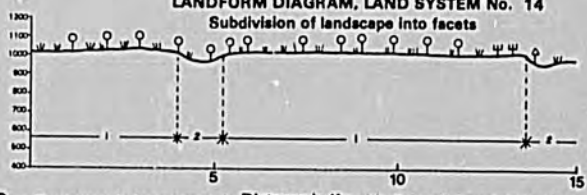
## Land System Be14

CLIMATE 2270 PARATINGA
AREA 13176300 HAS.
ALTITUDE 1100 MTS.
PHYSIOGRAPHIC UNIT NO. 7
GENERALIZED CLASSIFICATION
HIGHLANDS,ABOVE 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
OTHERS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 14

Subdivision of landscape into facets




Campo cerrado (open savanna)

Caatinga (shrubby woodland)

Other

W = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

Cerrado (savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 99 | 30 | |
| 8-30 % | | 30 | |
| > 30 % | | 40 | |
| ALTITUDE IN MTS | 800 | 770 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 25 | |
| CL + CS | 35 | 15 | |
| CC | 60 | | |
| C | | 35 | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | 5 | 5 | |
| OTHER. | | 20 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EPS | EPS | |
| GREAT GROUPS | EPSQU | EPSQU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | R | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | XD | XD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S S | S S | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M B | M M | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | B | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | SS | |
| MODIFIERS FACET 1 | DKE | | |
| FACET 2 | DKE | | |
| FACET 3 | | | |

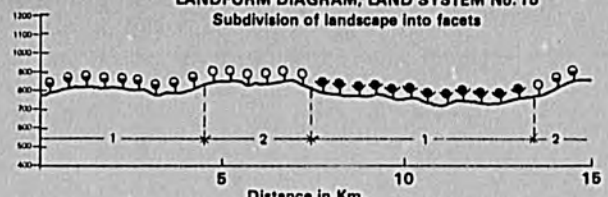
## Land System Bd15

CLIMATE 1420 GOIANIA
AREA 3465000 HAS.
ALTITUDE 700 MTS.
PHYSIOGRAPHIC UNIT NO. 9
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 15

Subdivision of landscape into facets




= Cerrado (savanna)
= Cerradão (closed savanna)
= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | C | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 80 | 20 | |
| 8-30 % | 20 | 60 | |
| > 30 % | | 20 | |
| ALTITUDE IN MTS | 700 | 800 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | 80 | |
| CD | 40 | 20 | |
| TRF | | | |
| SESF | | | |
| SDSF | 60 | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 30 | 25 | |
| CROPS | 30 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSEU | OUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | R | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | A | |
| HYDRAUL. CONDUCT. | M | A | |
| DRAINAGE | R | B | |
| MOIST. HOLD. CAP. | M | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B R | B R | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M B | M M | |
| EXCHANGEABLE AL | M R | A B | |
| EXCHANGEABLE CA | M R | B B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | M K | K K | |
| EXCHANGEABLE NA | P M | B B | |
| TOTAL EXCH. BASES | M B | B B | |
| CATION EXCH. CAPAC. | M E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | B B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CU | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CC LL
MODIFIERS FACET 1 DH
FACET 2 DHKF
FACET 3

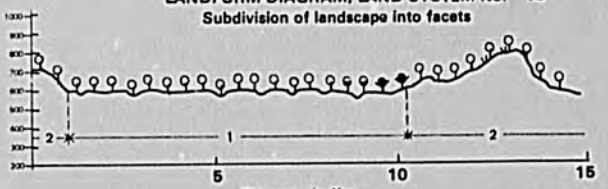
## Land System Bc16

CLIMATE 1430 GOIAS
AREA 608300 HAS.
ALTITUDE 600 MTS.
PHYSIOGRAPHIC UNIT NO. 3
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 16

Subdivision of landscape into facets




= Campo cerrado (open savanna)
= Cerrado (savanna)
= Cerradão (closed savanna)
= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | M | |
| PERCENTAGE OF L.S. | 75 | 25 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 50 | | |
| 8-30 % | 50 | 30 | |
| > 30 % | | 70 | |
| ALTITUDE IN MTS | 600 | 500 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | 20 | |
| C | 80 | 80 | |
| CD | 10 | | |
| TRF | | | |
| SESF | | | |
| SDSF | 10 | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 30 | 5 | |
| CROPS | 10 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSHA | OUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | R | A | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | A | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M B | M B | |
| EXCHANGEABLE AL | M B | M B | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | I | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CC LL
MODIFIERS FACET 1 DHKEI
FACET 2 DHKE
FACET 3

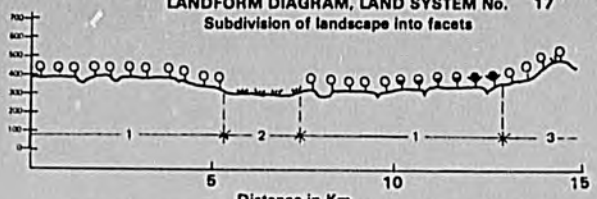
## Land System Bc17

CLIMATE 1460 PARANA
AREA 3490100 HAS.
ALTITUDE 350 MTS.
PHYSIOGRAPHIC UNIT NO. 5
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 17

Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)
= Tropical semi-deciduous seasonal forest
= Campo cerrado (open savanna)
= Cerrado (savanna)
= Cerradão (closed savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | C |
| PERCENTAGE OF L.S. | 70 | 15 | 15 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 99 | |
| < 8% | 80 | | |
| 8-30 % | 20 | | 60 |
| > 30 % | | | 40 |
| ALTITUDE IN MTS | 350 | 325 | 450 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 99 | |
| CL + CS | | | |
| CC | | | 30 |
| C | 70 | | 70 |
| CD | 20 | | |
| TRF | | | |
| SESF | | | |
| SDSF | 10 | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 0 | 0 |
| CROPS | 10 | 0 | 0 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | O |
| SUBORDERS | AUS | EAQ | OUS |
| GREAT GROUPS | AUSRH | EAQHY | OUSAC |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | H | B |
| DEPTH | P | S | P |
| INIT. INFIL. RATE | M | B | A |
| HYDRAUL. CONDUCT. | M | B | A |
| DRAINAGE | B | G | B |
| MOIST. HOLD. CAP. | M | A | B |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | SD | SD | SD |
| EXPANDING CLAYS | O | O | O |
| TEXTURE | C C | C C | L S |
| COARSE MATERIAL | B B | B B | F B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M H | M M | H H |
| AL SATURATION % | B B | B B | A M |
| EXCHANGEABLE AL | B B | B B | M B |
| EXCHANGEABLE CA | A M | A A | B P |
| EXCHANGEABLE MG | A M | A M | B B |
| EXCHANGEABLE K | M M | M M | K K |
| EXCHANGEABLE NA | M M | M M | B B |
| TOTAL EXCH. BASES | A M | A A | B B |
| CATION EXCH. CAPAC. | A M | A A | E E |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | M B |
| PHOSPHORUS | M B | M M | B B |
| PHOSPHORUS FIXATION | O | O | O |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | U |
| SALINITY | B | B | U |
| NATRIC | B | B | U |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CC CC LS
MODIFIERS FACET 1 D
FACET 2 DG
FACET 3 DHAFK

## Land System Bd18

CLIMATE 1400 FORMOSA
AREA 3354100 HAS.
ALTITUDE 700 MTS.
PHYSIOGRAPHIC UNIT NO.
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 18

Subdivision of landscape into facets

= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
= Campo cerrado (open savanna)
= Tropical semi-deciduous seasonal forest
= Cerrado (savanna)
= Cerradão (closed savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | B | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | | 50 | |
| 8-30 % | 30 | 50 | |
| > 30 % | 70 | | |
| ALTITUDE IN MTS | 700 | 550 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 15 | | |
| CC | 15 | | |
| C | 70 | 40 | |
| CD | | 40 | |
| TRF | | | |
| SESF | | | |
| SDSF | | 20 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 20 | |
| CROPS | | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSHA | OUSEU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M H | |
| AL SATURATION % | M B | H B | |
| EXCHANGEABLE AL | M B | M B | |
| EXCHANGEABLE CA | B B | M B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | M B | |
| CATION EXCH. CAPAC. | E E | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LL LL
MODIFIERS FACET 1 DHKE
FACET 2 D
FACET 3

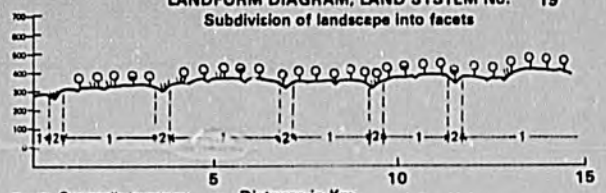
## Land System Bc19

CLIMATE 1480 PORTO NACIONAL
AREA 5854600 HAS.
ALTITUDE 350 MTS.
PHYSIOGRAPHIC UNIT NO. 4
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 19

Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)
w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
= Campo cerrado (open savanna)
= Cerrado (savanna)
= Cerradão (closed savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 60 | |
| < 8% | 80 | | |
| 8-30 % | 20 | 20 | |
| > 30 % | | 20 | |
| ALTITUDE IN MTS | 350 | 325 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 40 | |
| CL + CS | | 20 | |
| CC | 20 | 20 | |
| C | 70 | 10 | |
| CD | 10 | 10 | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 5 | |
| CROPS | 10 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | A | |
| SUBORDERS | OUS | AAQ | |
| GREAT GROUPS | OUSAC | AAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L C | |
| COARSE MATERIAL | B B | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A B | B B | |
| EXCHANGEABLE AL | M B | M B | |
| EXCHANGEABLE CA | B B | M M | |
| EXCHANGEABLE MG | M B | M M | |
| EXCHANGEABLE K | K K | M M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | M M | |
| CATION EXCH. CAPAC. | E F | M M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LC | |
| MODIFIERS FACET 1 | DHKE | | |
| FACET 2 | G | | |
| FACET 3 | | | |

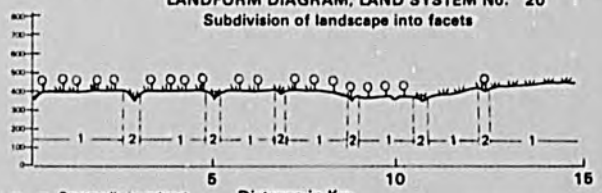
## Land System Bc20

CLIMATE 1480 PORTO NACIONAL
AREA 1856800 HAS.
ALTITUDE 400 MTS.
PHYSIOGRAPHIC UNIT NO. 5
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 20

Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)
w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
= Campo cerrado (open savanna)
= Cerrado (savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 60 | |
| < 8% | 80 | | |
| 8-30 % | 20 | 20 | |
| > 30 % | | 20 | |
| ALTITUDE IN MTS | 400 | 375 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 40 | |
| CL + CS | 30 | 40 | |
| CC | 50 | 20 | |
| C | 20 | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 10 | |
| CROPS | 10 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | A | |
| SUBORDERS | OUS | AAQ | |
| GREAT GROUPS | OUSAC | AAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L C | |
| COARSE MATERIAL | B M | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M B | B B | |
| EXCHANGEABLE AL | M B | M B | |
| EXCHANGEABLE CA | B B | M M | |
| EXCHANGEABLE MG | B B | M B | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | M M | |
| CATION EXCH. CAPAC. | E E | M M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | U | U | |
| SALINITY | U | U | |
| NATRIC | U | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LC | |
| MODIFIERS FACET 1 | DHKE | | |
| FACET 2 | G | | |
| FACET 3 | | | |

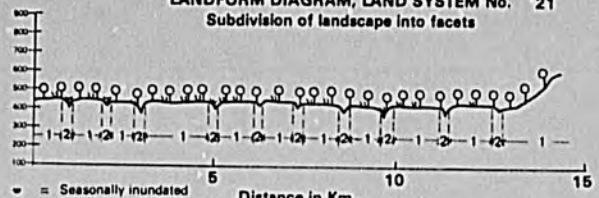
## Land System Bc21

CLIMATE 1460 PARANA
AREA 885200 HAS.
ALTITUDE 450 MTS.
PHYSIOGRAPHIC UNIT NO. 3
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 21

Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)

= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Campo cerrado (open savanna)

= Cerrado (savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 75 | 25 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 30 | |
| < 8% | 80 | 20 | |
| 8-30 % | 20 | 20 | |
| > 30 % | | 30 | |
| ALTITUDE IN MTS | 450 | 450 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 30 | |
| CL + CS | | 20 | |
| CC | 70 | 30 | |
| C | 30 | 20 | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 5 | |
| CROPS | 5 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSAC | OUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L S | L L | |
| COARSE MATERIAL | B M | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M B | M B | |
| EXCHANGEABLE AL | M B | M B | |
| EXCHANGEABLE CA | B B | M B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | U | A | |
| SALINITY | U | B | |
| NATRIC | U | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LS | LL | |
| MODIFIERS FACET 1 | DHKE | | |
| FACET 2 | DHK | | |
| FACET 3 | | | |

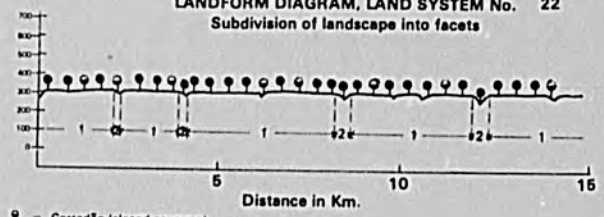
## Land System Bc22

CLIMATE 1430 GOIAS
AREA 2198800 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO. 14
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 22

Subdivision of landscape into facets




= Cerradão (closed savanna)

= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 70 | |
| < 8% | 90 | | |
| 8-30 % | 10 | 30 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 300 | 300 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | 20 | 10 | |
| TRF | | | |
| SCSF | 80 | 90 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 0 | |
| CROPS | 10 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | A | |
| SUBORDERS | OUS | AAQ | |
| GREAT GROUPS | OUSEU | AAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M B | M M | |
| EXCHANGEABLE MG | M M | M M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | M M | |
| CATION EXCH. CAPAC. | M E | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | CC | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | G | | |
| FACET 3 | | | |

50'

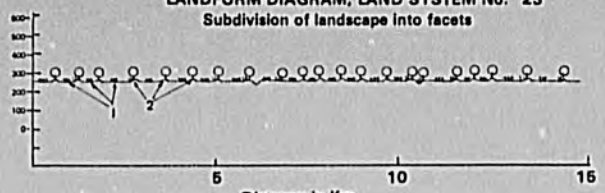
## Land System Bc23

CLIMATE 710 CONCEICAO ARAGUAIA
AREA 5911300 HAS.
ALTITUDE 250 MTS.
PHYSIOGRAPHIC UNIT NO. 15
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 23

Subdivision of landscape into facets




= Campo cerrado (open savanna)
= Cerrado (savanna)
= Seasonally inundated pampa (grasslands)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 75 | 25 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 99 | 40 | |
| < 8% | | | 60 |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 250 | 250 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 99 | | |
| CL + CS | | | |
| CC | | 50 | |
| C | | 50 | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | U | |
| SUBORDERS | UAO | UUD | |
| GREAT GROUPS | UAOPL | UUDPL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | B | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S C | S C | |
| COARSE MATERIAL | B A | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | H H | |
| AL SATURATION % | H A | A M | |
| EXCHANGEABLE AL | M A | M M | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | A A | B B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | A A | B B | |
| TOTAL EXCH. BASES | B A | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | M B | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | D | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SC | SL | |
| MODIFIERS FACET 1 | GHKE | | |
| FACET 2 | GHAKE | | |
| FACET 3 | | | |

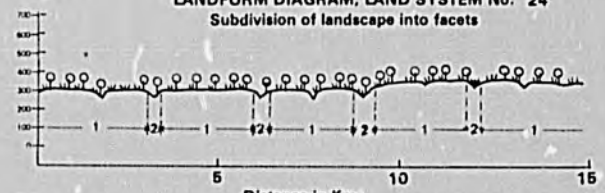
## Land System Bc24

CLIMATE 710 CONCEICAO ARAGUAIA
AREA 1636900 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO. 15
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 24

Subdivision of landscape into facets




= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
= Campo cerrado (open savanna)
= Cerrado (savanna)
= Cerradão (closed savanna)
= Seasonally inundated pampa (grasslands)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 70 | 20 | |
| 8-30 % | 30 | 30 | |
| > 30 % | | 50 | |
| ALTITUDE IN MTS | 300 | 250 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 60 | |
| CL + CS | 30 | 30 | |
| CC | 70 | 60 | |
| C | | 10 | |
| CD | | 10 | |
| TRF | | | |
| SESF | | | |
| SDSF | | 20 | |
| CAAT | | | |
| OTHER | | 10 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUSC | OUS | |
| GREAT GROUPS | OUSAC | OUSAC | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | A | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | M A | B A | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | H H | |
| AL SATURATION % | A M | H M | |
| EXCHANGEABLE AL | A M | M B | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | B B | B B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

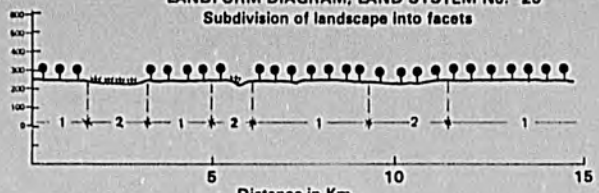
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | I | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | B | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | D | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | DHAKEI | | |
| FACET 2 | DHKE | | |
| FACET 3 | | | |

## Land System Bc25

CLIMATE 1490 PORTO NACIONAL
AREA 463900 HAS.
ALTITUDE 250 MTS.
PHYSIOGRAPHIC UNIT NO. 15
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

LANDFORM DIAGRAM, LAND SYSTEM No. 25
Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Seasonally inundated pampa (grasslands)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 99 | |
| < 8% | 99 | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 250 | 225 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 50 | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 99 | 50 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 0 | |
| CROPS | 10 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EFL | EAJ | |
| GREAT GROUPS | EFLTR | EAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | D | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | B | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | D | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M B | M M | |
| EXCHANGEABLE MG | M B | M M | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | M M | |
| CATION EXCH. CAPAC. | M M | M M | |

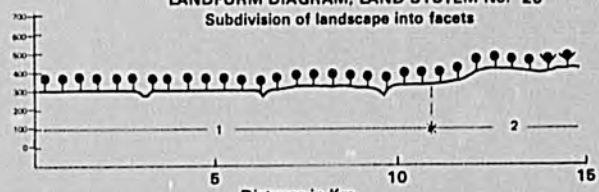
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | S | S | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LC | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Bc26

CLIMATE 710 CONCEICAO ARAGUAIA
AREA 1498999 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO. 29
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

LANDFORM DIAGRAM, LAND SYSTEM No. 26
Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | C | |
| PERCENTAGE OF L.S. | 75 | 25 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 90 | 20 | |
| 8-30 % | 10 | 70 | |
| > 30 % | | 10 | |
| ALTITUDE IN MTS | 300 | 1255 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 99 | 80 | |
| SDSF | | 20 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 0 | |
| CROPS | 5 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSEU | OUSEU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M H | H H | |
| AL SATURATION % | M B | M B | |
| EXCHANGEABLE AL | M B | M B | |
| EXCHANGEABLE CA | M B | M B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | M B | |
| CATION EXCH. CAPAC. | M E | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | DH | | |
| FACET 3 | | | |

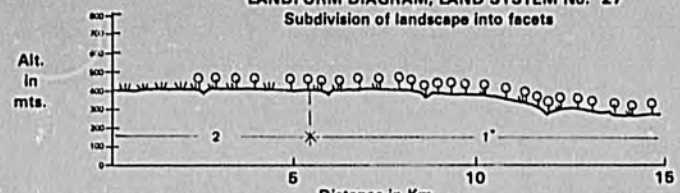
## Land System Bc27

CLIMATE 1480 PORTO NACIONAL
AREA 2498577 HAS.
ALTITUDE 350 MTS.
PHYSIOGRAPHIC UNIT NO. 28
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
WELL DRAINED LANDS
FLAT LANDS.SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS.MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 27

Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Campo cerrado (open savanna)

= Cerrado (savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | A | |
| PERCENTAGE OF L.S. | 65 | 35 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 80 | 90 | |
| 8-30 % | 20 | 10 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 300 | 400 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | 50 | |
| CC | 25 | 25 | |
| C | 75 | 25 | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 20 | |
| CROPS | 5 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | U | |
| SUBORDERS | DUS | DUS | |
| GREAT GROUPS | DUSHA | DUSAC | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | U | |
| TEXTURE | L S | C C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M B | A M | |
| EXCHANGEABLE AL | M B | A B | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | U | I | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | B | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LS CC
MODIFIERS FACET 1 DHKE
FACET 2 DHAKEI
FACET 3

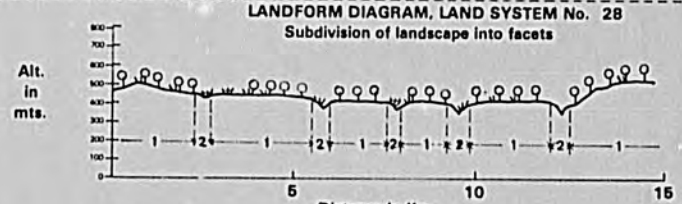
## Land System Bc28

CLIMATE 1440 MERURI
AREA 6759333 HAS.
ALTITUDE 400 MTS.
PHYSIOGRAPHIC UNIT NO. 16
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
WELL DRAINED LANDS
FLAT LANDS.SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS.MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 28

Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)

w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Campo cerrado (open savanna)

= Cerrado (savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 30 | |
| < 8% | 80 | 30 | |
| 8-30 % | 10 | 40 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 400 | 375 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 10 | 30 | |
| CL + CS | 10 | 50 | |
| CC | 20 | | |
| C | 60 | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 20 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | U | |
| SUBORDERS | DUS | DUS | |
| GREAT GROUPS | DUSAC | DUSEU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | M M | |
| EXCHANGEABLE AL | A A | A M | |
| EXCHANGEABLE CA | B B | M B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | I | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LL LL
MODIFIERS FACET 1 DHAKEI
FACET 2 D
FACET 3

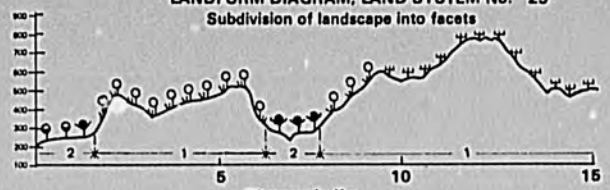
## Land System Bc29

CLIMATE 1440 PORTO NACIONAL
AREA 2822500 HAS.
ALTITUDE 600 MTS.
PHYSIOGRAPHIC UNIT NO. 3
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 29

Subdivision of landscape into facets




= Campo cerrado (open savanna)

= Cerradão (closed savanna)

= Tropical semi-deciduous seasonal forest

= Caatinga (shrubby woodland)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | P | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | | 70 | |
| 8-30 % | 20 | 30 | |
| > 30 % | 80 | | |
| ALTITUDE IN MTS | 600 | 250 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | 50 | | |
| C | | | |
| CD | | 30 | |
| TRF | | | |
| SESF | | | |
| SDSF | | 70 | |
| CAAT | 50 | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 5 | |
| CROPS | 0 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | O | |
| SUBORDERS | ITH | OUS | |
| GREAT GROUPS | ITROY | OUSEU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | S | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | O | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C R | L L | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M H | M H | |
| AL SATURATION % | H B | B B | |
| EXCHANGEABLE AL | M B | B B | |
| EXCHANGEABLE CA | M B | M B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | M B | |
| CATION EXCH. CAPAC. | M M | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | M H | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CR LL
MODIFIERS FACET 1 OK
FACET 2 O
FACET 3

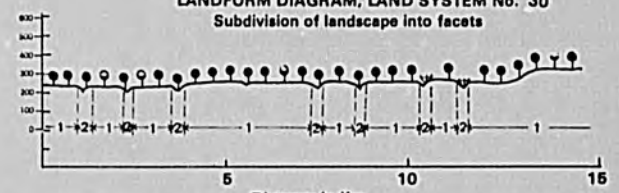
## Land System Bc30

CLIMATE 1440 MERURI
AREA 719400 HAS.
ALTITUDE 250 MTS.
PHYSIOGRAPHIC UNIT NO. 14
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 30

Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)

= Cerradão (closed savanna)

= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | O | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 50 | |
| < 8% | 90 | 30 | |
| 8-30 % | 10 | 10 | |
| > 30 % | | 10 | |
| ALTITUDE IN MTS | 250 | 225 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 20 | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | 10 | | |
| TRF | | | |
| SESF | 90 | 80 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 0 | |
| CROPS | 20 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EFL | EAQ | |
| GREAT GROUPS | EFLTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | O | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M M | M M | |
| EXCHANGEABLE MG | M M | M M | |
| EXCHANGEABLE K | M K | M M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | M M | M M | |
| CATION EXCH. CAPAC. | M M | M M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LL LC
MODIFIERS FACET 1 O
FACET 2
FACET 3

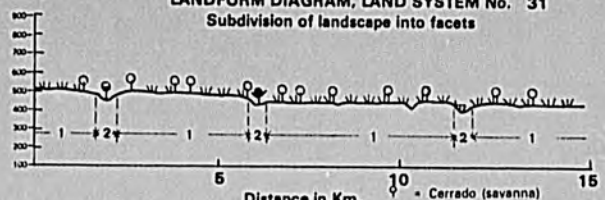
## Land System Bc31

CLIMATE 1440 MERURI
AREA 484300 HAS.
ALTITUDE 500 MTS.
PHYSIOGRAPHIC UNIT NO. 15
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 31

Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)

w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Cerrado (savanna)

= Campo cerrado (open savanna)

= Cerradão (closed savanna)

= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 23 | |
| < 8% | 90 | 20 | |
| 8-30 % | 10 | 30 | |
| > 30 % | | 30 | |
| ALTITUDE IN MTS | 500 | 450 | |

ORIGINAL VEGETATION CLASS. (%)

| | | | |
|---|---|---|---|
| SEAS.IN.P. | | 20 | |
| CL + CS | 40 | | |
| CC | 60 | | |
| C | | | |
| CD | | 40 | |
| TRF | | | |
| SESF | | | |
| SDSF | | 40 | |
| CAAT | | | |
| OTHER | | | |

INDUCED VEGETATION (%)

| | | | |
|---|---|---|---|
| PASTURE | 10 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSAC | OUSAL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | H H | |
| AL SATURATION % | A M | H M | |
| EXCHANGEABLE AL | A M | M B | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | B B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | I | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | O | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | DHAKEI | | |
| FACET 2 | DHKE | | |
| FACET 3 | | | |

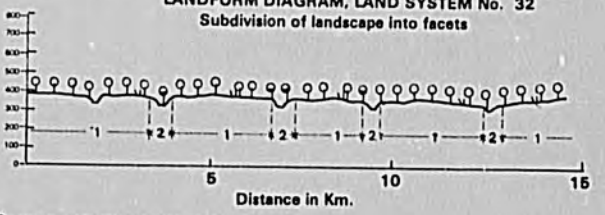
## Land System Bc32

CLIMATE 1440 MERURI
AREA 648800 HAS.
ALTITUDE 350 MTS.
PHYSIOGRAPHIC UNIT NO. 14
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 32

Subdivision of landscape into facets




= Campo cerrado (open savanna)

= Cerrado (savanna)

= Cerradão (closed savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 80 | 20 | |
| 8-30 % | 20 | 40 | |
| > 30 % | | 40 | |
| ALTITUDE IN MTS | 350 | 300 | |

ORIGINAL VEGETATION CLASS. (%)

| | | | |
|---|---|---|---|
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | 30 | | |
| C | 70 | 30 | |
| CD | | 70 | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |

INDUCED VEGETATION (%)

| | | | |
|---|---|---|---|
| PASTURE | 20 | 0 | |
| CROPS | 5 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSHA | OUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B M | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | H H | |
| AL SATURATION % | A M | A B | |
| EXCHANGEABLE AL | M B | M B | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

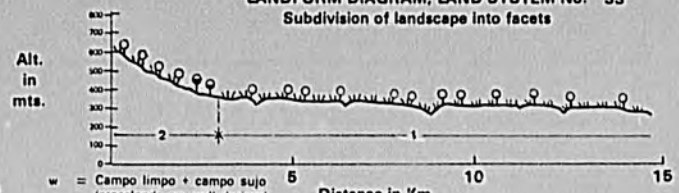
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | B | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | U | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | O | O | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | DHAKE | | |
| FACET 2 | DHAKE | | |
| FACET 3 | | | |

## Land System Bc33

CLIMATE 1440 MERURI
AREA 312500 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO. 14
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

LANDFORM DIAGRAM, LAND SYSTEM No. 33
Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Campo cerrado (open savanna)

= Cerradão (closed savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | F | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 20 | 60 | |
| 8-30 % | 20 | 20 | |
| > 30 % | 60 | | |
| ALTITUDE IN MTS | 300 | 500 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 50 | | |
| CC | 50 | | |
| C | | 80 | |
| CD | | 20 | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 0 | |
| CROPS | 15 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OUS | EOK | |
| GREAT GROUPS | OUSHA | EORUS | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | A | |
| DEPTH | P | S | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | M | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B M | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A B | B B | |
| EXCHANGEABLE AL | M B | B M | |
| EXCHANGEABLE CA | B B | M M | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | M B | |
| CATION EXCH. CAPAC. | E E | M E | |

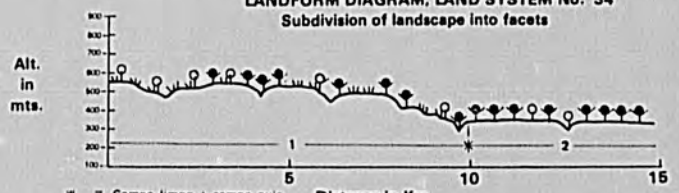
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M M | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | DHAKE | | |
| FACET 2 | D | | |
| FACET 3 | | | |

## Land System Bc34

CLIMATE 1440 MERURI
AREA 2362300 HAS.
ALTITUDE 500 MTS.
PHYSIOGRAPHIC UNIT NO. 13
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

LANDFORM DIAGRAM, LAND SYSTEM No. 34
Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Campo cerrado (open savanna)

= Cerrado (savanna)

= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | P | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | | 80 | |
| 8-30 % | 60 | 20 | |
| > 30 % | 40 | | |
| ALTITUDE IN MTS | 500 | 350 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 30 | | |
| CC | 30 | | |
| C | | 20 | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 40 | 80 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 15 | |
| CROPS | 0 | 15 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OUS | EPS | |
| GREAT GROUPS | OUSHA | EPSQU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | S S | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M H | |
| AL SATURATION % | A B | B B | |
| EXCHANGEABLE AL | M B | B B | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | M B | B B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | M E | |

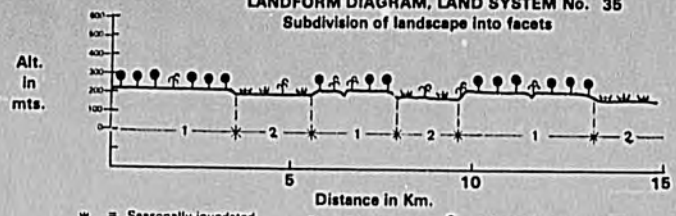
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M P | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | B | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | O | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | SS | |
| MODIFIERS FACET 1 | DHAKE | | |
| FACET 2 | DK | | |
| FACET 3 | | | |

## Land System Bb35

CLIMATE 610 ALTO TAPAJOS
AREA 976800 HAS.
ALTITUDE 0 MTS.
PHYSIOGRAPHIC UNIT NO. 15
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 35
Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)
= Palm forest
= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | D | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 20 | 80 | |
| < 8% | 80 | 20 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 250 | 225 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 80 | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 50 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 20 | 20 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 0 | |
| CROPS | 5 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | S | L | |
| SUBORDERS | EFL | EAQ | |
| GREAT GROUPS | EFLTR | EAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | D | G | |
| MOIST. HOLD. CAP. | A | A | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | S S | S S | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M B | M B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | M B | |
| CATION EXCH. CAPAC. | M E | M E | |

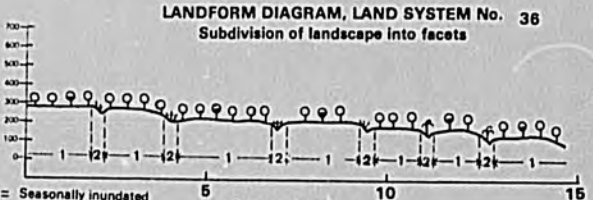
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | B | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | SS | |
| MODIFIERS FACET 1 | K | | |
| FACET 2 | GK | | |
| FACET 3 | | | |

## Land System Bc36

CLIMATE 1490 PRESIDENTE MURTINHO
AREA 3799900 HAS.
ALTITUDE 650 MTS.
PHYSIOGRAPHIC UNIT NO. 26
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 36
Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)
w = Campo limpo / campo sujo (grasslands on well drained lands with occasional shrubs)
= Cerrado (savanna)
= Cerradão (closed savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | D | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 80 | |
| < 8% | 90 | | |
| 8-30 % | 10 | 20 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 650 | 625 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 80 | |
| CL + CS | | 20 | |
| CC | | | |
| C | 80 | | |
| CD | 20 | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 5 | |
| CROPS | 10 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | A | |
| SUBORDERS | OUS | AAQ | |
| GREAT GROUPS | OUSAC | AAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | A M | B B | |
| EXCHANGEABLE AL | A B | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | K K | M M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | M M | |
| CATION EXCH. CAPAC. | E E | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | E B | M B | |
| PHOSPHORUS FIXATION | I | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | CC | |
| MODIFIERS FACET 1 | DHAKEI | | |
| FACET 2 | G | | |
| FACET 3 | | | |

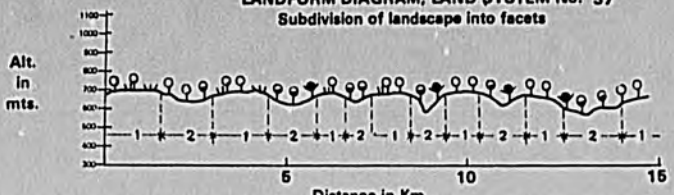
## Land System Bc37

CLIMATE 1490 PRESIDENTE MURTINHO
AREA 482900 HAS.
ALTITUDE 650 MTS.
PHYSIOGRAPHIC UNIT NO. 26
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 37

Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Campo cerrado (open savanna)

= Cerradão (closed savanna)

= Cerrado (savanna)

= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 55 | 45 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 40 | 30 | |
| 8-30 % | 30 | 40 | |
| > 30 % | 30 | 30 | |
| ALTITUDE IN MTS | 650 | 550 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 10 | | |
| CC | 20 | | |
| C | 70 | 20 | |
| CD | | 60 | |
| TRF | | | |
| SESF | | | |
| SDSF | | 20 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSHA | OUSEU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | A N | M B | |
| EXCHANGEABLE AL | A M | M B | |
| EXCHANGEABLE CA | B B | M B | |
| EXCHANGEABLE MG | B B | M B | |
| EXCHANGEABLE K | K K | M A | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | M B | |
| CATION EXCH. CAPAC. | E E | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | I | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | DHAKEI | | |
| FACET 2 | DA | | |
| FACET 3 | | | |

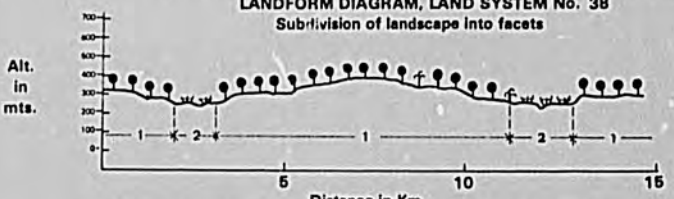
## Land System Ab38

CLIMATE 610 ALTO TAPAJOS
AREA 13625475 HAS.
ALTITUDE 350 MTS.
PHYSIOGRAPHIC UNIT NO. 17
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 38

Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)

= Palm forest

= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 50 | |
| < 8% | 80 | 10 | |
| 8-30 % | 20 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 350 | 250 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 99 | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 99 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | U | |
| SUBORDERS | UUD | UAQ | |
| GREAT GROUPS | UUDTR | UAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | S | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | A | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | B B | M M | |
| EXCHANGEABLE MG | M B | M M | |
| EXCHANGEABLE K | K K | M M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | M M | |
| CATION EXCH. CAPAC. | E E | M M | |

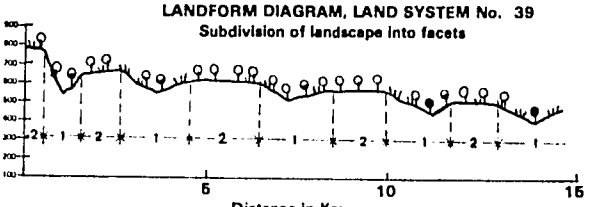
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | SL | |
| MODIFIERS FACET 1 | HAKE | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Bd39

CLIMATE 1490 PRESIDENTE MORTINHO
AREA 1772100 HAS.
ALTITUDE 500 MTS.
PHYSIOGRAPHIC UNIT NO. 22
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 39
Subdivision of landscape into facets




= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Campo cerrado (open savanna)

= Cerrado (savanna)

= Cerradão (closed savanna)

= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | V | A | |
| PERCENTAGE OF L.S. | 55 | 45 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 10 | 80 | |
| 8-30 % | 30 | 20 | |
| > 30 % | 60 | | |
| ALTITUDE IN MTS | 400 | 500 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 25 | | |
| CC | 25 | 20 | |
| C | 20 | 80 | |
| CO | 15 | | |
| TRF | | | |
| SESF | 15 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 5 | |
| CROPS | 0 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | U | |
| SUBORDERS | UUS | UUS | |
| GREAT GROUPS | UUSHA | UUSAC | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | C C | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | H H | |
| AL SATURATION % | A B | A M | |
| EXCHANGEABLE AL | M B | M B | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | B B | B B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

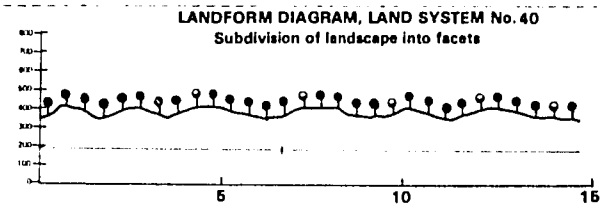
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | B B | |
| PHOSPHORUS FIXATION | O | I | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | B | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | B | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | CC | |
| MODIFIERS FACET 1 | DHAKE | | |
| FACET 2 | DHAKEI | | |
| FACET 3 | | | |

## Land System Ab40

CLIMATE 610 ALTO TAPAJOS
AREA 9679657 HAS.
ALTITUDE 350 MTS.
PHYSIOGRAPHIC UNIT NO. 17
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 40
Subdivision of landscape into facets




= Cerradão (closed savanna)

= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 30 | | |
| 8-30 % | 50 | | |
| > 30 % | 20 | | |
| ALTITUDE IN MTS | 350 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | 10 | | |
| TRF | | | |
| SESF | 90 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | | |
| CROPS | 0 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | | |
| SUBORDERS | OOR | | |
| GREAT GROUPS | OORAC | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | | |
| DEPTH | P | | |
| INIT. INFIL. RATE | A | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | B | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | U | | |
| EXPANDING CLAYS | O | | |
| TEXTURE | L L | | |
| COARSE MATERIAL | B B | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | | |
| AL SATURATION % | A M | | |
| EXCHANGEABLE AL | M B | | |
| EXCHANGEABLE CA | M B | | |
| EXCHANGEABLE MG | M B | | |
| EXCHANGEABLE K | K K | | |
| EXCHANGEABLE NA | B B | | |
| TOTAL EXCH. BASES | B B | | |
| CATION EXCH. CAPAC. | M E | | |

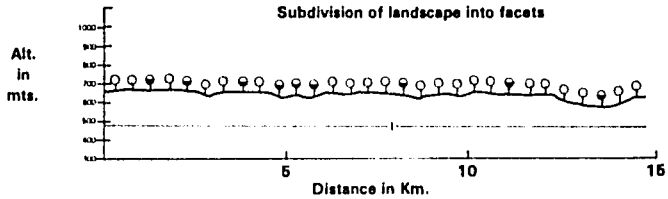
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | | |
| PHOSPHORUS | B B | | |
| PHOSPHORUS FIXATION | O | | |
| MANGANESE | U | | |
| SULPHUR | U | | |
| ZINC | U | | |
| IRON | U | | |
| COPPER | U | | |
| BORON | U | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | |
| I | U | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Ac41

CLIMATE 1480 PORTO NACIONAL
AREA 574606 HAS.
ALTITUDE 400 MTS.
PHYSIOGRAPHIC UNIT NO. 16
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No. 41**
**Subdivision of landscape into facets**




= Cerrado (savanna)
= Cerradão (closed savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 80 | | |
| 8-30 % | 20 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 400 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | 70 | | |
| CO | 30 | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | | |
| CROPS | 0 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | | |
| SUBORDERS | OOK | | |
| GREAT GROUPS | OORHA | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | P | | |
| INIT. INFIL. RATE | A | | |
| HYDRAUL. CONDUCT. | A | | |
| DRAINAGE | B | | |
| MOIST. HOLD. CAP. | B | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | U | | |
| EXPANDING CLAYS | O | | |
| TEXTURE | L | L | |
| COARSE MATERIAL | B | M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H | H | |
| AL SATURATION % | A | B | |
| EXCHANGEABLE AL | A | B | |
| EXCHANGEABLE CA | B | B | |
| EXCHANGEABLE MG | B | B | |
| EXCHANGEABLE K | K | K | |
| EXCHANGEABLE NA | B | B | |
| TOTAL EXCH. BASES | B | B | |
| CATION EXCH. CAPAC. | E | E | |

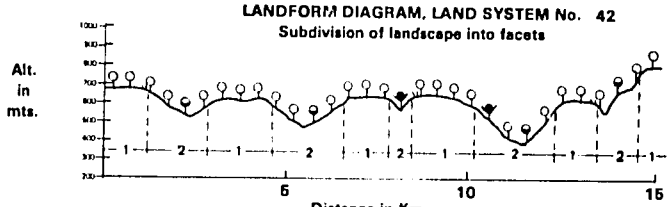
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M | B | |
| PHOSPHORUS | B | B | |
| PHOSPHORUS FIXATION | I | | |
| MANGANESE | U | | |
| SULPHUR | J | | |
| ZINC | J | | |
| IRON | U | | |
| COPPER | U | | |
| BORON | J | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | |
| I | U | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | | |
| MODIFIERS FACET 1 | HAKEI | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Bc42

CLIMATE 1430 GOIAS
AREA 2285400 HAS.
ALTITUDE 600 MTS.
PHYSIOGRAPHIC UNIT NO. 16
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 42**
**Subdivision of landscape into facets**




= Campo cerrado (open savanna)
= Cerrado (savanna)
= Cerradão (closed savanna)
= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 50 | 50 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 50 | 20 | |
| 8-30 % | 50 | 40 | |
| > 30 % | | 40 | |
| ALTITUDE IN MTS | 600 | 400 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | 20 | | |
| C | 80 | 60 | |
| CO | | 30 | |
| TRF | | | |
| SESF | | | |
| SDSF | | 10 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 5 | |
| CROPS | 5 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSHA | OUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | M | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SO | SO | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L | L | L L |
| COARSE MATERIAL | B | B | B M |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H | H | H H |
| AL SATURATION % | M | B | M H |
| EXCHANGEABLE AL | M | B | M B |
| EXCHANGEABLE CA | B | B | B B |
| EXCHANGEABLE MG | B | B | B B |
| EXCHANGEABLE K | K | K | K K |
| EXCHANGEABLE NA | B | B | B B |
| TOTAL EXCH. BASES | B | B | B B |
| CATION EXCH. CAPAC. | E | E | E E |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M | B | M B |
| PHOSPHORUS | B | B | B B |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | B | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | DHKE | | |
| FACET 2 | DHKE | | |
| FACET 3 | | | |

## Land System Rd43

CLIMATE 1420 GOIANIA
AREA 1361900 HAS.
ALTITUDE 550 MTS.
PHYSIOGRAPHIC UNIT NO. 13
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
WELL DRAINED LANDS
FLAT LANDS.SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS.MAIN LAND FACET 5-10M

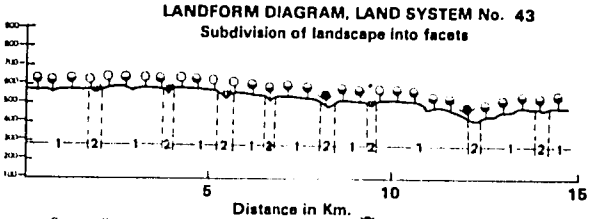
LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | D | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 50 | |
| < 8% | 30 | 25 | |
| 8-30 % | 10 | 25 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 550 | 500 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 50 | |
| CL + CS | | | |
| CC | | | |
| C | 10 | | |
| CD | 30 | 25 | |
| TRF | | | |
| SESF | | | |
| SDSF | | 25 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 40 | 20 | |
| CROPS | 40 | 5 | |

| SOIL CLASSIFICATION | FACETS 1 | 2 | 3 |
|---|---|---|---|
| ORDERS | D | A | |
| SUBORDERS | DUS | AAQ | |
| GREAT GROUPS | DUSFU | AAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | C C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A M | M B | |
| EXCHANGEABLE AL | A M | M B | |
| EXCHANGEABLE CA | M B | M M | |
| EXCHANGEABLE MG | M B | M M | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | M B | M M | |
| CATION EXCH. CAPAC. | M E | M M | |

| SOIL CHEM. PROP. (CONT.) | FACETS 1 | 2 | 3 |
|---|---|---|---|
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | I | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | CC | |
| MODIFIERS FACET 1 | DHI | | |
| FACET 2 | G | | |
| FACET 3 | | | |

**LANDFORM DIAGRAM, LAND SYSTEM No. 43**
**Subdivision of landscape into facets**




= Seasonally inundated pampa (grasslands)
= Cerrado (savanna)
= Cerradão (closed savanna)
= Tropical semi-deciduous seasonal forest

## Land System Re44

CLIMATE 1450 MONTE ALEGRE MINAS
AREA 879800 HAS.
ALTITUDE 450 MTS.
PHYSIOGRAPHIC UNIT NO. 13
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
WELL DRAINED LANDS
FLAT LANDS.SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS.MAIN LAND FACET 5-10M

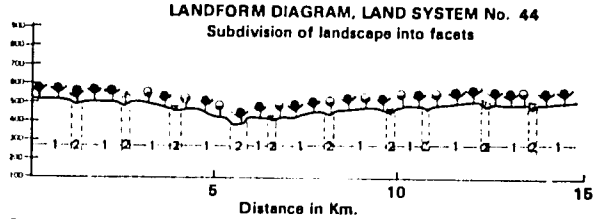
LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | D | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 50 | |
| < 8% | 30 | | |
| 8-30 % | 10 | 50 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 500 | 450 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 50 | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | 30 | | |
| TRF | | | |
| SESF | | | |
| SDSF | 70 | 50 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 45 | 20 | |
| CROPS | 40 | 10 | |

| SOIL CLASSIFICATION | FACETS 1 | 2 | 3 |
|---|---|---|---|
| ORDERS | D | A | |
| SUBORDERS | DUS | AAQ | |
| GREAT GROUPS | DUSFU | AAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | C C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | M B | |
| EXCHANGEABLE AL | M B | M B | |
| EXCHANGEABLE CA | M B | M M | |
| EXCHANGEABLE MG | M B | M M | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | M B | M M | |
| CATION EXCH. CAPAC. | M E | M M | |

| SOIL CHEM. PROP. (CONT.) | FACETS 1 | 2 | 3 |
|---|---|---|---|
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | I | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | CC | |
| MODIFIERS FACET 1 | DHI | | |
| FACET 2 | G | | |
| FACET 3 | | | |

**LANDFORM DIAGRAM, LAND SYSTEM No. 44**
**Subdivision of landscape into facets**




= Cerradão (closed savanna)
= Tropical semi-deciduous seasonal forest
= Seasonally inundated pampa (grasslands)
= Palm forest

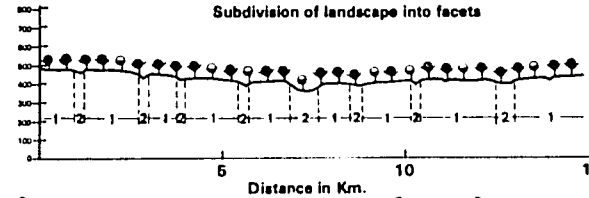
## Land System Re45

CLIMATE 1450 MONTE ALEGRE MINAS
AREA 1146900 HAS.
ALTITUDE 450 MTS.
PHYSIOGRAPHIC UNIT NO. 10
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 45

Subdivision of landscape into facets




▼ = Tropical semi-deciduous seasonal forest

♀ = Cerradão (closed savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 20 | |
| < 8% | 90 | 20 | |
| 8-30 % | 10 | 50 | |
| > 30 % | | 10 | |
| ALTITUDE IN MTS | 450 | 425 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | 20 | 30 | |
| TRF | | | |
| SESF | | | |
| SDSF | 80 | 70 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 45 | 35 | |
| CROPS | 45 | 15 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | A | |
| SUBORDERS | AUS | AUS | |
| GREAT GROUPS | AUSRH | AUSRH | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | C C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | M B | |
| EXCHANGEABLE AL | M P | M B | |
| EXCHANGEABLE CA | M B | M B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | B P | B B | |
| TOTAL EXCH. BASES | M B | M B | |
| CATION EXCH. CAPAC. | M E | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | I | I | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | B | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | CC | |
| MODIFIERS FACET 1 | OHI | | |
| FACET 2 | OHI | | |
| FACET 3 | | | |

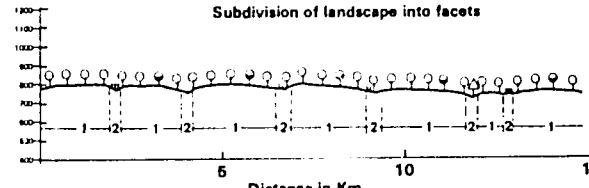
## Land System Bd46

CLIMATE 1540 UBERABA
AREA 1620200 HAS.
ALTITUDE 800 MTS.
PHYSIOGRAPHIC UNIT NO. 10
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 46

Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)

♀ = Other

uϱ = Campo cerrado (open savanna)

ϱ = Cerrado (savanna)

♀ = Cerradão (closed savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | D | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 50 | |
| < 8% | 90 | 20 | |
| 8-30 % | 10 | 20 | |
| > 30 % | | 10 | |
| ALTITUDE IN MTS | 800 | 750 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 50 | |
| CL + CS | | | |
| CC | | 20 | |
| C | 80 | 20 | |
| CD | 20 | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 10 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 45 | 20 | |
| CROPS | 30 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | A | |
| SUBORDERS | OUS | AUD | |
| GREAT GROUPS | OUSEU | AUDRH | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | M B | B B | |
| EXCHANGEABLE CA | B B | M B | |
| EXCHANGEABLE MG | M B | M M | |
| EXCHANGEABLE K | M K | M M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | M B | M M | |
| CATION EXCH. CAPAC. | M E | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | I | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LC | |
| MODIFIERS FACET 1 | OHI | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Bc47

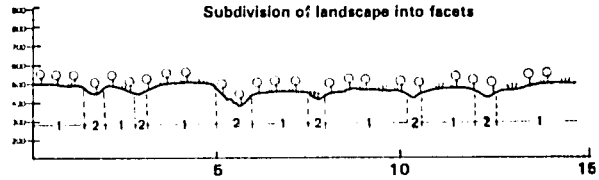
CLIMATE 1410 FRUTAL
AREA 1742000 HAS.
ALTITUDE 600 MTS.
PHYSIOGRAPHIC UNIT NO. 11
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 20 | |
| < 8% | 80 | 30 | |
| 8-30 % | 20 | 30 | |
| > 30 % | | 20 | |
| ALTITUDE IN MTS | 600 | 550 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 10 | |
| CL + CS | 20 | 30 | |
| CL | 50 | 60 | |
| C | 30 | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 5 | |
| CROPS | 5 | 5 | |

### LANDFORM DIAGRAM, LAND SYSTEM No. 47
Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)
= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
= Campo cerrado (open savanna)
= Cerrado (savanna)

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EPS | EPS | |
| GREAT GROUPS | EPSQU | EPSQU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | M | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S S | S S | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | B | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT. CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | SS | |
| MODIFIERS FACET 1 | DKE | | |
| FACET 2 | DKE | | |
| FACET 3 | | | |

## Land System Rc48

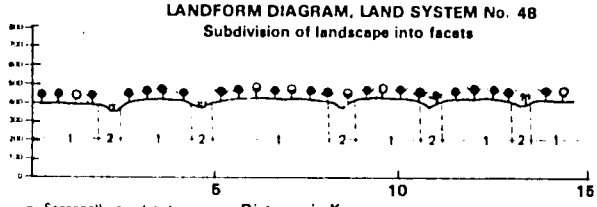
CLIMATE 1410 FRUTAL
AREA 540000 HAS.
ALTITUDE 400 MTS.
PHYSIOGRAPHIC UNIT NO. 11
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 60 | |
| < 8% | 90 | 20 | |
| 8-30 % | 10 | 20 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 400 | 350 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 60 | |
| CL + CS | | | |
| CC | | | |
| C | 10 | | |
| CD | 20 | 10 | |
| TRF | | | |
| SESF | | | |
| SDSF | 70 | 20 | |
| CAAT | | | |
| OTHER | | 10 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 8 | 2 | |
| CROPS | 2 | 2 | |

### LANDFORM DIAGRAM, LAND SYSTEM No. 48
Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)
= Cerrado (savanna)
= Palm forest
= Tropical semi-deciduous seasonal forest
= Cerradão (closed savanna)

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | U | |
| SUBORDERS | EPS | UAQ | |
| GREAT GROUPS | EPSQU | UAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S S | S L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M A | B M | |
| EXCHANGEABLE AL | M M | B M | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | B B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

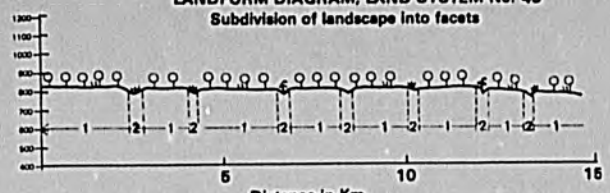
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT. CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | SL | |
| MODIFIERS FACET 1 | DHKE | | |
| FACET 2 | GHKF | | |
| FACET 3 | | | |

## Land System Bd49

CLIMATE 1420 GOIANIA
AREA 1800400 HAS.
ALTITUDE 800 MTS.
PHYSIOGRAPHIC UNIT NO. 13
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 49
Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)
= Campo cerrado (open savanna)
= Cerrado (savanna)
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | D | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 50 | |
| < 8% | 90 | 25 | |
| 8-30 % | 10 | 25 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 800 | 775 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 90 | |
| CL + CS | | | |
| CC | 20 | | |
| C | 80 | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 10 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 45 | 10 | |
| CROPS | 15 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | A | |
| SUBORDERS | OUS | AAQ | |
| GREAT GROUPS | OUSEU | AAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | B | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A M | B d | |
| EXCHANGEABLE AL | A M | B B | |
| EXCHANGEABLE CA | M A | M M | |
| EXCHANGEABLE MG | M A | M M | |
| EXCHANGEABLE K | K K | M M | |
| EXCHANGEABLE NA | A A | M b | |
| TOTAL EXCH. BASES | M B | M M | |
| CATION EXCH. CAPAC. | E E | M M | |

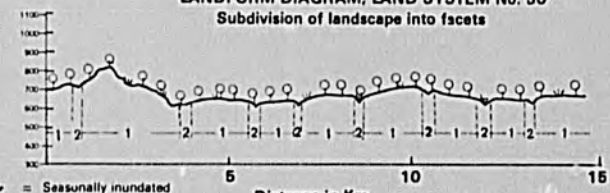
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | I | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | b | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | e | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LC | |
| MODIFIERS FACET 1 | GHAKEI | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Bd50

CLIMATE 1420 GOIANIA
AREA 1929600 HAS.
ALTITUDE 700 MTS.
PHYSIOGRAPHIC UNIT NO. 13
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 50
Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)
w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
= Campo cerrado (open savanna)
= Cerrado (savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | B | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 20 | |
| < 8% | 20 | 20 | |
| 8-30 % | 60 | 20 | |
| > 30 % | 20 | 40 | |
| ALTITUDE IN MTS | 700 | 650 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 30 | |
| CL + CS | 10 | 30 | |
| CC | 20 | 20 | |
| C | 70 | 20 | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 5 | |
| CROPS | 10 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | A | |
| SUBORDERS | OUS | AUD | |
| GREAT GROUPS | OUS4A | AUDRH | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | M | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | M E | M M | |
| EXCHANGEABLE MG | M P | M M | |
| EXCHANGEABLE K | K K | M M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | M M | |
| CATION EXCH. CAPAC. | M E | M M | |

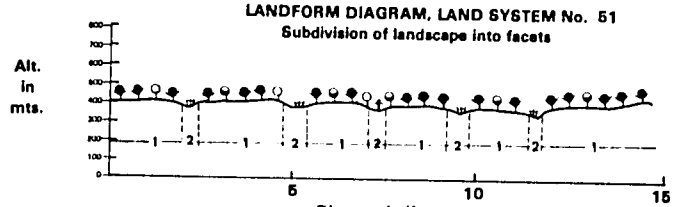
| | FACETS 1 | 2 |
|---|---|---|
| SOIL CHEM. PROP. (CONT). | | |
| ORGANIC MATTER % | M b | A B |
| PHOSPHORUS | B B | M B |
| PHOSPHORUS FIXATION | O | O |
| MANGANESE | U | U |
| SULPHUR | U | U |
| ZINC | U | U |
| IRON | U | U |
| COPPER | U | U |
| BORON | U | U |
| MOLYBDENUM | U | U |
| FREE CARBONATES | A | A |
| SALINITY | B | B |
| NATRIC | B | B |
| CAT CLAY | N | N |
| X-RAY AMORPHOUS | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | |
| CO | J | U |
| I | U | U |
| SE | U | U |
| CR | U | U |
| NI | U | U |
| OTHERS | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | |
| TYPE AND SUBSTRATA TYPES | LL | LC |
| MODIFIERS FACET 1 | GHK | |
| FACET 2 | G | |
| FACET 3 | | |

## Land System Rc51

CLIMATE 1410 FRUTAL
AREA 301300 HAS.
ALTITUDE 400 MTS.
PHYSIOGRAPHIC UNIT NO. 11
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

LANDFORM DIAGRAM, LAND SYSTEM No. 51
Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)
= Cerrado (savanna)
= Cerradão (closed savanna)
= Tropical semi-deciduous seasonal forest
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | O | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 60 | |
| < 8% | 90 | 20 | |
| 8-30 % | 10 | 20 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 400 | 375 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 90 | |
| CL + CS | | | |
| CC | | | |
| C | 10 | | |
| CO | 20 | | |
| TRF | | | |
| SESF | | | |
| SOSF | 70 | | |
| CAAT | | | |
| OTHER | | 10 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 50 | 20 | |
| CROPS | 30 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | U | |
| SUBORDERS | OUS | UAQ | |
| GREAT GROUPS | OUSHA | UAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | R | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | P | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | S L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | M B | B B | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | B B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | B B | M M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

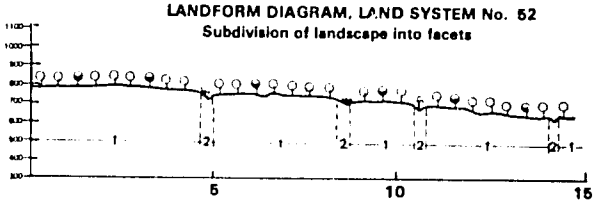
FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LL SL
MODIFIERS FACET 1 DHKE
FACET 2 GHKE
FACET 3

## Land System Rd52

CLIMATE 1490 PRESIDENTE MURTINHO
AREA 2181000 HAS.
ALTITUDE 700 MTS.
PHYSIOGRAPHIC UNIT NO. 11
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

LANDFORM DIAGRAM, LAND SYSTEM No. 52
Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)
= Cerrado (savanna)
= Cerradão (closed savanna)
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | B | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 20 | |
| < 8% | 80 | 20 | |
| 8-30 % | 20 | 40 | |
| > 30 % | | 20 | |
| ALTITUDE IN MTS | 750 | 650 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 60 | |
| CL + CS | | | |
| CC | | | |
| C | 80 | | |
| CO | 20 | | |
| TRF | | | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 40 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 10 | |
| CROPS | 5 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | U | |
| SUBORDERS | OUS | UUO | |
| GREAT GROUPS | OUSHA | UUOTR | |
| SOIL PHYSICAL PROPERTILS | | | |
| SLOPE | R | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | S L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | M M | |
| EXCHANGEABLE AL | M B | M M | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | M B | M M | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | M M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LL SL
MODIFIERS FACET 1 DHKE
FACET 2 GHK
FACET 3

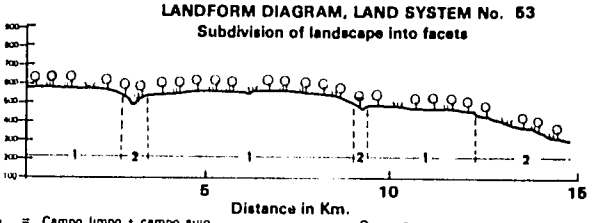
## Land System Bc53

CLIMATE 1490 PRESIDENTE MURTINHO
AREA 1597000 HAS.
ALTITUDE 550 MTS.
PHYSIOGRAPHIC UNIT NO. 13
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 53

Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Campo cerrado (open savanna)

= Cerrado (savanna)

= Cerradão (closed savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | V | |
| PERCENTAGE OF L.S. | 65 | 35 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 70 | 30 | |
| 8-30 % | 30 | 30 | |
| > 30 % | | 40 | |
| ALTITUDE IN MTS | 600 | 450 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 20 | 30 | |
| CC | 60 | 50 | |
| C | 20 | 10 | |
| CD | | 10 | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 0 | |
| CROPS | 0 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSHA | OUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | R | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | S S | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M B | M B | |
| EXCHANGEABLE AL | M B | M B | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | B B | B B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | B | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LL SS
MODIFIERS FACET 1 DHKE
FACET 2 DHKF
FACET 3

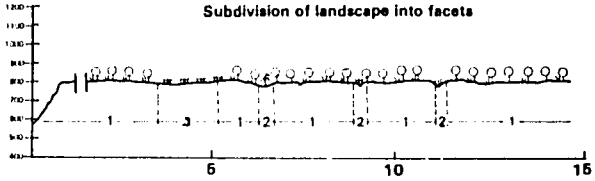
## Land System Bd54

CLIMATE 1490 PRESIDENTE MURTINHO
AREA 2055200 HAS.
ALTITUDE 800 MTS.
PHYSIOGRAPHIC UNIT NO. 13
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 54

Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)

w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Campo cerrado (open savanna)

= Cerrado (savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | D |
| PERCENTAGE OF L.S. | 80 | 10 | 10 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 40 | 99 |
| < 8% | 99 | 20 | |
| 8-30 % | | 30 | |
| > 30 % | | 10 | |
| ALTITUDE IN MTS | 800 | 775 | 770 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 40 | 99 |
| CL + CS | | 40 | |
| CC | 80 | 10 | |
| C | 20 | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 10 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 5 | 0 |
| CROPS | 10 | 2 | 0 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | A | U |
| SUBORDERS | OUS | AAQ | UAQ |
| GREAT GROUPS | OUSHA | AAQTR | UAQTR |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | R | B | B |
| DEPTH | P | M | M |
| INIT. INFIL. RATE | A | A | M |
| HYDRAUL. CONDUCT. | A | B | B |
| DRAINAGE | B | G | G |
| MOIST. HOLD. CAP. | B | M | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | SD | U | U |
| EXPANDING CLAYS | O | O | O |
| TEXTURE | C C | L C | L C |
| COARS. MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | H M |
| AL SATURATION % | A A | M B | A B |
| EXCHANGEABLE AL | A M | M B | A B |
| EXCHANGEABLE CA | B B | M M | B M |
| EXCHANGEABLE MG | B B | M M | B B |
| EXCHANGEABLE K | K K | M K | K K |
| EXCHANGEABLE NA | B B | B B | B B |
| TOTAL EXCH. BASES | B B | B B | B B |
| CATION EXCH. CAPAC. | E E | M M | E M |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | A |
| PHOSPHORUS | B B | M B | M |
| PHOSPHORUS FIXATION | I | O | O |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | B | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CC LC LC
MODIFIERS FACET 1 DHAKEI
FACET 2 G
FACET 3 GHAKE

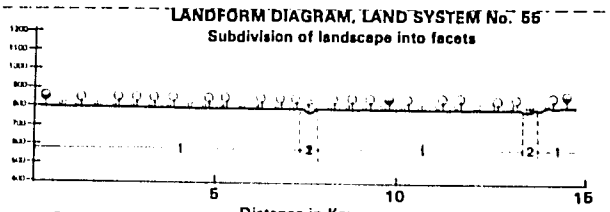
## Land System Bd55

CLIMATE 1490 PRESIDENTE MORTINHO
AREA 665500 HAS.
ALTITUDE 800 MTS.
PHYSIOGRAPHIC UNIT NO. 13
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
WELL DRAINED LANDS
FLAT LANDS.SLOPESCRE
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS.MAIN LAND FACET >10 M

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 99 | 40 | |
| 8-30 % | | 60 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 800 | 775 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 80 | |
| CL + CS | 30 | | |
| CC | 70 | | |
| C | | | |
| CD | | 10 | |
| TRF | | | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 10 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |




| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OUS | EPS | |
| GREAT GROUPS | JUSHA | EPSQU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | M | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | S S | S S | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A M | B B | |
| EXCHANGEABLE AL | M B | B B | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | B B | B B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | L E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | U | U | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | SS | |
| MODIFIERS FACET 1 | DHAKE | | |
| FACET 2 | DKE | | |
| FACET 3 | | | |

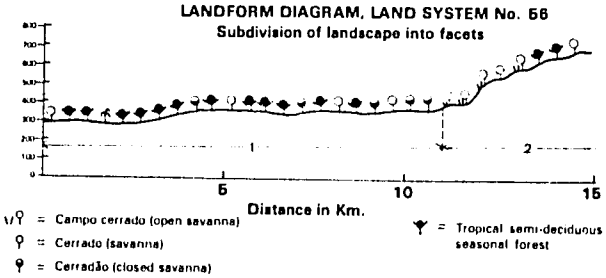
## Land System Bc56

CLIMATE 1340 CUIABA
AREA 352500 HAS.
ALTITUDE 350 MTS.
PHYSIOGRAPHIC UNIT NO. 18
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
WELL DRAINED LANDS
HILLY LANDS.SLOPESCRE
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS.MAIN LAND FACET 5-10M

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | E | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 70 | | |
| 8-30 % | 30 | 30 | |
| > 30 % | | 70 | |
| ALTITUDE IN MTS | 150 | 600 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | 60 | |
| C | 20 | 20 | |
| CD | 20 | | |
| TRF | | | |
| SESF | | | |
| SOSF | 60 | 20 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 0 | |
| CROPS | 10 | 0 | |



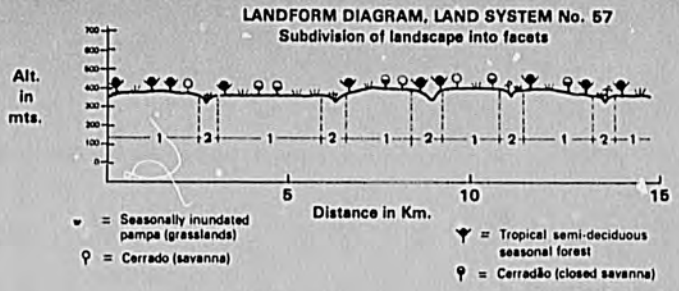

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | I | |
| SUBORDERS | OUS | ITR | |
| GREAT GROUPS | JUSHA | ITROY | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L S | |
| COARSE MATERIAL | B B | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A M | B B | |
| EXCHANGEABLE AL | M B | B B | |
| EXCHANGEABLE CA | B B | M B | |
| EXCHANGEABLE MG | B B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | M B | |
| CATION EXCH. CAPAC. | E E | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | U | U | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LS | |
| MODIFIERS FACET 1 | DHAKE | | |
| FACET 2 | DK | | |
| FACET 3 | | | |

## Land System Bc57

CLIMATE 1380 CUIABA
AREA 1014700 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 18
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 20 | 70 | |
| < 8% | 80 | 30 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 225 | 175 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 70 | |
| CL + CS | | | |
| CC | | | |
| C | 20 | | |
| CD | 20 | | |
| TRF | | | |
| SESF | | | |
| SDSF | 60 | 30 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 50 | 30 | |
| CROPS | 15 | 20 | |

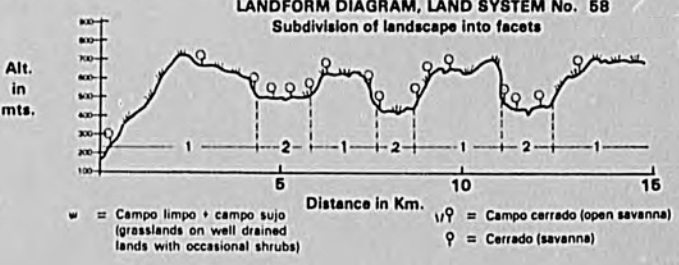
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | DUS | EFL | |
| GREAT GROUPS | DUSFU | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | R | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M A | B B | |
| EXCHANGEABLE AL | M B | B B | |
| EXCHANGEABLE CA | M B | M M | |
| EXCHANGEABLE MG | M B | M M | |
| EXCHANGEABLE K | M K | M M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | M B | M B | |
| CATION EXCH. CAPAC. | M E | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Bd58

CLIMATE 1490 PRESIDENTE MURTINHO
AREA 761300 HAS.
ALTITUDE 600 MTS.
PHYSIOGRAPHIC UNIT NO. 16
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >15 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | B | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 30 | 60 | |
| 8-30 % | 30 | 40 | |
| > 30 % | 40 | | |
| ALTITUDE IN MTS | 600 | 400 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 70 | 10 | |
| CC | 30 | 20 | |
| C | | 70 | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 5 | |
| CROPS | 0 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | A | |
| SUBORDERS | ITR | AUS | |
| GREAT GROUPS | ITRDY | AUSRH | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | S | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | R | B | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L R | L C | |
| COARSE MATERIAL | B A | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M B | M B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | M K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | M B | |
| CATION EXCH. CAPAC. | M E | M E | |

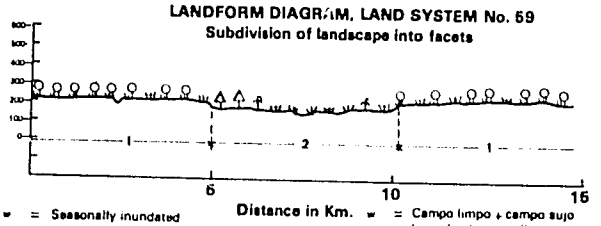
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LR | LC | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | DK | | |
| FACET 3 | | | |

## Land System Bc59

CLIMATE 139G ENGENHO DE CENTRO
AREA 580600 HAS.
ALTITUDE 400 MTS.
PHYSIOGRAPHIC UNIT NO. 16
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

LANDFORM DIAGRAM, LAND SYSTEM No. 59
Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)
= Other
= Palm forest
w = Campo limpo + campo sujo (grasslands on well drained lands with ocassional shrubs)
w = Campo cerrado (open savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | D | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 30 | |
| < 8% | 70 | 30 | |
| 8-30 % | 20 | 40 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 400 | 375 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 10 | 30 | |
| CL + CS | 20 | 50 | |
| CC | 70 | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SLSF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 20 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSAC | OUSEU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | C C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | M M | |
| EXCHANGEABLE AL | A A | A M | |
| EXCHANGEABLE CA | B B | M B | |
| EXCHANGEABLE MG | B B | M B | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | M E | |

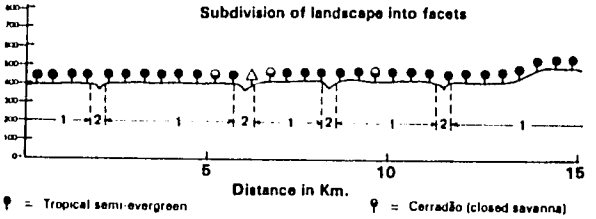
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | I | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | CC | |
| MODIFIERS FACET 1 | DHAKET | | |
| FACET 2 | DH | | |
| FACET 3 | | | |

## Land System Ab60

CLIMATE 61D ALTO TAPAJOS
AREA 9486321 HAS.
ALTITUDE 400 MTS.
PHYSIOGRAPHIC UNIT NO. 16
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

LANDFORM DIAGRAM, LAND SYSTEM No. 60
Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest
= Cerradão (closed savanna)
= Other

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 90 | 20 | |
| 8-30 % | 10 | 60 | |
| > 30 % | | 20 | |
| ALTITUDE IN MTS | 400 | 350 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | 10 | | |
| TRF | | | |
| SESF | 90 | 80 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 20 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | 0 | |
| CROPS | 1 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUR | OUR | |
| GREAT GROUPS | OUSAC | OURAC | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M A | M M | |
| EXCHANGEABLE AL | M A | M M | |
| EXCHANGEABLE CA | M B | M B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | HAE | | |
| FACET 2 | HAE | | |
| FACET 3 | | | |

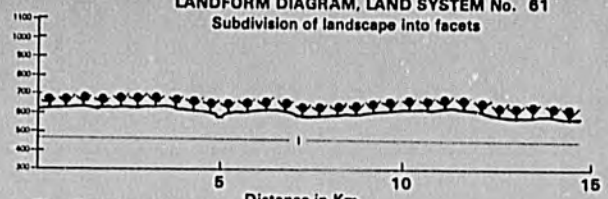
## Land System Be61

CLIMATE 1340 CACERES
AREA 1127933 HAS.
ALTITUDE 600 MTS.
PHYSIOGRAPHIC UNIT NO. 16
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 61

Subdivision of landscape into facets




= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 60 | | |
| 8-30 % | 40 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 600 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | | |
| CROPS | 0 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | | |
| SUBORDERS | EPS | | |
| GREAT GROUPS | EPSUS | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | P | | |
| INIT. INFIL. RATE | A | | |
| HYDRAUL. CONDUCT. | A | | |
| DRAINAGE | B | | |
| MOIST. HOLD. CAP. | B | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | SD | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | S | S | |
| COARSE MATERIAL | B | B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | |
| AL SATURATION % | B | B | |
| EXCHANGEABLE AL | B | B | |
| EXCHANGEABLE CA | B | B | |
| EXCHANGEABLE MG | B | B | |
| EXCHANGEABLE K | K | K | |
| EXCHANGEABLE NA | B | B | |
| TOTAL EXCH. BASES | B | B | |
| CATION EXCH. CAPAC. | E | E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M | B | |
| PHOSPHORUS | M | B | |
| PHOSPHORUS FIXATION | D | | |
| MANGANESE | U | | |
| SULPHUR | U | | |
| ZINC | B | | |
| IRON | U | | |
| COPPER | U | | |
| BORON | U | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | |
| I | U | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | | |
| MODIFIERS FACET 1 | DHKE | | |
| FACET 2 | | | |
| FACET 3 | | | |

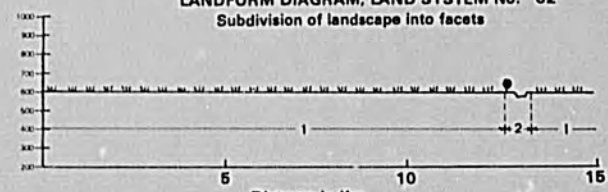
## Land System Bc62

CLIMATE 1390 ENGENHO DE DENTRO
AREA 6054772 HAS.
ALTITUDE 600 MTS.
PHYSIOGRAPHIC UNIT NO. 16
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 62

Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

● = Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 20 | |
| < 8% | 99 | 30 | |
| 8-30 % | | 50 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 600 | 575 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 99 | 30 | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | 70 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EPS | EPS | |
| GREAT GROUPS | EPSOU | EPSOU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S | S | S |
| COARSE MATERIAL | B | B | B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | M |
| AL SATURATION % | M | M | M |
| EXCHANGEABLE AL | M | M | M |
| EXCHANGEABLE CA | B | B | B |
| EXCHANGEABLE MG | B | B | B |
| EXCHANGEABLE K | K | K | K |
| EXCHANGEABLE NA | B | B | B |
| TOTAL EXCH. BASES | B | B | B |
| CATION EXCH. CAPAC. | E | E | E |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B | B | M |
| PHOSPHORUS | B | B | M |
| PHOSPHORUS FIXATION | D | | D |
| MANGANESE | U | | U |
| SULPHUR | U | | U |
| ZINC | D | | U |
| IRON | U | | U |
| COPPER | U | | U |
| BORON | U | | U |
| MOLYBDENUM | U | | U |
| FREE CARBONATES | A | | A |
| SALINITY | B | | B |
| NATRIC | B | | B |
| CAT CLAY | N | | N |
| X-RAY AMORPHOUS | N | | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | U |
| I | U | | U |
| SE | U | | U |
| CR | U | | U |
| NI | U | | U |
| OTHERS | U | | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | | SS |
| MODIFIERS FACET 1 | DHKE | | |
| FACET 2 | DKE | | |
| FACET 3 | | | |

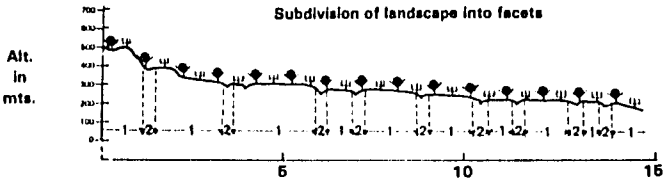
## Land System Be63

CLIMATE 1340 CACERES
AREA 589098 HAS.
ALTITUDE 350 MTS.
PHYSIOGRAPHIC UNIT NO. 16
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPESCH&
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 63

Subdivision of landscape into facets




Ψ = Tropical semi-deciduous seasonal forest

Ψ = Caatinga (shrubby woodland)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 50 | 30 | |
| 8-30 % | 30 | 30 | |
| > 30 % | 20 | 40 | |
| ALTITUDE IN MTS | 350 | 275 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CL | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SOSF | 50 | 99 | |
| CAAT | 50 | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | A | |
| SUBORDERS | UUS | AUS | |
| GREAT GROUPS | UUSHA | AUSRH | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | A | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | P | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L C | |
| COARSE MATERIAL | B P | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A M | B M | |
| EXCHANGEABLE AL | A M | B M | |
| EXCHANGEABLE CA | M B | M M | |
| EXCHANGEABLE MG | M B | M M | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | M B | |
| CATION EXCH. CAPAC. | E E | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LC SC
MODIFIERS FACET 1 DHAF
FACET 2 D
FACET 3

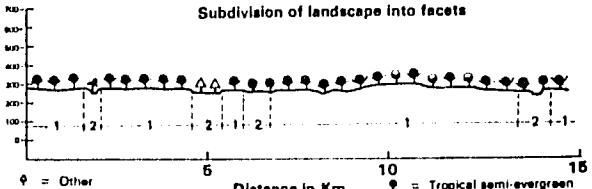
## Land System Be64

CLIMATE 1340 CACERES
AREA 5095543 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO. 16
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPESCH&
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 64

Subdivision of landscape into facets




Φ = Other

Ψ = Tropical semi-deciduous seasonal forest

Ψ = Tropical semi-evergreen seasonal forest

Φ = Palm forest

Φ = Cerradão (closed savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 20 | 70 | |
| < 8% | 80 | 30 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 350 | 250 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | 10 | | |
| TRF | | | |
| SESF | | 50 | |
| SOSF | 90 | 30 | |
| CAAT | | | |
| OTHER | | 20 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 5 | |
| CROPS | 5 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | A | |
| SUBORDERS | UUS | AAQ | |
| GREAT GROUPS | UUSHA | AAUTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | D | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | S C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B A | B M | |
| EXCHANGEABLE AL | B A | B A | |
| EXCHANGEABLE CA | M B | M M | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | M B | B B | |
| TOTAL EXCH. BASES | M B | M B | |
| CATION EXCH. CAPAC. | M E | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A D | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LC SL
MODIFIERS FACET 1 D
FACET 2 G
FACET 3

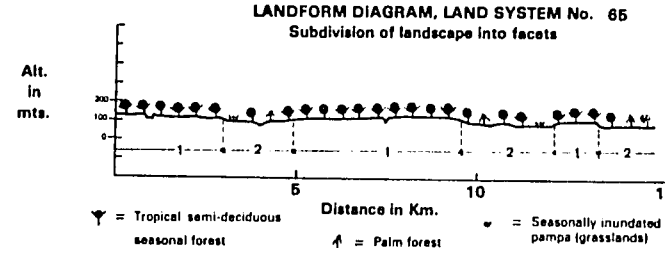
## Land System Be65

CLIMATE 1340 CACERES
AREA 1727900 HAS.
ALTITUDE 150 MTS.
PHYSIOGRAPHIC UNIT NO. 23
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 65

Subdivision of landscape into facets




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 80 | |
| < 8% | 90 | 20 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 150 | 125 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 10 | |
| CL + CS | | | |
| CC | | | |
| E | | | |
| CO | | | |
| TRF | | | |
| SESF | 20 | 70 | |
| SDSF | 80 | 20 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 0 | |
| CROPS | 5 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | U | |
| SUBORDERS | UUS | UAQ | |
| GREAT GROUPS | UUSHA | UAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOISTURE REGIME | SD | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B M | |
| EXCHANGEABLE AL | A A | B A | |
| EXCHANGEABLE CA | M B | M M | |
| EXCHANGEABLE MG | M B | M M | |
| EXCHANGEABLE K | M K | M M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | M B | |
| CATION EXCH. CAPAC. | E E | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | M P | M P | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LC | |
| MODIFIERS FACET 1 | DHAKE | | |
| FACET 2 | G | | |
| FACET 3 | | | |

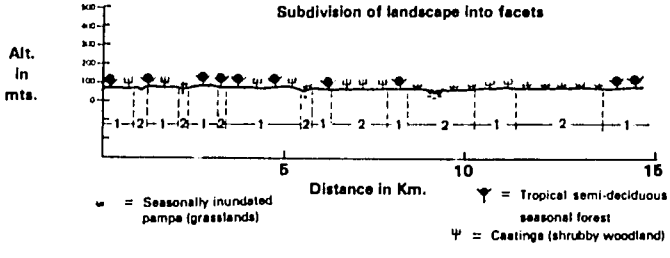
## Land System Be66

CLIMATE 1340 CACERES
AREA 2200400 HAS.
ALTITUDE 90 MTS.
PHYSIOGRAPHIC UNIT NO. 19
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 66

Subdivision of landscape into facets




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 55 | 45 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 50 | 80 | |
| < 8% | 50 | 20 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 80 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 80 | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 50 | | |
| CAAT | 50 | 20 | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | U | |
| SUBORDERS | UUS | UAQ | |
| GREAT GROUPS | UUSHA | UAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | D | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B M | B M | |
| EXCHANGEABLE AL | B A | B M | |
| EXCHANGEABLE CA | M B | M M | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | M B | M B | |
| CATION EXCH. CAPAC. | M E | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LC | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | G | | |
| FACET 3 | | | |

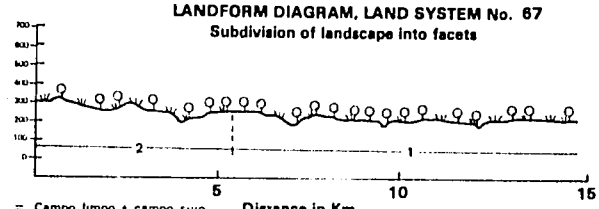
## Land System Bc67

CLIMATE 1390 ENGENHO DE DENTRO
AREA 759000 HAS.
ALTITUDE 250 MTS.
PHYSIOGRAPHIC UNIT NO. 22
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 67

Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

ψ = Campo cerrado (open savanna)

φ = Cerrado (savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | C | |
| PERCENTAGE OF L.S. | 65 | 35 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 50 | 20 | |
| 8-30 % | 50 | 40 | |
| > 30 % | | 40 | |
| ALTITUDE IN MTS | 200 | 100 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 20 | 40 | |
| CC | 30 | 40 | |
| C | 50 | 20 | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 5 | |
| CROPS | 5 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | U | |
| SUBORDERS | DUS | DUS | |
| GREAT GROUPS | DUSHA | DUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | P | B | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SO | SO | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | A A | |
| EXCHANGEABLE AL | M M | M M | |
| EXCHANGEABLE CA | M B | B B | |
| EXCHANGEABLE MG | M B | B B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M M | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | DHAKE | | |
| FACET 2 | DHAKE | | |
| FACET 3 | | | |

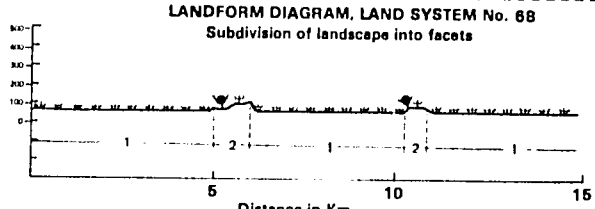
## Land System Po68

CLIMATE 1350 CORUMBA
AREA 1324300 HAS.
ALTITUDE 75 MTS.
PHYSIOGRAPHIC UNIT NO. 19
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 68

Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)

ψ = Caatinga (shrubby woodland)

Y = Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | C | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 95 | | |
| < 8% | 5 | 40 | |
| 8-30 % | | 40 | |
| > 30 % | | 20 | |
| ALTITUDE IN MTS | 75 | 120 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 99 | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | 50 | |
| CAAT | | 50 | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | A | |
| SUBORDERS | AAQ | AUS | |
| GREAT GROUPS | AAQTR | AUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | B | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | B | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | SO | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M M | M M | |
| EXCHANGEABLE MG | M M | M M | |
| EXCHANGEABLE K | M M | M K | |
| EXCHANGEABLE NA | M M | M B | |
| TOTAL EXCH. BASES | M M | M B | |
| CATION EXCH. CAPAC. | A M | M M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | O | | |
| FACET 3 | | | |

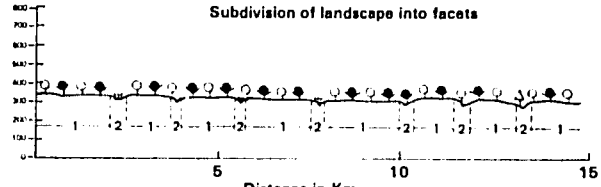
## Land System Bc69

CLIMATE 1350 CAMPO GRANDE
AREA 572500 HAS.
ALTITUDE 375 MTS.
PHYSIOGRAPHIC UNIT NO. 12
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 69

Subdivision of landscape into facets




= Cerrado (savanna)
= Other
= Tropical semi-deciduous seasonal forest
= Seasonally inundated pampa (grasslands)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | V | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 80 | 20 | |
| 8-30 % | 20 | 40 | |
| > 30 % | | 40 | |
| ALTITUDE IN MTS | 375 | 325 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 40 | |
| CL + CS | | | |
| CC | | | |
| C | 50 | 20 | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 50 | | |
| CAAT | | | |
| OTHER | | 20 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 55 | 20 | |
| CROPS | 25 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSEU | OUSEU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | M | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A M | M A | |
| EXCHANGEABLE AL | M M | M M | |
| EXCHANGEABLE CA | M B | M M | |
| EXCHANGEABLE MG | P P | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | B B | |
| CATION EXCH. CAPAC. | E E | M L | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | DHAKE | | |
| FACET 2 | DHY | | |
| FACET 3 | | | |

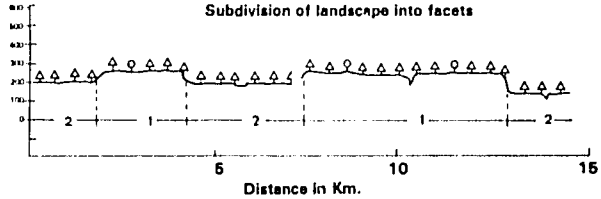
## Land System Bf70

CLIMATE 1320 AQUIDAUANA
AREA 1184400 HAS.
ALTITUDE 250 MTS.
PHYSIOGRAPHIC UNIT NO. 21
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 70

Subdivision of landscape into facets




= Other
= Cerrado (savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | B | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 40 | 60 | |
| 8-30 % | 40 | 40 | |
| > 30 % | 20 | | |
| ALTITUDE IN MTS | 300 | 200 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | 10 | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 90 | 99 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 5 | |
| CROPS | 0 | 2 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | A | |
| SUBORDERS | EPS | AUS | |
| GREAT GROUPS | EPSUS | AUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | M | D | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | S S | S L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M B | M M | |
| EXCHANGEABLE MG | M B | M M | |
| EXCHANGEABLE K | M K | K M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | M B | |
| CATION EXCH. CAPAC. | M E | M E | |

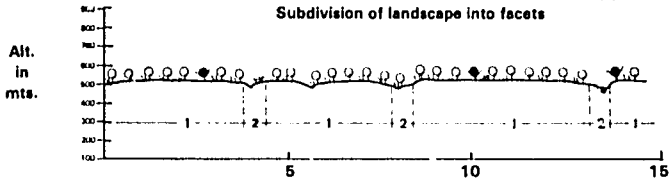
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M P | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | SL | |
| MODIFIERS FACET 1 | DHA | | |
| FACET 2 | DK | | |
| FACET 3 | | | |

## Land System Bc71

CLIMATE 1353 CAMPO GRANDE
AREA 750400 HAS.
ALTITUDE 550 MTS.
PHYSIOGRAPHIC UNIT NO. 11
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<3%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

LANDFORM DIAGRAM, LAND SYSTEM No. 71
Subdivision of landscape into facets




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | D | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 80 | 20 | |
| 8-30 % | 20 | 60 | |
| > 30 % | | 20 | |
| ALTITUDE IN MTS | 550 | 525 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.INUP. | | 40 | |
| CL + CS | | | |
| CC | 70 | 40 | |
| C | 20 | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 10 | | |
| CAAT | | | |
| OTHER | | 20 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 5 | |
| CROPS | 5 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | D | D | |
| SUBORDERS | DUS | DUS | |
| GREAT GROUPS | DUSHA | DUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAY | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | A M | |
| EXCHANGEABLE AL | A M | M M | |
| EXCHANGEABLE CA | M B | M B | |
| EXCHANGEABLE MG | M M | M B | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | M B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | I | I | |
| MANGANESE | D | D | |
| SULPHUR | D | D | |
| ZINC | D | D | |
| IRON | D | D | |
| COPPER | D | D | |
| BORON | D | D | |
| MOLYBDENUM | D | D | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | D | D | |
| I | D | D | |
| SE | D | D | |
| CR | D | D | |
| NI | D | D | |
| OTHERS | D | D | |

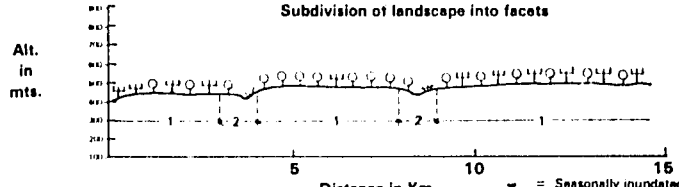
FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LL LL
MODIFIERS FACET 1 DHKF
FACET 2 DHF
FACET 3

## Land System Bc72

CLIMATE 1353 CAMPO GRANDE
AREA 1264100 HAS.
ALTITUDE 450 MTS.
PHYSIOGRAPHIC UNIT NO. 12
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

LANDFORM DIAGRAM, LAND SYSTEM No. 72
Subdivision of landscape into facets




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 20 | |
| < 8% | 80 | 20 | |
| 8-30 % | 20 | 40 | |
| > 30 % | | 20 | |
| ALTITUDE IN MTS | 450 | 425 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.INUP. | | 20 | |
| CL + CS | | 70 | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | 10 | |
| SDSF | 10 | | |
| CAAT | | | |
| OTHER | 90 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 5 | |
| CROPS | 5 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | D | D | |
| SUBORDERS | DUS | DUS | |
| GREAT GROUPS | DUSHA | DUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S S | S S | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | M M | |
| EXCHANGEABLE AL | M B | M B | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | B B | B B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | D | D | |
| SULPHUR | D | D | |
| ZINC | D | D | |
| IRON | D | D | |
| COPPER | D | D | |
| BORON | D | D | |
| MOLYBDENUM | D | D | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | D | D | |
| I | D | D | |
| SE | D | D | |
| CR | D | D | |
| NI | D | D | |
| OTHERS | D | D | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES SS SS
MODIFIERS FACET 1 DHKF
FACET 2 DHKF
FACET 3

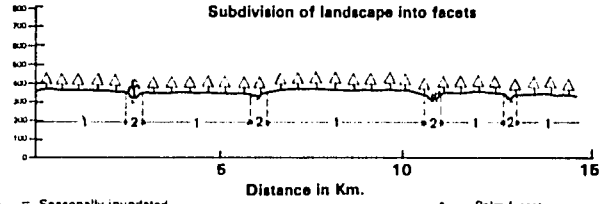
## Land System Bf73

CLIMATE 1330 BELA VISTA
AREA 1627300 HAS.
ALTITUDE 400 MTS.
PHYSIOGRAPHIC UNIT NO. 12
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 73

Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)

= Palm forest

= Other

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | D | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 20 | |
| < 8% | 90 | 20 | |
| 8-30 % | 10 | 50 | |
| > 30 % | | 10 | |
| ALTITUDE IN MTS | 400 | 375 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 20 | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 65 | 40 | |
| CROPS | 20 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | A | |
| SUBORDERS | UUS | AUS | |
| GREAT GROUPS | UUSRH | AUSRH | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | H | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | D | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L C | |
| COARSE MATERIAL | B M | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B M | B M | |
| EXCHANGEABLE AL | D M | B M | |
| EXCHANGEABLE CA | M M | A M | |
| EXCHANGEABLE MG | M M | A M | |
| EXCHANGEABLE K | A M | M K | |
| EXCHANGEABLE NA | M M | M M | |
| TOTAL EXCH. BASES | A M | M M | |
| CATION EXCH. CAPAC. | M E | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | A P | A P | |
| PHOSPHORUS FIXATION | I | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | CC | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | D | | |
| FACET 3 | | | |

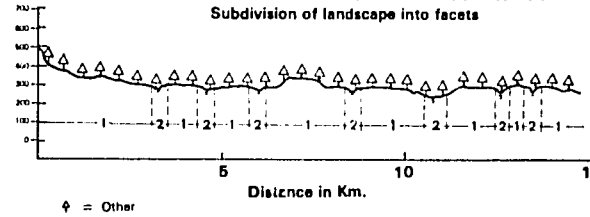
## Land System Bf74

CLIMATE 1330 BELA VISTA
AREA 425000 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO. 12
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 74

Subdivision of landscape into facets




= Other

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 75 | 25 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 60 | 20 | |
| 8-30 % | 30 | 40 | |
| > 30 % | 10 | 40 | |
| ALTITUDE IN MTS | 300 | 250 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 5 | |
| CROPS | 0 | 0 | |

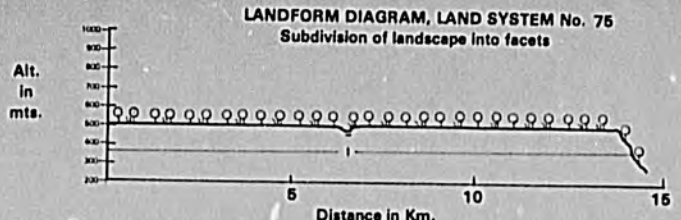
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | A | |
| SUBORDERS | AUS | AUS | |
| GREAT GROUPS | AUSHA | AUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M M | M M | |
| EXCHANGEABLE MG | M M | M M | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | M M | M B | |
| CATION EXCH. CAPAC. | M M | M M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | D | | |
| FACET 3 | | | |

## Land System Bc75

CLIMATE 1350 CAMPO GRANDE
AREA 197400 HAS.
ALTITUDE 500 MTS.
PHYSIOGRAPHIC UNIT NO. 12
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 99 | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 500 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | 50 | | |
| C | 50 | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | | |
| CROPS | 5 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | | |
| SUBORDERS | OUS | | |
| GREAT GROUPS | OUSAC | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | P | | |
| INIT. INFIL. RATE | A | | |
| HYDRAUL. CONDUCT. | A | | |
| DRAINAGE | B | | |
| MOIST. HOLD. CAP. | A | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | SD | | |
| EXPANDING CLAYS | O | | |
| TEXTURE | C | C | |
| COARSE MATERIAL | B | B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H | H | |
| AL SATURATION % | A | A | |
| EXCHANGEABLE AL | A | M | |
| EXCHANGEABLE CA | B | B | |
| EXCHANGEABLE MG | B | B | |
| EXCHANGEABLE K | K | K | |
| EXCHANGEABLE NA | B | B | |
| TOTAL EXCH. BASES | B | B | |
| CATION EXCH. CAPAC. | E | E | |

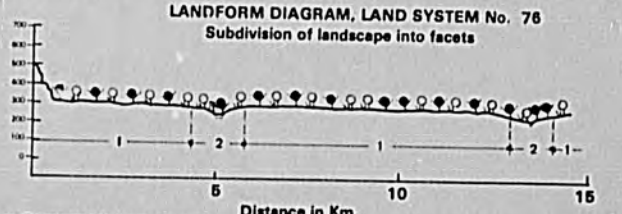
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M | B | |
| PHOSPHORUS | M | B | |
| PHOSPHORUS FIXATION | I | | |
| MANGANESE | U | | |
| SULPHUR | U | | |
| ZINC | D | | |
| IRON | U | | |
| COPPER | U | | |
| BORON | U | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | |
| I | U | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | U | | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CC
MODIFIERS FACET 1 DHAKEI
FACET 2
FACET 3

## Land System Bc76

CLIMATE 1350 CAMPO GRANDE
AREA 888300 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO. 12
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | D | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 50 | |
| < 8% | 80 | 25 | |
| 8-30 % | 20 | 25 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 300 | 250 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | 50 | 40 | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 50 | 50 | |
| CAAT | | | |
| OTHER | | 10 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 20 | |
| CROPS | 5 | 15 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSHA | OUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | D | |
| MO ST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | S S | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | H H | |
| AL SATURATION % | A H | H H | |
| EXCHANGEABLE AL | M M | M M | |
| EXCHANGEABLE CA | B B | M B | |
| EXCHANGEABLE MG | B B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES SS LL
MODIFIERS FACET 1 DHAKE
FACET 2 DHKE
FACET 3

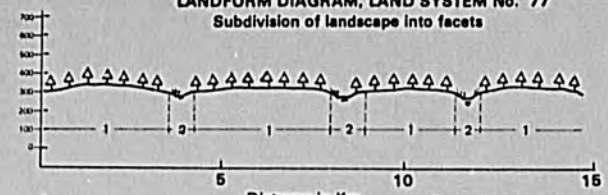
## Land System Bf77

CLIMATE 1320 AQUIDAUANA
AREA 1716900 HAS.
ALTITUDE 350 MTS.
PHYSIOGRAPHIC UNIT NO. 21
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 77

Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)

= Other

= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 20 | |
| < 8% | 90 | 30 | |
| 8-30 % | 10 | 40 | |
| > 30 % | | 10 | |
| ALTITUDE IN MTS | 350 | 325 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 20 | |
| CL + CS | | 70 | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 10 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 20 | |
| CROPS | 2 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | A | |
| SUBORDERS | AUS | AUS | |
| GREAT GROUPS | AUSRH | AUSRH | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L C | |
| COARSE MATERIAL | P B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M M | M M | |
| EXCHANGEABLE MG | M M | M M | |
| EXCHANGEABLE K | M K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | M B | |
| CATION EXCH. CAPAC. | M M | M M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M M | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LC | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | GK | | |
| FACET 3 | | | |

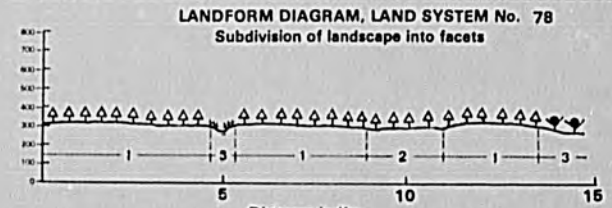
## Land System Bf78

CLIMATE 1330 BELA VISTA
AREA 551700 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO. 21
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 78

Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)

= Tropical semi-deciduous seasonal forest

= Other

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | V |
| PERCENTAGE OF L.S. | 70 | 15 | 15 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 90 | 30 |
| < 8% | 90 | 10 | 40 |
| 8-30 % | | | 30 |
| > 30 % | | | |
| ALTITUDE IN MTS | 300 | 295 | 275 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | 30 |
| CL + CS | | | |
| CC | | | 20 |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | 50 |
| CAAT | | | |
| OTHER | 99 | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 0 | 0 |
| CROPS | 2 | 0 | 0 |

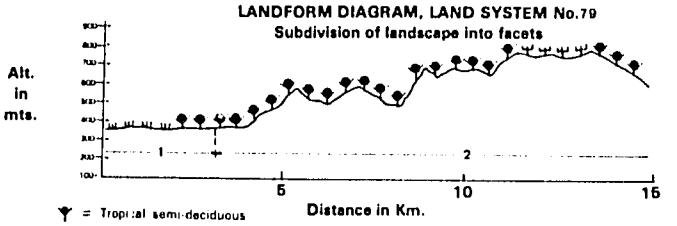
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | U | O |
| SUBORDERS | AUS | UAQ | OUS |
| GREAT GROUPS | AUSHA | UAQTR | OUSEU |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | M |
| DEPTH | P | M | M |
| INIT. INFIL. RATE | A | M | A |
| HYDRAUL. CONDUCT. | M | B | M |
| DRAINAGE | B | G | B |
| MOIST. HOLD. CAP. | B | M | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | SD | SD | SD |
| EXPANDING CLAYS | D | D | D |
| TEXTURE | S L | C C | C C |
| COARSE MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | H H | H H |
| AL SATURATION % | B B | H A | H A |
| EXCHANGEABLE AL | B B | M M | M M |
| EXCHANGEABLE CA | M M | M B | M B |
| EXCHANGEABLE MG | M M | M B | M B |
| EXCHANGEABLE K | K K | K K | K K |
| EXCHANGEABLE NA | B B | B B | B B |
| TOTAL EXCH. BASES | M B | M B | M B |
| CATION EXCH. CAPAC. | E E | M E | M E |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | M |
| PHOSPHORUS | B B | B B | M |
| PHOSPHORUS FIXATION | D | I | I |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SL | CC | CC |
| MODIFIERS FACET 1 | DKE | | |
| FACET 2 | DHKI | | |
| FACET 3 | DHKI | | |

## Land System Bf79

CLIMATE 1360 CORUMBA
AREA 2d3500 HAS.
ALTITUDE 500 MTS.
PHYSIOGRAPHIC UNIT NO. 21
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




Ψ = Tropical semi-deciduous seasonal forest

Ψ = Caatinga (shrubby woodland)

w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | P | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 20 | 70 | |
| 8-30 % | 30 | 30 | |
| > 30 % | 50 | | |
| ALTITUDE IN MTS | 500 | 350 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 60 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 80 | 40 | |
| CAAT | 20 | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 20 | |
| CROPS | 0 | 5 | |

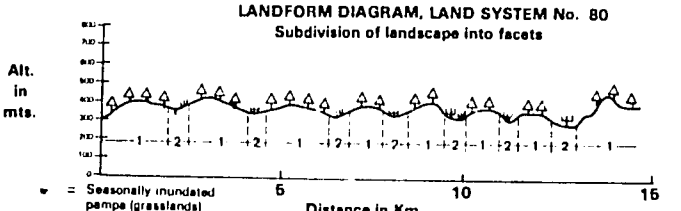
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | A | |
| SUBORDERS | EOR | AUS | |
| GREAT GROUPS | EORUS | AUSRH | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | M | B | |
| MOIST. HOLD. CAP. | P | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B M | B P | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B M | |
| EXCHANGEABLE AL | B B | B M | |
| EXCHANGEABLE CA | M M | M B | |
| EXCHANGEABLE MG | M M | M B | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | M B | B B | |
| TOTAL EXCH. BASES | M M | M B | |
| CATION EXCH. CAPAC. | A M | M B | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | D | | |
| FACET 3 | | | |

## Land System Bf80

CLIMATE 1330 BELA VISTA
AREA 680200 HAS.
ALTITUDE 350 MTS.
PHYSIOGRAPHIC UNIT NO. 21
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M




w = Seasonally inundated pampa (grasslands)

w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs,

Φ = Other

Ψ = Caatinga (shrubby woodland)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 75 | 25 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 40 | |
| < 8% | 40 | 30 | |
| 8-30 % | 40 | 30 | |
| > 30 % | 20 | | |
| ALTITUDE IN MTS | 400 | 300 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 50 | |
| CL + CS | | 30 | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | 20 | |
| OTHER | 99 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | 0 | |
| CROPS | 0 | 0 | |

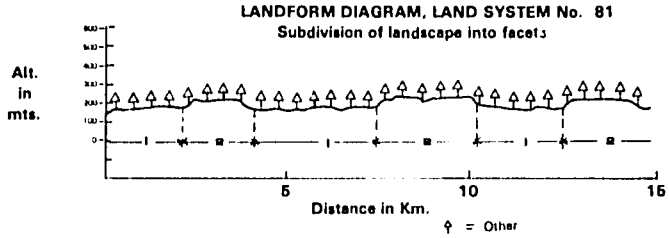
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | A | |
| SUBORDERS | AUS | AAQ | |
| GREAT GROUPS | AUSHA | AAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L C | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M M | M M | |
| EXCHANGEABLE MG | M M | M M | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LC | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | DG | | |
| FACET 3 | | | |

## Land System Bf81

CLIMATE 1330 BELA VISTA
AREA 832400 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 21
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | C | |
| PERCENTAGE OF L.S. | 55 | 45 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 60 | 40 | |
| 8-30 % | 40 | 60 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 180 | 220 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 5 | |
| CROPS | 0 | 0 | |

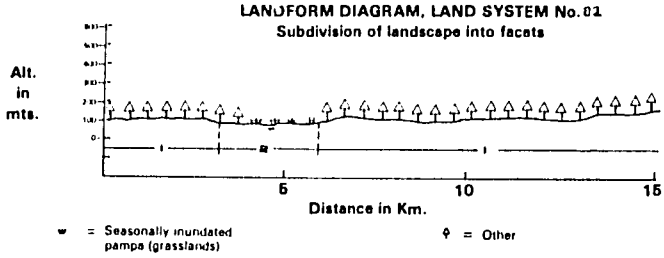
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | A | |
| SUBORDERS | AUS | AUS | |
| GREAT GROUPS | AUSHA | AUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SO | SO | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | M B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | M M | |
| EXCHANGEABLE MG | A M | M M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | M B | B B | |
| TOTAL EXCH. BASES | M B | M B | |
| CATION EXCH. CAPAC. | A M | M B | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | D | | |
| FACET 3 | | | |

## Land System Pf82

CLIMATE 1330 BELA VISTA
AREA 511700 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 19
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 60 | 80 | |
| < 8% | 60 | 20 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 80 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 90 | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 10 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | A | |
| SUBORDERS | AUS | AUD | |
| GREAT GROUPS | AUSNA | AUDHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | B | |
| HYDRAUL. CONDUCT. | B | B | |
| DRAINAGE | D | G | |
| MOIST. HOLD. CAP. | M | A | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SO | U | |
| EXPANDING CLAYS | D | V | |
| TEXTURE | L C | C C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M M | A A | |
| EXCHANGEABLE MG | A A | A M | |
| EXCHANGEABLE K | A A | M K | |
| EXCHANGEABLE NA | A A | M B | |
| TOTAL EXCH. BASES | M A | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

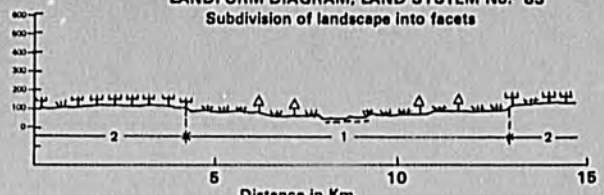
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | A A | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | CC | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Pf83

CLIMATE 1330 BELA VISTA
AREA 764300 HAS.
ALTITUDE 80 MTS.
PHYSIOGRAPHIC UNIT NO. 19
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

LANDFORM DIAGRAM, LAND SYSTEM No. 83
Subdivision of landscape into facets




Ψ = Caatinga (shrubby woodland)
ϕ = Other
ᴗ = Seasonally inundated pampa (grasslands)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 30 | |
| < 8% | | 10 | 70 |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 80 | 110 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 80 | 20 | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | 80 | |
| OTHER | 20 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 3 | 5 | |
| CROPS | 0 | 1 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EFL | EFL | |
| GREAT GROUPS | EFLTR | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | P B | B B | |
| EXCHANGEABLE CA | A A | A M | |
| EXCHANGEABLE MG | A A | A M | |
| EXCHANGEABLE K | M M | M K | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

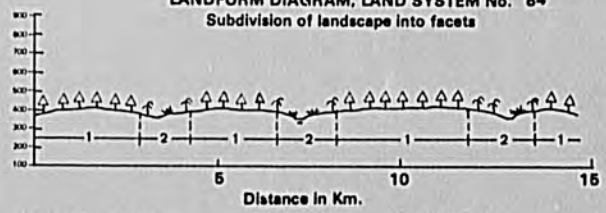
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | D | | |
| FACET 3 | | | |

## Land System Rf84

CLIMATE 1330 BELA VISTA
AREA 2630200 HAS.
ALTITUDE 400 MTS.
PHYSIOGRAPHIC UNIT NO. 11
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

LANDFORM DIAGRAM, LAND SYSTEM No. 84
Subdivision of landscape into facets




ᴗ = Seasonally inundated pampa (grasslands)
ϕ = Other
↑ = Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 75 | 25 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 40 | |
| < 8% | 90 | 30 | |
| 8-30 % | 10 | 30 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 400 | 350 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.F. | | 40 | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 60 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 50 | 50 | |
| CROPS | 15 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | U | |
| SUBORDERS | EPS | UAQ | |
| GREAT GROUPS | EPSTR | UAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | H | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S L | S L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M H | M H | |
| AL SATURATION % | H A | M H | |
| EXCHANGEABLE AL | M M | M M | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | B B | B B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SL | SL | |
| MODIFIERS FACET 1 | DHKE | | |
| FACET 2 | GHKE | | |
| FACET 3 | | | |

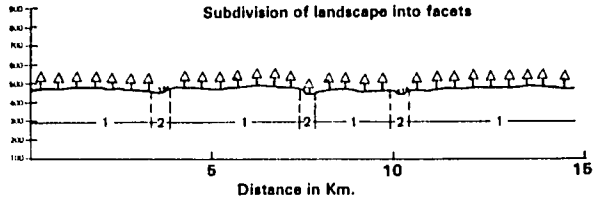
## Land System Rf85

CLIMATE 1330 BELA VISTA
AREA 360500 HAS.
ALTITUDE 450 MTS.
PHYSIOGRAPHIC UNIT NO. 11
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 85

Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)

= Other

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 50 | |
| < 8% | 90 | 25 | |
| 8-30 % | 10 | 25 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 450 | 400 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 50 | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 50 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 10 | |
| CROPS | 1 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EPS | EAQ | |
| GREAT GROUPS | EPSQJ | EAQPS | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | H | H | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | S S | S S | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | H H | H H | |
| EXCHANGEABLE AL | M B | M B | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | B B | B B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | L E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONTI. | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | B | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | SS | |
| MODIFIERS FACET 1 | DHKF | | |
| FACET 2 | GHKE | | |
| FACET 3 | | | |

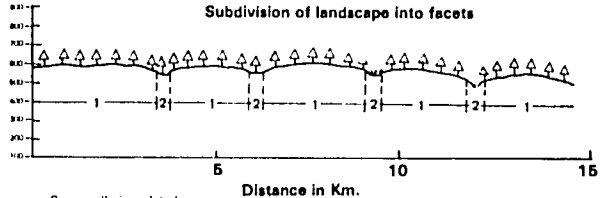
## Land System Rf86

CLIMATE 1330 BELA VISTA
AREA 114500 HAS.
ALTITUDE 550 MTS.
PHYSIOGRAPHIC UNIT NO. 12
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 86

Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)

= Other

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | D | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 50 | |
| < 8% | 90 | 25 | |
| 8-30 % | 10 | 25 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 550 | 525 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 10 | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 35 | 10 | |
| CROPS | 20 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | A | |
| SUBORDERS | AUS | AAQ | |
| GREAT GROUPS | AUSRH | AAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | B | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | B | |
| TEMP. REGIME | H | H | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | C C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | A M | A M | |
| EXCHANGEABLE NA | A M | M B | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONTI. | | | |
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | A M | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | CC | |
| MODIFIERS FACET 1 | O | | |
| FACET 2 | G | | |
| FACET 3 | | | |

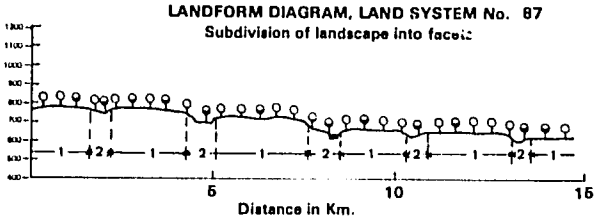
## Land System Bd87

CLIMATE 1540 UBERABA
AREA 509600 HAS.
ALTITUDE 700 MTS.
PHYSIOGRAPHIC UNIT NO. 10
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 87

Subdivision of landscape into facets




♀ = Cerrado (savanna)  ♀ = Cerradão (closed savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 75 | 25 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 90 | 20 | |
| 8-30 % | 10 | 60 | |
| > 30 % | | 20 | |
| ALTITUDE IN MTS | 700 | 675 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | 90 | 40 | |
| CD | 10 | 60 | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 40 | 20 | |
| CROPS | 20 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSEU | OUSEU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | A A | |
| EXCHANGEABLE AL | M M | M M | |
| EXCHANGEABLE CA | M B | M B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | DHAKE | | |
| FACET 2 | DHAKE | | |
| FACET 3 | | | |

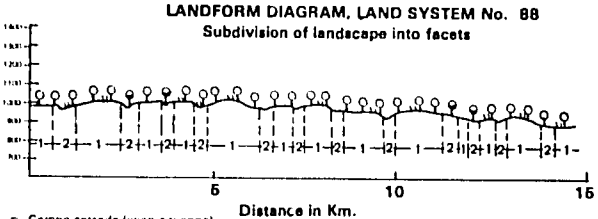
## Land System Bd88

CLIMATE 1590 ARAXA
AREA 1154800 HAS.
ALTITUDE 1050 MTS.
PHYSIOGRAPHIC UNIT NO. 2
GENERALIZED CLASSIFICATION
UPLANDS,ABOVE 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 88

Subdivision of landscape into facets




♀ = Campo cerrado (open savanna)  ♀ = Cerradão (closed savanna)

♀ = Cerrado (savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 10 | |
| < 8% | 60 | 20 | |
| 8-30 % | 40 | 40 | |
| > 30 % | | 30 | |
| ALTITUDE IN MTS | 1000 | 900 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | 40 | 20 | |
| C | 60 | 60 | |
| CD | | 20 | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 10 | |
| CROPS | 2 | 2 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSAC | OUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | A A | |
| EXCHANGEABLE AL | A M | M M | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | B B | B B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | . B | |
| PHOSPHORUS FIXATION | I | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | B | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | DHAKEI | | |
| FACET 2 | DHAKE | | |
| FACET 3 | | | |

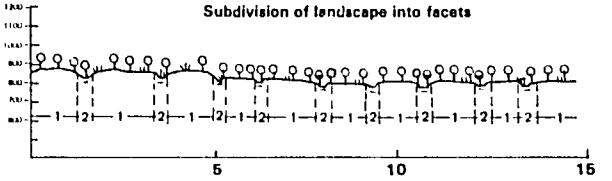
## Land System Bd89

CLIMATE 1920 GUARATINGA
AREA 1960600 HAS.
ALTITUDE 800 MTS.
PHYSIOGRAPHIC UNIT NO. 2
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 89

Subdivision of landscape into facets




= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Campo cerrado (open savanna)

= Seasonally inundated pampa (grasslands)

= Cerrado (savanna)

= Cerradão (closed savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 10 | |
| < 8% | 60 | 30 | |
| 8-30 % | 40 | 40 | |
| > 30 % | | 20 | |
| ALTITUDE IN MTS | 800 | 750 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 10 | |
| CL + CS | | 10 | |
| CC | 20 | 30 | |
| C | 80 | 30 | |
| CD | | 20 | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 10 | |
| CROPS | 2 | 2 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSAC | OUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | A A | |
| EXCHANGEABLE AL | M M | M B | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | B B | B B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M M | M M | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | U | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CU | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LL LL
MODIFIERS FACET 1 DHAKE
FACET 2 DHAKE
FACET 3

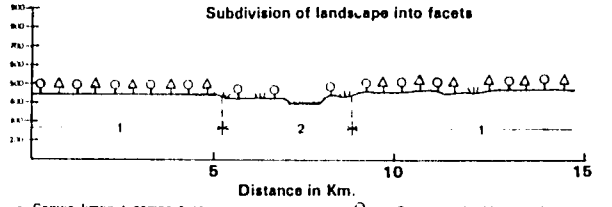
## Land System Be92

CLIMATE 2350 PIRAPORA
AREA 1795200 HAS.
ALTITUDE 450 MTS.
PHYSIOGRAPHIC UNIT NO. 25
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 92

Subdivision of landscape into facets




= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Caatinga (shrubby woodland)

= Other

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 20 | 80 | |
| < 8% | 80 | 20 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 450 | 400 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | 80 | |
| CC | 50 | 20 | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 50 | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | | |
| CROPS | 5 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EFL | EFL | |
| GREAT GROUPS | LFLTA | EFLTA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | M | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | A M | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CU | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LL LL
MODIFIERS FACET 1 D
FACET 2 G
FACET 3

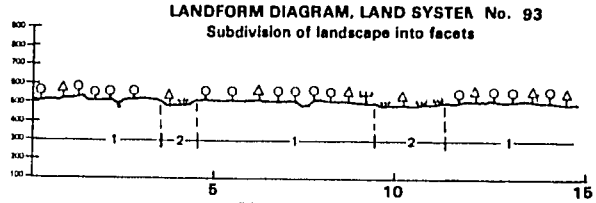
## Land System Be93

CLIMATE 2350 PIRAPORA
AREA 1197300 HAS.
ALTITUDE 525 MTS.
PHYSIOGRAPHIC UNIT NO. 25
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 93

Subdivision of landscape into facets




Ψ = Caatinga (shrubby woodland)
φ = Other
• = Seasonally inundated pampa (grasslands)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 20 | 90 | |
| < 8% | 80 | 10 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 525 | 500 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 60 | |
| CL + CS | | | |
| CC | 70 | 40 | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 30 | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 0 | |
| CROPS | 2 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EFL | EAG | |
| GREAT GROUPS | FFLTH | EAQTH | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | P | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | A | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S S | S S | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M B | M B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | M M | M M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | SS | |
| MODIFIERS FACET 1 | D' | | |
| FACET 2 | GK | | |
| FACET 3 | | | |

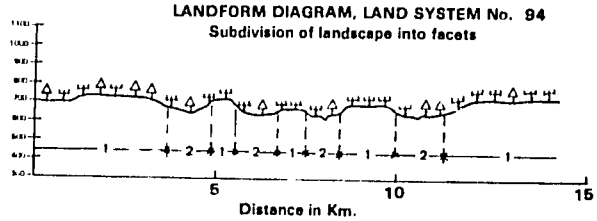
## Land System Be94

CLIMATE 2350 PIRAPORA
AREA 562000 HAS.
ALTITUDE 750 MTS.
PHYSIOGRAPHIC UNIT NO. 30
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 94

Subdivision of landscape into facets




Ψ = Caatinga (shrubby woodland)
φ = Other

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENER DESCRIPTION | A | V | |
| PERCENTAGE OF L.S. | 65 | 35 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 60 | 40 | |
| 8-30 % | 40 | 60 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 750 | 650 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 20 | 30 | |
| CAAF | 80 | 70 | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | U | |
| SUBORDERS | DUS | DUS | |
| GREAT GROUPS | DUSHA | DUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | .. | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | A | A | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | A A | |
| EXCHANGEABLE AL | M M | M M | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | B B | B B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | DHKE | | |
| FACET 2 | DHAE | | |
| FACET 3 | | | |

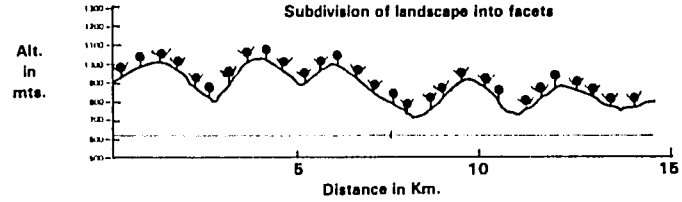
## Land System Be95

CLIMATE 1710 CAFTITE
AREA 4912800 HAS.
ALTITUDE 800 MTS.
PHYSIOGRAPHIC UNIT NO. 31
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 95

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 10 | | |
| 8-30 % | 40 | | |
| > 30 % | 50 | | |
| ALTITUDE IN MTS | 800 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 20 | | |
| SDSF | 80 | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | | |
| CROPS | 0 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | | |
| SUBORDERS | SUS | | |
| GREAT GROUPS | JL U | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | | |
| DEPTH | M | | |
| INIT. INFIL. RATE | A | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | P | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | SD | | |
| EXPANDING CLAYS | O | | |
| TEXTURE | L | L | |
| COARSE MATERIAL | B | M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | |
| AL SATURATION % | A | A | |
| EXCHANGEABLE AL | A | P | |
| EXCHANGEABLE CA | M | B | |
| EXCHANGEABLE MG | M | B | |
| EXCHANGEABLE K | K | K | |
| EXCHANGEABLE NA | B | P | |
| TOTAL EXCH. BASES | M | B | |
| CATION EXCH. CAPAC. | E | E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M | B | |
| PHOSPHORUS | M | B | |
| PHOSPHORUS FIXATION | O | | |
| MANGANESE | U | | |
| SULPHUR | U | | |
| ZINC | U | | |
| IRON | U | | |
| COPPER | U | | |
| BORON | U | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | |
| I | U | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | | |
| MODIFIERS FACET 1 | DHAKE | | |
| FACET 2 | | | |
| FACET 3 | | | |

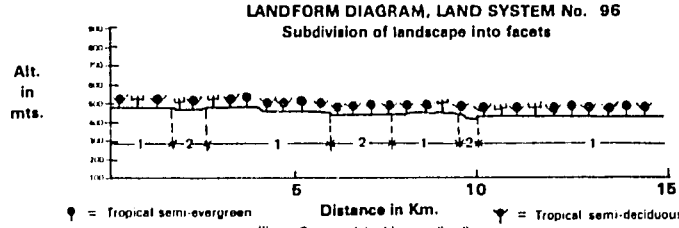
## Land System Be96

CLIMATE 2270 PARATINGA
AREA 6651800 HAS.
ALTITUDE 470 MTS.
PHYSIOGRAPHIC UNIT NO. 25
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 96

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Castings (shrubby woodland)

= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 65 | 35 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 90 | |
| < 8% | 90 | 10 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 470 | 440 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 10 | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 10 | 10 | |
| SDSF | 80 | 60 | |
| CAAT | 10 | 20 | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 0 | |
| CROPS | 2 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | I | |
| SUBORDERS | ITR | IAQ | |
| GREAT GROUPS | ITRUS | IAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | B | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | C C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M M | M M | |
| EXCHANGEABLE MG | M B | M M | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | M M | |
| CATION EXCH. CAPAC. | M E | M M | |

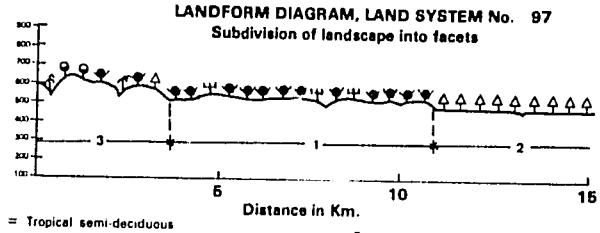
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | DK | | |
| FACET 2 | GK | | |
| FACET 3 | | | |

## Land System Be97

CLIMATE 1930 IBIPETUBA
AREA 305370D HAS.
ALTITUDE 550 MTS.
PHYSIOGRAPHIC UNIT NO. 25
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

LANDFORM DIAGRAM, LAND SYSTEM No. 97
Subdivision of landscape into facets




= Tropical semi-deciduous seasonal forest
= Caatinga (shrubby woodland)
= Other
= Cerradão (closed savanna)
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | B | C |
| PERCENTAGE OF L.S. | 40 | 30 | 30 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 5 | |
| < 8% | 75 | 90 | 20 |
| 8-30 % | 20 | 5 | 70 |
| > 30 % | 5 | | 10 |
| ALTITUDE IN MTS | 550 | 480 | 620 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | 30 |
| TRF | | | |
| SESF | | | |
| SDSF | 80 | | 60 |
| CAAT | 20 | | |
| OTHER | | 99 | 10 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 2 | 2 |
| CROPS | 0 | 0 | 0 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | E |
| SUBORDERS | UUS | LFS | EOK |
| GREAT GROUPS | UUSFU | EPSQU | EORUS |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | M |
| DEPTH | P | P | S |
| INIT. INFIL. RATE | M | A | M |
| HYDRAUL. CONDUCT. | M | A | M |
| DRAINAGE | B | B | B |
| MOIST. HOLD. CAP. | M | B | B |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | SO | SO | SO |
| EXPANDING CLAYS | O | O | O |
| TEXTURE | C C | S S | L P |
| COARSE MATERIAL | B B | B B | A A |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | M M | M M | M M |
| EXCHANGEABLE AL | A M | B B | M M |
| EXCHANGEABLE CA | M M | B B | M M |
| EXCHANGEABLE MG | M A | B B | M B |
| EXCHANGEABLE K | M K | K K | M M |
| EXCHANGEABLE NA | B B | B B | B B |
| TOTAL EXCH. BASES | M M | B B | B B |
| CATION EXCH. CAPAC. | A M | E E | M M |

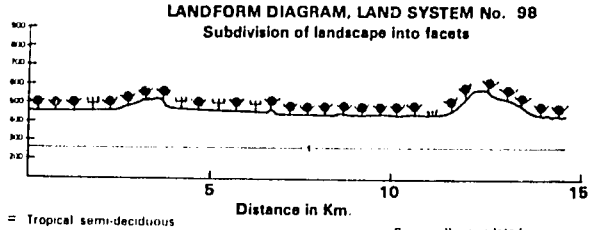
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | B B | M |
| PHOSPHORUS | M B | B B | [illegible] |
| PHOSPHORUS FIXATION | O | O | O |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | SS | LR |
| MODIFIERS FACET 1 | DM | | |
| FACET 2 | DMKP | | |
| FACET 3 | DM | | |

## Land System Be98

CLIMATE 2270 PARATINGA
AREA 887400 HAS.
ALTITUDE 450 MTS.
PHYSIOGRAPHIC UNIT NO. 31
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

LANDFORM DIAGRAM, LAND SYSTEM No. 98
Subdivision of landscape into facets




= Tropical semi-deciduous seasonal forest
= Caatinga (shrubby woodland)
= Seasonally inundated pampa (grasslands)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | B | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | | |
| < 8% | 70 | | |
| 8-30 % | 10 | | |
| > 30 % | 10 | | |
| ALTITUDE IN MTS | 450 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 5 | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 80 | | |
| CAAT | 15 | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | | |
| CROPS | 5 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | | |
| SUBORDERS | ITK | | |
| GREAT GROUPS | ITRUS | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | P | | |
| INIT. INFIL. RATE | M | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | B | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | SO | | |
| EXPANDING CLAYS | O | | |
| TEXTURE | L L | | |
| COARSE MATERIAL | B B | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | | |
| AL SATURATION % | B B | | |
| EXCHANGEABLE AL | B B | | |
| EXCHANGEABLE CA | M M | | |
| EXCHANGEABLE MG | M B | | |
| EXCHANGEABLE K | K K | | |
| EXCHANGEABLE NA | B B | | |
| TOTAL EXCH. BASES | M B | | |
| CATION EXCH. CAPAC. | M E | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | | |
| PHOSPHORUS | M B | | |
| PHOSPHORUS FIXATION | O | | |
| MANGANESE | U | | |
| SULPHUR | U | | |
| ZINC | U | | |
| IRON | U | | |
| COPPER | U | | |
| BORON | U | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | |
| I | U | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | | |
| MODIFIERS FACET 1 | DK | | |
| FACET 2 | | | |
| FACET 3 | | | |

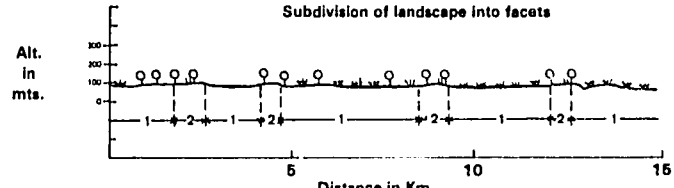
## Land System Pe99

CLIMATE 1360 CORUMBA
AREA 7374500 HAS.
ALTITUDE 80 MTS.
PHYSIOGRAPHIC UNIT NO. 19
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 99

Subdivision of landscape into facets




= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
= Cerrado (savanna)
= Campo cerrado (open savanna)
= Seasonally inundated pampa (grasslands)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 20 | |
| < 8% | | 20 | 80 |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 75 | 80 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 80 | 20 | |
| CL + CS | 20 | | |
| CC | | 40 | |
| C | | 40 | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 2 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | U | |
| SUBORDERS | UAQ | UUS | |
| GREAT GROUPS | UAQTR | UUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | B | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M A | A A | |
| EXCHANGEABLE AL | A A | A M | |
| EXCHANGEABLE CA | M B | B B | |
| EXCHANGEABLE MG | M B | B B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | M E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LC | |
| MODIFIERS FACET 1 | GHAK | | |
| FACET 2 | DHAKE | | |
| FACET 3 | | | |

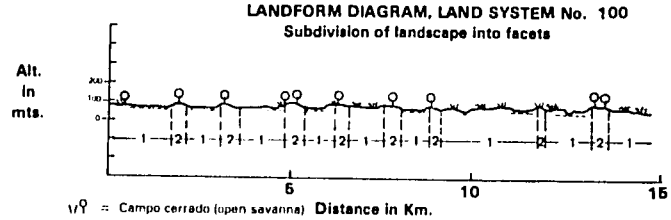
## Land System Pe100

CLIMATE 1360 CORUMBA
AREA 750100 HAS.
ALTITUDE 80 MTS.
PHYSIOGRAPHIC UNIT NO. 19
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 100

Subdivision of landscape into facets




= Campo cerrado (open savanna)
= Cerrado (savanna)
= Seasonally inundated pampa (grasslands)
= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 80 | 20 | |
| < 8% | | 20 | 80 |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 75 | 80 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 80 | 20 | |
| CL + CS | 20 | | |
| CC | | 40 | |
| C | | 40 | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 5 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | U | |
| SUBORDERS | UAQ | UUS | |
| GREAT GROUPS | UAQTR | UUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | B | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | C C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M A | A A | |
| EXCHANGEABLE AL | A A | A M | |
| EXCHANGEABLE CA | M B | B B | |
| EXCHANGEABLE MG | M B | B B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | M E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LC | |
| MODIFIERS FACET 1 | GHAK | | |
| FACET 2 | DHAKE | | |
| FACET 3 | | | |

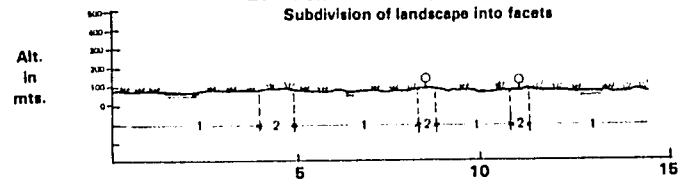
## Land System Pe101

CLIMATE 1340 CACERES
AREA 2429300 HAS.
ALTITUDE 75 MTS.
PHYSIOGRAPHIC UNIT NO. 19
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 101

Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

Ψ = Cerrado (savanna)

w = Seasonally inundated pampa (grasslands)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 30 | |
| < 8% | 10 | 70 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 70 | 75 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 40 | 10 | |
| CL + CS | 10 | 20 | |
| CC | | | |
| C | | 70 | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 5 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | A | |
| SUBORDERS | AAQ | AUS | |
| GREAT GROUPS | AAQTR | AUSTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M H | M H | |
| AL SATURATION % | M A | M A | |
| EXCHANGEABLE AL | M A | A A | |
| EXCHANGEABLE CA | M B | M B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | M B | |
| CATION EXCH. CAPAC. | M E | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | I | |
| MANGANESE | J | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | J | |
| COPPER | U | J | |
| BORON | J | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | J | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LC | |
| MODIFIERS FACET 1 | GK | | |
| FACET 2 | DK | | |
| FACET 3 | | | |

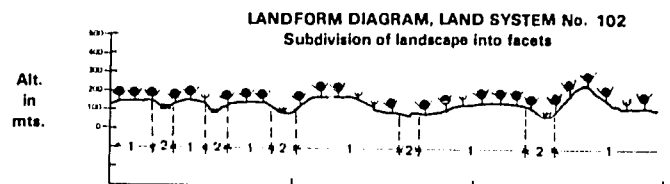
## Land System Be102

CLIMATE 1360 CORUMBA
AREA 2910600 HAS.
ALTITUDE 150 MTS.
PHYSIOGRAPHIC UNIT NO. 27
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 102

Subdivision of landscape into facets




Ψ = Tropical semi-deciduous seasonal forest

Ψ = Caatinga (shrubby woodland)

w = Seasonally inundated pampa (grasslands)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | B | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 90 | |
| < 8% | 50 | 10 | |
| 8-30 % | 30 | | |
| > 30 % | 20 | | |
| ALTITUDE IN MTS | 170 | 120 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 80 | |
| CL + CS | | 10 | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 80 | 10 | |
| CAAT | 20 | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | A | |
| SUBORDERS | DUS | AAQ | |
| GREAT GROUPS | DUSHA | AAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | B | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | A | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | H A | B B | |
| EXCHANGEABLE AL | M M | J B | |
| EXCHANGEABLE CA | M B | M M | |
| EXCHANGEABLE MG | M B | M M | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | M M | |
| CATION EXCH. CAPAC. | M E | M M | |

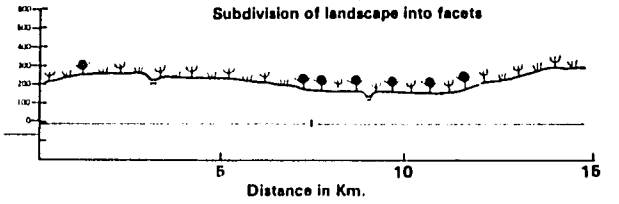
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | B B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | J | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LC | |
| MODIFIERS FACET 1 | OHK | | |
| FACET 2 | GK | | |
| FACET 3 | | | |

## Land System Be103

CLIMATE 1350 CORUMBA
AREA 808300 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO. 27
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 103
Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

Ψ = Caatinga (shrubby woodland)

Y = Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 30 | | |
| 8-30 % | 50 | | |
| > 30 % | 20 | | |
| ALTITUDE IN MTS | 300 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 40 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 30 | | |
| CAAT | 30 | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | | |
| CROPS | 0 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | | |
| SUBORDERS | AUS | | |
| GREAT GROUPS | AUSHA | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | | |
| DEPTH | P | | |
| INIT. INFIL. RATE | M | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | B | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | SD | | |
| EXPANDING CLAYS | O | | |
| TEXTURE | L C | | |
| COARSE MATERIAL | B B | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | | |
| AL SATURATION % | B B | | |
| EXCHANGEABLE AL | B B | | |
| EXCHANGEABLE CA | M M | | |
| EXCHANGEABLE MG | M M | | |
| EXCHANGEABLE K | K K | | |
| EXCHANGEABLE NA | B B | | |
| TOTAL EXCH. BASES | M M | | |
| CATION EXCH. CAPAC. | M M | | |

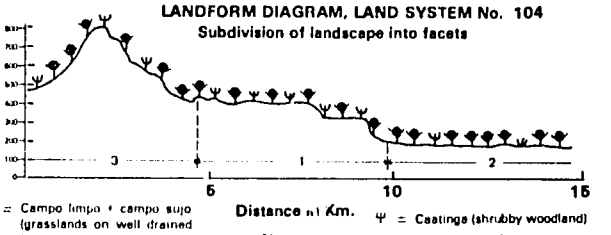
| | FACETS 1 | 2 |
|---|---|---|
| SOIL CHEM. PROP. (CONT). | | |
| ORGANIC MATTER % | M B | |
| PHOSPHORUS | M B | |
| PHOSPHORUS FIXATION | O | |
| MANGANESE | U | |
| SULPHUR | U | |
| ZINC | U | |
| IRON | U | |
| COPPER | U | |
| BORON | U | |
| MOLYBDENUM | U | |
| FREE CARBONATES | A | |
| SALINITY | B | |
| NATRIC | B | |
| CAT CLAY | N | |
| X-RAY AMORPHOUS | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | |
| CO | U | |
| I | U | |
| SE | U | |
| CR | U | |
| NI | U | |
| OTHERS | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | |
| TYPE AND SUBSTRATA TYPES | LC | |
| MODIFIERS FACET 1 | OK | |
| FACET 2 | | |
| FACET 3 | | |

## Land System Be104

CLIMATE 1350 CORUMBA
AREA 225700 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO. 27
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 104
Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

Ψ = Caatinga (shrubby woodland)

Y = Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | N | P | M |
| PERCENTAGE OF L.S. | 40 | 30 | 30 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 60 | |
| < 8% | 60 | 40 | 20 |
| 8-30 % | 40 | | 40 |
| > 30 % | | | 40 |
| ALTITUDE IN MTS | 250 | 100 | 450 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CL | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 70 | 90 | 10 |
| CAAT | 30 | 10 | 90 |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 0 | 0 |
| CROPS | 5 | 0 | 0 |

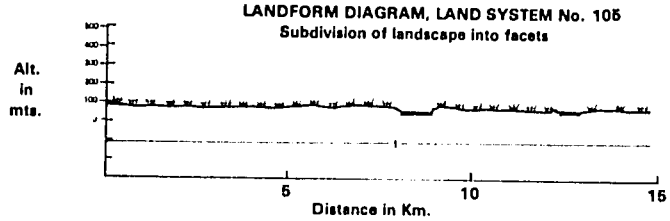
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | A | E |
| SUBORDERS | AUS | AAQ | EDR |
| GREAT GROUPS | AUSHA | AAQTR | EQRTR |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | A |
| DEPTH | P | M | S |
| INIT. INFIL. RATE | M | M | A |
| HYDRAUL. CONDUCT. | M | B | M |
| DRAINAGE | B | G | B |
| MOIST. HOLD. CAP. | M | M | B |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | SD | U | XD |
| EXPANDING CLAYS | O | O | O |
| TEXTURE | L C | C C | L R |
| COARSE MATERIAL | B B | B B | B M |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | B M | B B | B B |
| EXCHANGEABLE AL | B M | B B | B B |
| EXCHANGEABLE CA | M B | M M | M M |
| EXCHANGEABLE MG | M B | M M | M M |
| EXCHANGEABLE K | K K | M K | K M |
| EXCHANGEABLE NA | B B | B B | B B |
| TOTAL EXCH. BASES | M B | M M | M M |
| CATION EXCH. CAPAC. | M E | A M | A M |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | M |
| PHOSPHORUS | M B | M B | M |
| PHOSPHORUS FIXATION | O | O | O |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | CC | LF |
| MODIFIERS FACET 1 | OK | | |
| FACET 2 | C | | |
| FACET 3 | OK | | |

## Land System Pe105

CLIMATE 1360 CORUMBA
AREA 632400 HAS.
ALTITUDE 80 MTS.
PHYSIOGRAPHIC UNIT NO. 19
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




w = Seasonally inundated pampa (grasslands)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 99 | | |
| < 8% | | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 80 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 99 | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | | |
| CROPS | 0 | | |

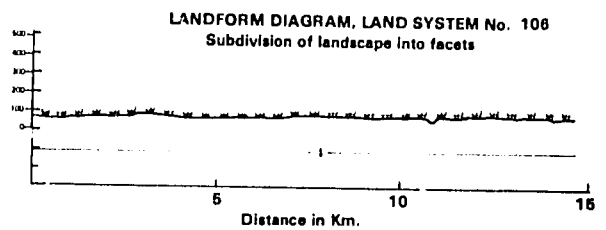
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | | |
| SUBORDERS | EAQ | | |
| GREAT GROUPS | EAQFL | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | M | | |
| INIT. INFIL. RATE | M | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | G | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | U | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | L | L | |
| COARSE MATERIAL | B | B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | |
| AL SATURATION % | A | B | |
| EXCHANGEABLE AL | A | B | |
| EXCHANGEABLE CA | A | M | |
| EXCHANGEABLE MG | A | M | |
| EXCHANGEABLE K | M | K | |
| EXCHANGEABLE NA | B | B | |
| TOTAL EXCH. BASES | A | M | |
| CATION EXCH. CAPAC. | A | M | |

| | FACETS 1 | 2 |
|---|---|---|
| SOIL CHEM. PROP. (CONT). | | |
| ORGANIC MATTER % | A | B |
| PHOSPHORUS | A | B |
| PHOSPHORUS FIXATION | D | |
| MANGANESE | U | |
| SULPHUR | U | |
| ZINC | U | |
| IRON | U | |
| COPPER | U | |
| BORON | U | |
| MOLYBDENUM | U | |
| FREE CARBONATES | A | |
| SALINITY | B | |
| NATRIC | B | |
| CAT CLAY | N | |
| X-RAY AMORPHOUS | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | |
| CO | U | |
| I | U | |
| SE | U | |
| CR | U | |
| NI | U | |
| OTHERS | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | |
| TYPE AND SUBSTRATA TYPES | LL | |
| MODIFIERS FACET 1 | G | |
| FACET 2 | | |
| FACET 3 | | |

## Land System Pe106

CLIMATE 1360 CORUMBA
AREA 684600 HAS.
ALTITUDE 80 MTS.
PHYSIOGRAPHIC UNIT NO. 19
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




w = Seasonally inundated pampa (grasslands)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 99 | | |
| < 8% | | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 80 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 99 | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | | |
| CROPS | 0 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | | |
| SUBORDERS | AAQ | | |
| GREAT GROUPS | AAQTR | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | M | | |
| INIT. INFIL. RATE | M | | |
| HYDRAUL. CONDUCT. | B | | |
| DRAINAGE | G | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | U | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | L | C | |
| COARSE MATERIAL | B | B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | |
| AL SATURATION % | B | B | |
| EXCHANGEABLE AL | B | B | |
| EXCHANGEABLE CA | M | B | |
| EXCHANGEABLE MG | M | B | |
| EXCHANGEABLE K | M | K | |
| EXCHANGEABLE NA | B | B | |
| TOTAL EXCH. BASES | M | B | |
| CATION EXCH. CAPAC. | M | E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M | B | |
| PHOSPHORUS | M | B | |
| PHOSPHORUS FIXATION | U | | |
| MANGANESE | U | | |
| SULPHUR | U | | |
| ZINC | U | | |
| IRON | U | | |
| COPPER | U | | |
| BORON | U | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | |
| I | U | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CL | | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

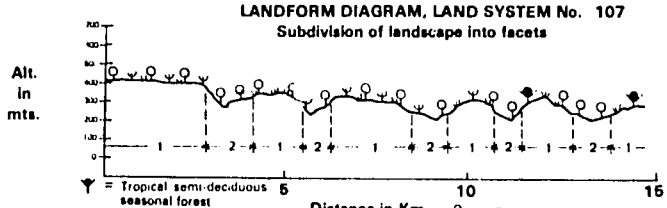
## Land System Bc107

CLIMATE 1350 CAMPO GRANDE
AREA 325400 HAS.
ALTITUDE 350 MTS.
PHYSIOGRAPHIC UNIT NO. 12
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 107

Subdivision of landscape into facets




Y = Tropical semi-deciduous seasonal forest
w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
Y = Campo cerrado (open savanna)
Y = Cerrado (savanna)
Ψ = Caatinga (shrubby woodland)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 65 | 35 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 10 | |
| < 8% | 50 | 20 | |
| 8-30 % | 25 | 40 | |
| > 30 % | 25 | 30 | |
| ALTITUDE IN MTS | 450 | 100 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | 30 | |
| CC | 80 | | |
| C | | 20 | |
| CO | | | |
| TRF | | | |
| SLSF | | | |
| SOSF | 20 | | |
| CAAT | | 50 | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSHA | OUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | A | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | S S | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | M A | |
| EXCHANGEABLE AL | M M | M M | |
| EXCHANGEABLE CA | B B | M B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 |
|---|---|---|
| SOIL CHEM. PROP. (CONT). | | |
| ORGANIC MATTER % | M B | M B |
| PHOSPHORUS | B B | B B |
| PHOSPHORUS FIXATION | O | O |
| MANGANESE | U | U |
| SULPHUR | U | U |
| ZINC | U | B |
| IRON | U | U |
| COPPER | U | U |
| BORON | U | U |
| MOLYBDENUM | U | U |
| FREE CARBONATES | A | A |
| SALINITY | B | B |
| NATRIC | B | B |
| CAT CLAY | N | N |
| X-RAY AMORPHOUS | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | |
| CO | U | U |
| I | U | U |
| SE | U | U |
| CR | U | U |
| NI | U | U |
| OTHERS | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | |
| TYPE AND SUBSTRATA TYPES | LL | SS |
| MODIFIERS FACET 1 | DHKE | |
| FACET 2 | DHKE | |
| FACET 3 | | |

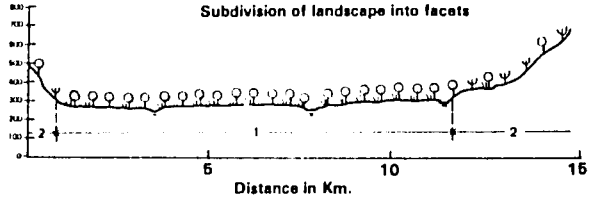
## Land System Bc108

CLIMATE 1350 CAMPO GRANDE
AREA 428159 HAS.
ALTITUDE 250 MTS.
PHYSIOGRAPHIC UNIT NO. 12
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 108

Subdivision of landscape into facets




Y = Campo cerrado (open savanna)
Y = Cerrado (savanna)
Ψ = Caatinga (shrubby woodland)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | N | B | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | | |
| < 8% | 80 | 20 | |
| 8-30 % | 10 | 50 | |
| > 30 % | | 30 | |
| ALTITUDE IN MTS | 250 | 450 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | 80 | 20 | |
| C | 20 | 20 | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SOSF | | | |
| CAAT | | 60 | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 2 | |
| CROPS | 2 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSEU | OUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | M M | |
| EXCHANGEABLE AL | A M | M M | |
| EXCHANGEABLE CA | M B | M B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | M B | |
| CATION EXCH. CAPAC. | M E | M E | |

| | FACETS 1 | 2 |
|---|---|---|
| SOIL CHEM. PROP. (CONT). | | |
| ORGANIC MATTER % | M B | M B |
| PHOSPHORUS | B B | M B |
| PHOSPHORUS FIXATION | I | O |
| MANGANESE | U | U |
| SULPHUR | U | U |
| ZINC | U | U |
| IRON | U | U |
| COPPER | U | U |
| BORON | U | U |
| MOLYBDENUM | U | U |
| FREE CARBONATES | A | A |
| SALINITY | B | B |
| NATRIC | B | B |
| CAT CLAY | N | N |
| X-RAY AMORPHOUS | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | |
| CO | U | U |
| I | U | U |
| SE | U | U |
| CR | U | U |
| NI | U | U |
| OTHERS | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | |
| TYPE AND SUBSTRATA TYPES | CC | LL |
| MODIFIERS FACET 1 | DHAKI | |
| FACET 2 | DHK | |
| FACET 3 | | |

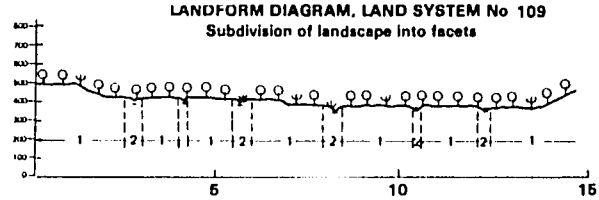
## Land System Bc109

CLIMATE 1350 CAMPO GRANDE
AREA 917317 HAS.
ALTITUDE 400 MTS.
PHYSIOGRAPHIC UNIT NO. 12
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No 109

Subdivision of landscape into facets




ψ = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
ϱ = Cerrado (savanna)
ψ = Seasonally inundated pampa (grasslands)
Ψ = Caatinga (shrubby woodland)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | O | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 20 | |
| < 8% | 70 | 30 | |
| 8-30 % | 20 | 50 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 400 | 395 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 20 | |
| CL + CS | | 50 | |
| CC | | | |
| C | 80 | 30 | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | 20 | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 5 | |
| CROPS | 2 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | J | |
| SUBORDERS | OUS | OUS | |
| GREAT GROUPS | OUSAC | OUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | O | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | M A | |
| EXCHANGEABLE AL | M M | M M | |
| EXCHANGEABLE CA | B B | M B | |
| EXCHANGEABLE MG | B B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | I | I | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | DHAKEI | | |
| FACET 2 | DHKI | | |
| FACET 3 | | | |

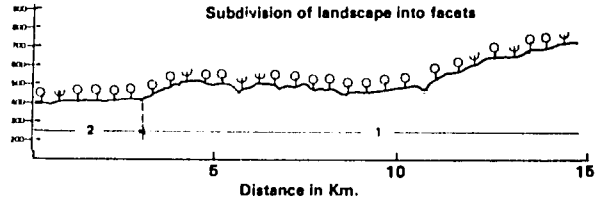
## Land System Be110

CLIMATE 2270 PARATINGA
AREA 1017033 HAS.
ALTITUDE 600 MTS.
PHYSIOGRAPHIC UNIT NO. 7
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No.110

Subdivision of landscape into facets




ϱ = Cerrado (savanna)
Ψ = Caatinga (shrubby woodland)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | B | X | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | | 80 | |
| 8-30 % | 40 | 20 | |
| > 30 % | 60 | | |
| ALTITUDE IN MTS | 650 | 450 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | 90 | 60 | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | 10 | 40 | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 15 | |
| CROPS | | 5 | |

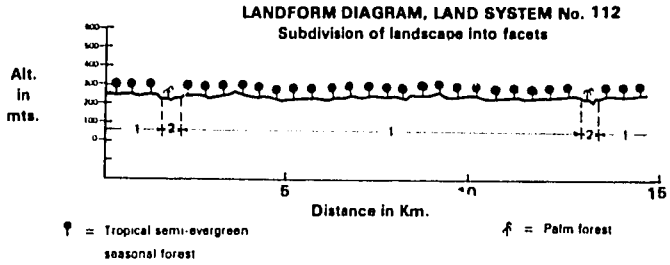
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | U | |
| SUBORDERS | AUS | UUS | |
| GREAT GROUPS | AUSHA | UUSRH | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | C C | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A M | |
| EXCHANGEABLE MG | A A | A M | |
| EXCHANGEABLE K | A A | M M | |
| EXCHANGEABLE NA | B B | M M | |
| TOTAL EXCH. BASES | A A | A M | |
| CATION EXCH. CAPAC. | A A | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | M B | |
| PHOSPHORUS | A B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | CC | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | D | | |
| FACET 3 | | | |

## Land System Ab112

CLIMATE 610 ALTO TAPAJOS
AREA 4773091 HAS.
ALTITUDE 250 MTS.
PHYSIOGRAPHIC UNIT NO. 44
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 97 | 3 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 70 | |
| < 8% | 90 | 20 | |
| 8-30 % | 5 | 10 | |
| > 30 % | 5 | | |
| ALTITUDE IN MTS | 250 | 240 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SCSF | 99 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 5 | |
| CROPS | 1 | 5 | |

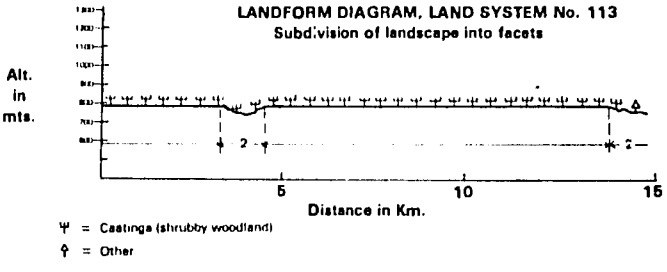
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | U | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | K K | A M | |
| EXCHANGEABLE NA | B B | A M | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | A M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Be113

CLIMATE 1630 NARRA
AREA 13143700 HAS.
ALTITUDE 800 MTS.
PHYSIOGRAPHIC UNIT NO. 7
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
OTHER

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | V | |
| PERCENTAGE OF L.S. | 90 | | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 99 | 3 | |
| 8-30 % | | 30 | |
| > 30 % | | 40 | |
| ALTITUDE IN MTS | 800 | 790 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | 100 | 90 | |
| OTHER | | 10 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

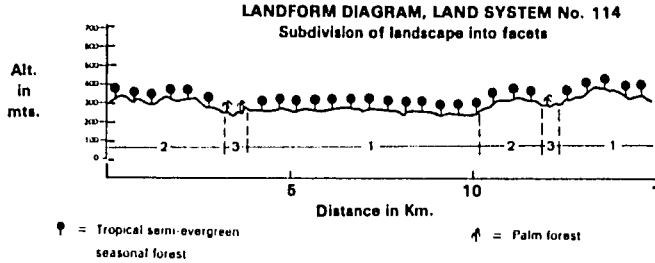
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EPS | LPS | |
| GREAT GROUPS | EPSQU | EPSQU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | XD | XO | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | S S | S S | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M B | M M | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | B | B | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | SS | |
| MODIFIERS FACET 1 | DKE | | |
| FACET 2 | DKE | | |
| FACET 3 | | | |

## Land System Ab114

CLIMATE 610 ALTO TAPAJOS
AREA 1471657 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO. 46
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | P | B |
| PERCENTAGE OF L.S. | 47 | 47 | 6 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 20 | 90 | |
| 8-30 % | 50 | 7 | |
| > 30 % | 30 | 3 | |
| ALTITUDE IN MTS | 330 | 270 | 270 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 99 | 99 | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | | 100 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 10 | 30 |
| CROPS | 0 | 5 | 20 |

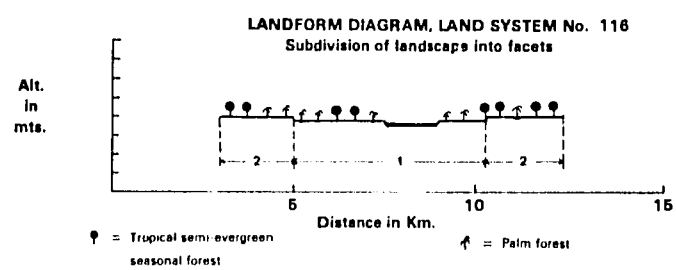
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | U | F |
| SUBORDERS | UUD | UUD | LA. |
| GREAT GROUPS | UUDTR | UUDTR | EAUFL |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | M |
| DEPTH | P | P | M |
| INIT. INFIL. RATE | M | M | M |
| HYDRAUL. CONDUCT. | M | M | M |
| DRAINAGE | F | F | G |
| MOIST. HOLD. CAP. | M | M | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | U | U | U |
| EXPANDING CLAYS | O | O | O |
| TEXTURE | L C | L C | L L |
| COARSE MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | M A | M A | B B |
| EXCHANGEABLE AL | A A | A A | B B |
| EXCHANGEABLE CA | A B | A B | A A |
| EXCHANGEABLE MG | A B | A B | A A |
| EXCHANGEABLE K | M K | M K | A M |
| EXCHANGEABLE NA | B B | B B | M B |
| TOTAL EXCH. BASES | M M | M M | A A |
| CATION EXCH. CAPAC. | A M | A M | A A |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | A |
| PHOSPHORUS | A B | B B | A |
| PHOSPHORUS FIXATION | C | O | O |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | N | N | N |
| NATRIC | N | N | N |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LC | LL |
| MODIFIERS FACET 1 | HA | | |
| FACET 2 | | | |
| FACET 3 | G | | |

## Land System Bc116

CLIMATE 1480 PORTO NACIONAL
AREA 73692 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO. 9
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 80 | 20 | |
| < 8% | 18 | 75 | |
| 8-30 % | 2 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 290 | 310 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 30 | |
| CROPS | 3 | 15 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EAQ | |
| GREAT GROUPS | EAQFL | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | B | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | A M | A M | |
| EXCHANGEABLE NA | M B | M M | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | A M | |
| PHOSPHORUS | A M | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | G | | |
| FACET 3 | | | |

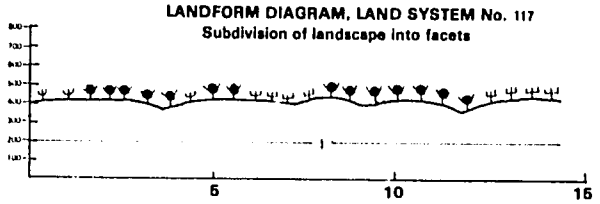
## Land System Bc117

CLIMATE 1160 COROMBA
AREA 3 HAS.
ALTITUDE 430 MTS.
PHYSIOGRAPHIC UNIT NO. 7
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 117

Subdivision of landscape into facets




= Tropical semi-deciduos seasonal forest

= Caatinga (shrubby woodland)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | | |
| PERCENTAGE OF L.S. | 99 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 90 | | |
| 8-30 % | 8 | | |
| > 30 % | 2 | | |
| ALTITUDE IN MTS | 450 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 70 | | |
| CAAT | 30 | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 60 | | |
| CROPS | 20 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | | |
| SUBORDERS | AUS | | |
| GREAT GROUPS | AUSHA | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | P | | |
| INIT. INFIL. RATE | M | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | B | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | SD | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | C | C | |
| COARSE MATERIAL | B | B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | |
| AL SATURATION % | B | B | |
| EXCHANGEABLE AL | B | B | |
| EXCHANGEABLE CA | A | A | |
| EXCHANGEABLE MG | A | A | |
| EXCHANGEABLE K | A | A | |
| EXCHANGEABLE NA | B | B | |
| TOTAL EXCH. BASES | A | A | |
| CATION EXCH. CAPAC. | A | A | |

| | FACETS 1 | 2 |
|---|---|---|
| SOIL CHEM. PROP. (CONT). | | |
| ORGANIC MATTER % | M | B |
| PHOSPHORUS | B | B |
| PHOSPHORUS FIXATION | D | |
| MANGANESE | U | |
| SULPHUR | U | |
| ZINC | U | |
| IRON | U | |
| COPPER | U | |
| BORON | U | |
| MOLYBDENUM | U | |
| FREE CARBONATES | A | |
| SALINITY | B | |
| NATRIC | B | |
| CAT CLAY | N | |
| X-RAY AMORPHOUS | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | |
| CO | U | |
| I | U | |
| SE | U | |
| CR | U | |
| NI | U | |
| OTHERS | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | |
| TYPE AND SUBSTRATA TYPES | CC | |
| MODIFIERS FACET 1 | D | |
| FACET 2 | | |
| FACET 3 | | |

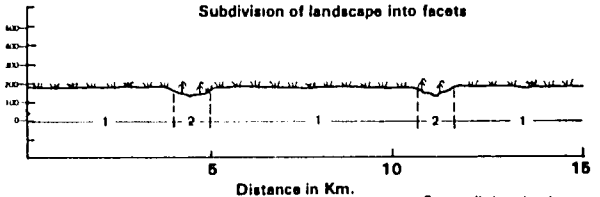
## Land System Oc201

CLIMATE 7250 ARAUCA
AREA 567100 HAS.
ALTITUDE 180 MTS.
PHYSIOGRAPHIC UNIT NO.151
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No.201

Subdivision of landscape into facets




= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Seasonally inundated pampa (grasslands)

= Other

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 20 | 85 | |
| < 8% | 80 | 15 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 180 | 160 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 5 | 25 | |
| CL + CS | 95 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 75 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | D | I | |
| SUBORDERS | DUS | IAQ | |
| GREAT GROUPS | DUSHA | IAQHU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | S | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C | C | C C |
| COARSE MATERIAL | B | B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | M M |
| AL SATURATION % | A | A | A M |
| EXCHANGEABLE AL | A | M | A A |
| EXCHANGEABLE CA | B | B | M B |
| EXCHANGEABLE MG | B | B | M B |
| EXCHANGEABLE K | K | K | K K |
| EXCHANGEABLE NA | B | B | M B |
| TOTAL EXCH. BASES | B | B | B B |
| CATION EXCH. CAPAC. | E | E | M M |

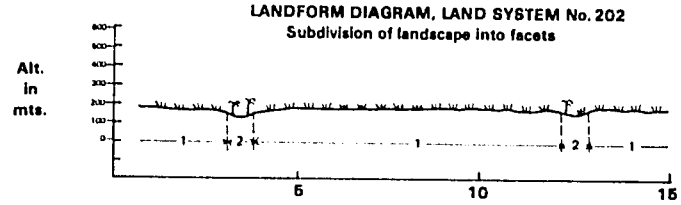
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A | M | A B |
| PHOSPHORUS | B | B | B B |
| PHOSPHORUS FIXATION | I | | D |
| MANGANESE | B | | S |
| SULPHUR | U | | U |
| ZINC | B | | S |
| IRON | S | | S |
| COPPER | S | | U |
| BORON | B | | S |
| MOLYBDENUM | U | | U |
| FREE CARBONATES | A | | A |
| SALINITY | B | | B |
| NATRIC | B | | B |
| CAT CLAY | N | | N |
| X-RAY AMORPHOUS | N | | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | U |
| I | U | | U |
| SE | U | | U |
| CR | U | | U |
| NI | U | | U |
| OTHERS | U | | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | | CC |
| MODIFIERS FACET 1 | DHAKEI | | |
| FACET 2 | GHAK | | |
| FACET 3 | | | |

## Land System Oc202

CLIMATE 7250 ARAUCA
AREA 3328900 HAS.
ALTITUDE 180 MTS.
PHYSIOGRAPHIC UNIT NO.151
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

LANDFORM DIAGRAM, LAND SYSTEM No. 202
Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

f = Palm forest

w = Seasonally inundated pampa (grasslands)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 45 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 40 | 45 | |
| < 8% | 60 | 15 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 180 | 160 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 20 | 15 | |
| CL + CS | 80 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 85 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | D | I | |
| SUBORDERS | DUS | IAQ | |
| GREAT GROUPS | DUSHA | IAQHU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | S | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | D | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | M M | |
| EXCHANGEABLE AL | A M | A A | |
| EXCHANGEABLE CA | B B | M B | |
| EXCHANGEABLE MG | B B | M B | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | M M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | A B | |
| PHOSPHORUS | M B | B B | |
| PHOSPHORUS FIXATION | I | O | |
| MANGANESE | S | U | |
| SULPHUR | U | U | |
| ZINC | B | U | |
| IRON | S | U | |
| COPPER | S | U | |
| BORON | M | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

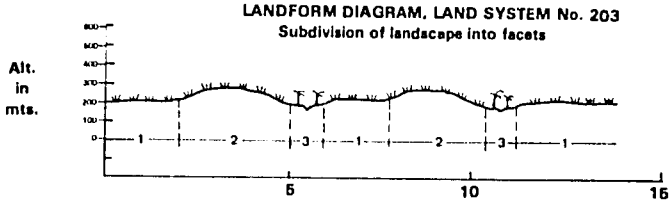
FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CC LL
MODIFIERS FACET 1 DHAKI
FACET 2 GH
FACET 3

## Land System Oc203

CLIMATE 7250 ARAUCA
AREA 1599946 HAS.
ALTITUDE 260 MTS.
PHYSIOGRAPHIC UNIT NO.152
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

LANDFORM DIAGRAM, LAND SYSTEM No. 203
Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

f = Palm forest

w = Seasonally inundated pampa (grasslands)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | D |
| PERCENTAGE OF L.S. | 45 | 30 | 25 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | 90 |
| < 8% | 90 | 50 | 10 |
| 8-30 % | 10 | 40 | |
| > 30 % | | 10 | |
| ALTITUDE IN MTS | 220 | 270 | 260 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | 5 |
| CL + CS | 100 | 100 | |
| CC | 1 | 1 | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | 95 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 0 | 5 |
| CROPS | 0 | 0 | 0 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | D | D | I |
| SUBORDERS | DUS | DUS | IAQ |
| GREAT GROUPS | DUSHA | DUSHA | IAQTR |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | B |
| DEPTH | P | M | M |
| INIT. INFIL. RATE | A | A | B |
| HYDRAUL. CONDUCT. | A | M | B |
| DRAINAGE | B | B | G |
| MOIST. HOLD. CAP. | B | M | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | SD | SD | U |
| EXPANDING CLAYS | O | O | O |
| TEXTURE | S L | C C | L L |
| COARSE MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | M M | A A | A A |
| EXCHANGEABLE AL | M B | A A | A A |
| EXCHANGEABLE CA | B B | B B | B B |
| EXCHANGEABLE MG | B B | A A | M B |
| EXCHANGEABLE K | K K | M K | M K |
| EXCHANGEABLE NA | B B | A M | A B |
| TOTAL EXCH. BASES | B B | B B | B B |
| CATION EXCH. CAPAC. | E E | M A | E E |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M M | A |
| PHOSPHORUS | B B | B B | M |
| PHOSPHORUS FIXATION | O | I | O |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES SL CC LL
MODIFIERS FACET 1 DHKE
FACET 2 DHAI
FACET 3 GHAE

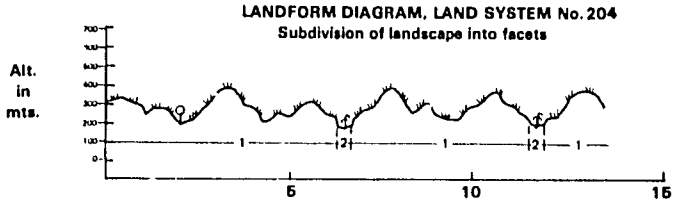
## Land System Oc204

CLIMATE 7250 ARAUCA
AREA 192940m HAS.
ALTITUDE 250 MTS.
PHYSIOGRAPHIC UNIT NO.152
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
WELL DRAINED LANDS
HILLY LANDS.SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS.MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 204

Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Campo cerrado (open savanna)

w = Seasonally inundated pampa (grasslands)

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | B | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 80 | |
| < 9% | 5 | 20 | |
| 8-30 % | 15 | | |
| > 30 % | 80 | | |
| ALTITUDE IN MTS | 260 | 230 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 5 | |
| CL + CS | 100 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 95 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | J | I | |
| SUBORDERS | JUS | IAQ | |
| GREAT GROUPS | OUSHA | IAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | A | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SO | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | C C | |
| COARSE MATERIAL | A M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | A A | |
| EXCHANGEABLE AL | A A | A A | |
| EXCHANGEABLE CA | M B | B B | |
| EXCHANGEABLE MG | B B | M M | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | M M | A M | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | M M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | I | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | CC | |
| MODIFIERS FACET 1 | DHAFI | | |
| FACET 2 | GHA | | |
| FACET 3 | | | |

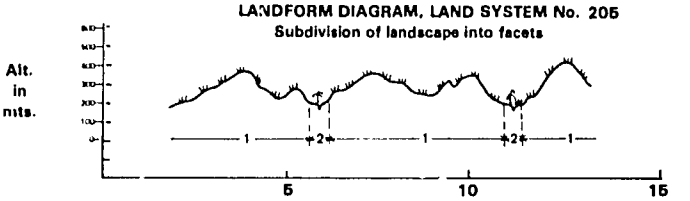
## Land System Oc205

CLIMATE 7250 ARAUCA
AREA 2477774 HAS.
ALTITUDE 150 MTS.
PHYSIOGRAPHIC UNIT NO.152
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
WELL DRAINED LANDS
HILLY LANDS.SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS.MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 205

Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

w = Seasonally inundated pampa (grasslands)

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | B | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 80 | |
| < 8% | 5 | 20 | |
| 8-30 % | 20 | | |
| > 30 % | 75 | | |
| ALTITUDE IN MTS | 260 | 230 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 5 | |
| CL + CS | 100 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 95 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | I | |
| SUBORDERS | JUS | IAQ | |
| GREAT GROUPS | OUSHA | IAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | A | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SO | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | C C | |
| COARSE MATERIAL | A M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | A A | |
| EXCHANGEABLE AL | A A | A A | |
| EXCHANGEABLE CA | M B | B B | |
| EXCHANGEABLE MG | B B | M M | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | M M | A M | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | M E | M M | |

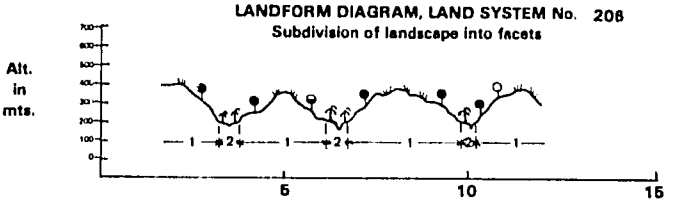
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | A M | |
| PHOSPHORUS | M M | B B | |
| PHOSPHORUS FIXATION | I | I | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | CC | |
| MODIFIERS FACET 1 | DHAI | | |
| FACET 2 | GHAS | | |
| FACET 3 | | | |

## Land System Oc206

CLIMATE 7270 ARAUCA
AREA 379303 HAS.
ALTITUDE 230 MTS.
PHYSIOGRAPHIC UNIT NO.152
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

LANDFORM DIAGRAM, LAND SYSTEM No. 206
Subdivision of landscape into facets




= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
= Tropical semi-evergreen seasonal forest
= Cerrado (savanna)
= Cerradão (closed savanna)
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | B | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 80 | |
| < 8% | 5 | 20 | |
| 8-30 % | 10 | | |
| > 30 % | 85 | | |
| ALTITUDE IN MTS | 260 | 230 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 35 | | |
| CC | | | |
| C | 10 | | |
| CD | 10 | | |
| TRF | | | |
| SESF | 45 | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | I | |
| SUBORDERS | UUS | IAQ | |
| GREAT GROUPS | UUSHA | IAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | B | A | |
| TEMP. REGIME | T | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | C C | |
| COARSE MATERIAL | A M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | A A | |
| EXCHANGEABLE AL | A A | A A | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | B B | M M | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B P | A M | |
| TOTAL EXCH. BASES | B B | M M | |
| CATION EXCH. CAPAC. | E E | M M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | M M | B B | |
| PHOSPHORUS FIXATION | I | I | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

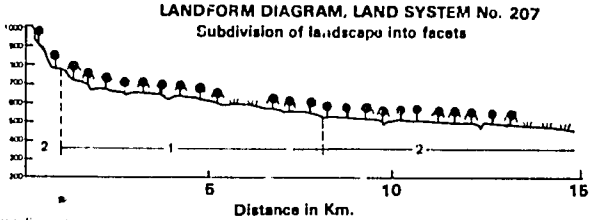
FERTILITY CAPABILITY CLASSIFICATION LL CC
TYPE AND SUBSTRATA TYPES
MODIFIERS, FACET 1 DHAKEI
FACET 2 GHAI
FACET 3

## Land System Fa207

CLIMATE 8030 VILLAVO
AREA 924897 HAS.
ALTITUDE 600 MTS.
PHYSIOGRAPHIC UNIT NO.154
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

LANDFORM DIAGRAM, LAND SYSTEM No. 207
Subdivision of landscape into facets




= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
= Tropical semi-evergreen seasonal forest
= Tropical rain forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 66 | 34 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 5 | |
| < 8% | 80 | 80 | |
| 8-30 % | 10 | 10 | |
| > 30 % | 5 | 5 | |
| ALTITUDE IN MTS | 600 | 500 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 5 | 10 | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 70 | 60 | |
| SESF | 25 | 30 | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 70 | 70 | |
| CROPS | 30 | 30 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | I | |
| SUBORDERS | ITR | ITR | |
| GREAT GROUPS | ITROY | ITROY | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | M | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M A | M A | |
| EXCHANGEABLE AL | M A | M A | |
| EXCHANGEABLE CA | B B | M B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | M K | M M | |
| EXCHANGEABLE NA | M M | B B | |
| TOTAL EXCH. BASES | M B | M B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | B B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

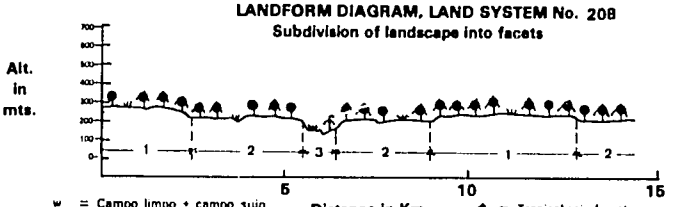
FERTILITY CAPABILITY CLASSIFICATION LL LL
TYPE AND SUBSTRATA TYPES
MODIFIERS FACET 1 HE
FACET 2 HE
FACET 3

## Land System Oa208

CLIMATE 8030 VILLAVO
AREA 1244540 HAS.
ALTITUDE 270 MTS.
PHYSIOGRAPHIC UNIT NO.153
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No. 208**
**Subdivision of landscape into facets**




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
w = Seasonally inundated pampa (grasslands)
= Palm forest
= Campo cerrado (open savanna)
= Tropical rain forest
= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | B |
| PERCENTAGE OF L.S. | 45 | 45 | 10 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 45 | 5 | 95 |
| < 8% | 35 | 95 | 5 |
| 8-30 % | 15 | | |
| > 30 % | 5 | | |
| ALTITUDE IN MTS | 270 | 260 | 250 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 5 | 40 |
| CL + CS | 5 | 95 | |
| CC | 5 | | |
| C | | | |
| CO | | | |
| TRF | 70 | | |
| SESF | 20 | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | | 60 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 70 | 70 | 70 |
| CROPS | 30 | 30 | 30 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | U | I |
| SUBORDERS | OOR | UUD | IAQ |
| GREAT GROUPS | OORHA | UUDTR | IAQTR |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | S | P | B |
| DEPTH | P | M | M |
| INIT. INFIL. RATE | M | M | M |
| HYDRAUL. CONDUCT. | M | M | B |
| DRAINAGE | B | D | G |
| MOIST. HOLD. CAP. | M | A | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | U | U | U |
| EXPANDING CLAYS | O | O | O |
| TEXTURE | L C | C C | L L |
| COARSE MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | M A | M M | M A |
| EXCHANGEABLE AL | M A | B M | A A |
| EXCHANGEABLE CA | B B | M B | B B |
| EXCHANGEABLE MG | B B | M B | M B |
| EXCHANGEABLE K | K K | A K | A A |
| EXCHANGEABLE NA | B B | M B | A A |
| TOTAL EXCH. BASES | B B | M B | B B |
| CATION EXCH. CAPAC. | E E | A A | M E |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M M | A B | A |
| PHOSPHORUS | B B | M B | M |
| PHOSPHORUS FIXATION | O | O | O |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | J |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | J |
| OTHERS | U | U | U |

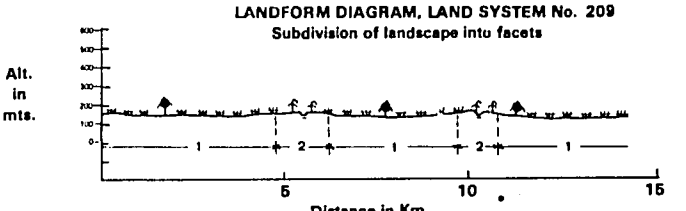
FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LC CC LL
MODIFIERS FACET 1 HKE
FACET 2 H
FACET 3 GH

## Land System Oc209

CLIMATE 7250 ARAUCA
AREA 2774286 HAS.
ALTITUDE 150 MTS.
PHYSIOGRAPHIC UNIT NO.155
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 209**
**Subdivision of landscape into facets**




w = Seasonally inundated pampa (grasslands)
= Palm forest
= Tropical rain forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 98 | 80 | |
| < 8% | 2 | 20 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 150 | 150 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 90 | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 10 | | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | A | |
| SUBORDERS | IAQ | AAQ | |
| GREAT GROUPS | IAQTR | AAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | M A | |
| EXCHANGEABLE AL | A A | M A | |
| EXCHANGEABLE CA | A M | M B | |
| EXCHANGEABLE MG | A A | M M | |
| EXCHANGEABLE K | A M | K K | |
| EXCHANGEABLE NA | M B | B B | |
| TOTAL EXCH. BASES | A M | B B | |
| CATION EXCH. CAPAC. | A M | E M | |

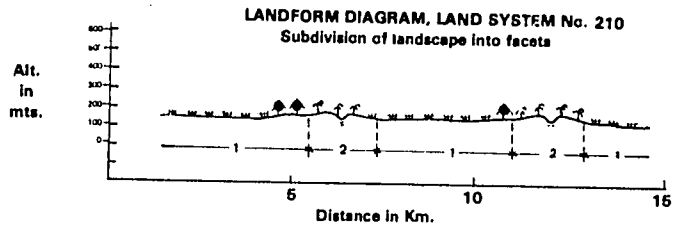
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | A A | B B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CC LL
MODIFIERS FACET 1 GH
FACET 2 GHKE
FACET 3

## Land System Oc210

CLIMATE 7250 ARAUCA
AREA 1660666 HAS.
ALTITUDE 190 MTS.
PHYSIOGRAPHIC UNIT NO.155
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 95 | 75 | |
| < 8% | 5 | 25 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 150 | 150 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 90 | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 10 | | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 1 | |

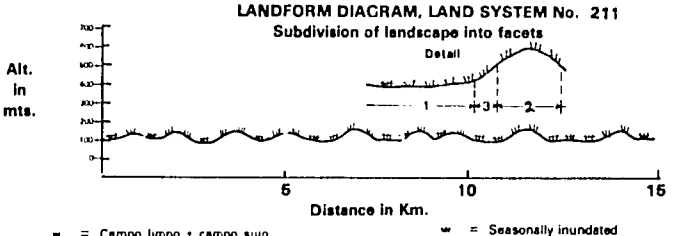
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | U | |
| SUBORDERS | UAQ | UAQ | |
| GREAT GROUPS | UAQTR | UAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | M M | |
| EXCHANGEABLE AL | A A | M M | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | B B | B B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | M M | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | B B | |
| PHOSPHORUS | M B | B B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | GHAK | | |
| FACET 2 | GHKF | | |
| FACET 3 | | | |

## Land System Oc211

CLIMATE 7250 ARAUCA
AREA 272435 HAS.
ALTITUDE 90 MTS.
PHYSIOGRAPHIC UNIT NO.155
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | R | N |
| PERCENTAGE OF L.S. | 50 | 30 | 20 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 80 | | |
| < 8% | 20 | | 75 |
| 8-30 % | | 75 | 25 |
| > 30 % | | 25 | |
| ALTITUDE IN MTS | 90 | 100 | 90 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 80 | | |
| CL + CS | 20 | 100 | 100 |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | I |
| SUBORDERS | IAQ | EPS | IAQ |
| GREAT GROUPS | IAQTR | EPSQU | IAQPL |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | B |
| DEPTH | P | P | P |
| INIT. INFIL. RATE | A | A | A |
| HYDRAUL. CONDUCT. | B | A | M |
| DRAINAGE | G | B | O |
| MOIST. HOLD. CAP. | M | B | B |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | U | SO | U |
| EXPANDING CLAYS | D | U | O |
| TEXTURE | L L | S S | L L |
| COARSE MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | M A | M M | M M |
| EXCHANGEABLE AL | M M | B B | M M |
| EXCHANGEABLE CA | B B | B B | B B |
| EXCHANGEABLE MG | B B | B B | B B |
| EXCHANGEABLE K | K K | K K | M K |
| EXCHANGEABLE NA | B B | B M | M M |
| TOTAL EXCH. BASES | B B | B B | B B |
| CATION EXCH. CAPAC. | E E | E E | E E |

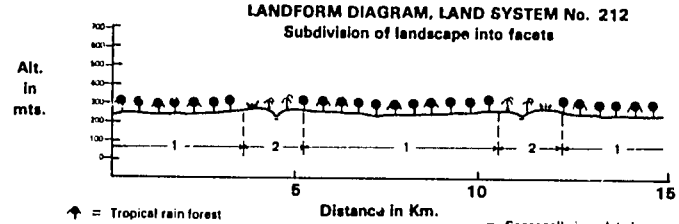
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | B B | M |
| PHOSPHORUS | A M | M M | M |
| PHOSPHORUS FIXATION | O | O | O |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | U | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | SS | LL |
| MODIFIERS FACET 1 | HKE | | |
| FACET 2 | DHKE | | |
| FACET 3 | HE | | |

## Land System Oc212

CLIMATE 7250 ARAUCA
AREA 821956 HAS.
ALTITUDE 190 MTS.
PHYSIOGRAPHIC UNIT NO.156
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 212
Subdivision of landscape into facets




= Tropical rain forest
= Tropical semi-evergreen seasonal forest
= Seasonally inundated pampa (grasslands)
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 20 | 50 | |
| < 8% | 80 | 40 | |
| 8-30 % | | 10 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 180 | 180 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 30 | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 40 | | |
| SESF | 60 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 70 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | | |
| CROPS | 1 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | ITR | EAQ | |
| GREAT GROUPS | ITRDY | EAQPS | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | S | D | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | U | |
| TEXTURE | S S | S L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | M A | |
| EXCHANGEABLE AL | M M | M A | |
| EXCHANGEABLE CA | M B | M M | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | M B | B B | |
| TOTAL EXCH. BASES | M B | B B | |
| CATION EXCH. CAPAC. | M M | M M | |

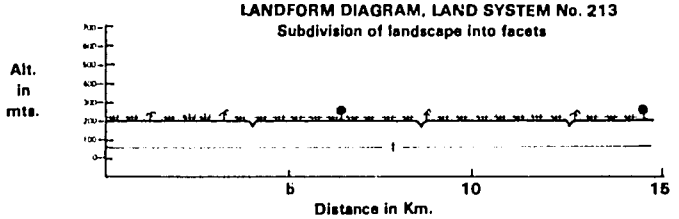
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | B B | |
| PHOSPHORUS | M M | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | SL | |
| MODIFIERS FACET 1 | GHR | | |
| FACET 2 | HR | | |
| FACET 3 | | | |

## Land System Oc213

CLIMATE 7250 ARAUCA
AREA 207107 HAS.
ALTITUDE 120 MTS.
PHYSIOGRAPHIC UNIT NO.159
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 213
Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)
= Palm forest
= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | | |
| < 8% | 10 | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 120 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 95 | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 5 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | | |
| CROPS | 1 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | | |
| SUBORDERS | IAQ | | |
| GREAT GROUPS | IAQTR | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | M | | |
| INIT. INFIL. RATE | M | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | G | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | U | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | L L | | |
| COARSE MATERIAL | B B | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | | |
| AL SATURATION % | M M | | |
| EXCHANGEABLE AL | M M | | |
| EXCHANGEABLE CA | M B | | |
| EXCHANGEABLE MG | M B | | |
| EXCHANGEABLE K | M K | | |
| EXCHANGEABLE NA | M B | | |
| TOTAL EXCH. BASES | M B | | |
| CATION EXCH. CAPAC. | M E | | |

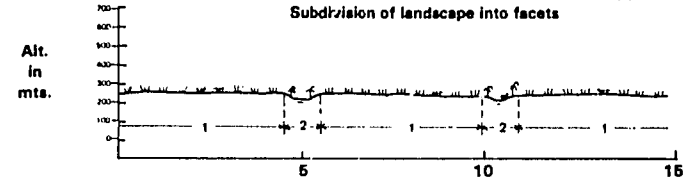
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | | |
| PHOSPHORUS | M B | | |
| PHOSPHORUS FIXATION | D | | |
| MANGANESE | U | | |
| SULPHUR | U | | |
| ZINC | U | | |
| IRON | U | | |
| COPPER | U | | |
| BORON | U | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | |
| I | U | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | | |
| MODIFIERS FACET 1 | GH | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Oc214

CLIMATE 7250 ARAUCA
AREA 327084 HAS.
ALTITUDE 270 MTS.
PHYSIOGRAPHIC UNIT NO.151
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No. 214**
**Subdivision of landscape into facets**




= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Seasonally inundated pampa (grasslands)

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 30 | 85 | |
| < 8% | 70 | 15 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 270 | 270 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 10 | 25 | |
| CL + CS | 90 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 75 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | | |
| CROPS | 0 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | I | |
| SUBORDERS | UUS | IAU | |
| GREAT GROUPS | UUSHA | IAOHU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | P | S | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SO | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | C C | |
| COARSE MATERIAL | B P | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | M M | |
| EXCHANGEABLE AL | A M | A A | |
| EXCHANGEABLE CA | B P | M B | |
| EXCHANGEABLE MG | B B | M B | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | M M | |

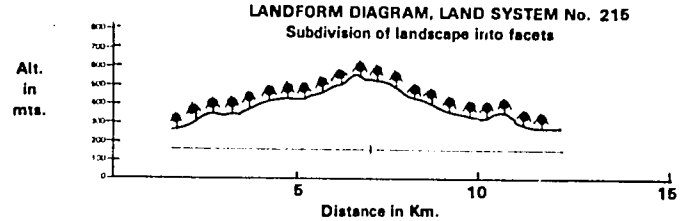
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | A B | |
| PHOSPHORUS | P B | P B | |
| PHOSPHORUS FIXATION | I | O | |
| MANGANESE | A | S | |
| SULPHUR | U | U | |
| ZINC | B | S | |
| IRON | S | S | |
| COPPER | S | U | |
| BORON | B | S | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | J | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | CC | |
| MODIFIERS FACET 1 | GHAEKI | | |
| FACET 2 | GH | | |
| FACET 3 | | | |

## Land System Fa215

CLIMATE 8030 VILLAVO
AREA 245457 HAS.
ALTITUDE 550 MTS.
PHYSIOGRAPHIC UNIT NO.158
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No. 215**
**Subdivision of landscape into facets**




= Tropical rain forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 20 | | |
| 8-30 % | 40 | | |
| > 30 % | 40 | | |
| ALTITUDE IN MTS | 550 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 100 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | | |
| CROPS | 0 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | | |
| SUBORDERS | OOR | | |
| GREAT GROUPS | OORHA | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | | |
| DEPTH | M | | |
| INIT. INFIL. RATE | M | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | B | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | U | | |
| EXPANDING CLAYS | O | | |
| TEXTURE | C C | | |
| COARSE MATERIAL | B M | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | | |
| AL SATURATION % | H M | | |
| EXCHANGEABLE AL | M M | | |
| EXCHANGEABLE CA | M B | | |
| EXCHANGEABLE MG | M B | | |
| EXCHANGEABLE K | M K | | |
| EXCHANGEABLE NA | B B | | |
| TOTAL EXCH. BASES | M B | | |
| CATION EXCH. CAPAC. | M E | | |

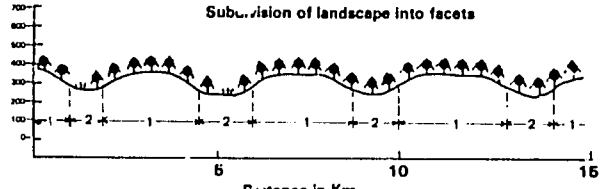
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | | |
| PHOSPHORUS | M B | | |
| PHOSPHORUS FIXATION | O | | |
| MANGANESE | U | | |
| SULPHUR | U | | |
| ZINC | U | | |
| IRON | U | | |
| COPPER | U | | |
| BORON | U | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | |
| I | U | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | | |
| MODIFIERS FACET 1 | H | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Fa216

CLIMATE 8030 VILLAVO
AREA 2673053 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO.157
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No. 216**
Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)

↑ = Tropical rain forest

w = Campo limpo / campo sujo (grasslands on well drained lands with occasional shrubs)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 20 | |
| < 8% | 30 | 20 | |
| 8-30 % | 40 | 20 | |
| > 30 % | 30 | 40 | |
| ALTITUDE IN MTS | 350 | 250 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 2 | |
| CL + CS | 10 | 8 | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 90 | 90 | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 5 | |
| CROPS | 5 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | I | |
| SUBORDERS | ITR | ITR | |
| GREAT GROUPS | ITROY | ITROY | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | M | |
| DEPTH | P | F | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | U | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M A | M M | |
| EXCHANGEABLE AL | A A | M M | |
| EXCHANGEABLE CA | M B | M B | |
| EXCHANGEABLE MG | M M | M B | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | M B | |
| CATION EXCH. CAPAC. | M E | M E | |

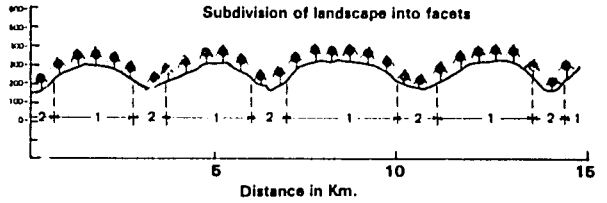
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | T | S | |
| SULPHUR | U | U | |
| ZINC | S | B | |
| IRON | U | U | |
| COPPER | S | B | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | H | | |
| FACET 2 | H | | |
| FACET 3 | | | |

## Land System Aa217

CLIMATE 770 TAUARETE
AREA 1334221 HAS.
ALTITUDE 280 MTS.
PHYSIOGRAPHIC UNIT NO.158
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No 217**
Subdivision of landscape into facets




↑ = Tropical rain forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 70 | 30 | |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 10 | |
| < 8% | 20 | 20 | |
| 8-30 % | 60 | 40 | |
| > 30 % | 20 | 30 | |
| ALTITUDE IN MTS | 300 | 200 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 100 | 100 | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OOR | OOR | |
| GREAT GROUPS | OORHA | OORHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | M | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A M | A M | |
| EXCHANGEABLE AL | A A | A M | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | B B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | M B | |
| CATION EXCH. CAPAC. | E E | E E | |

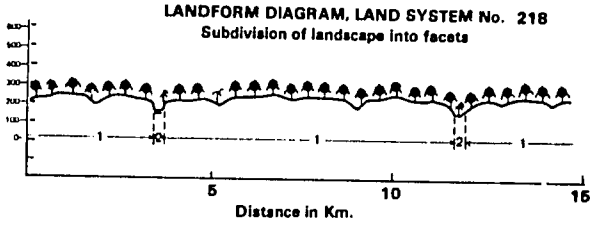
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | I | I | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | HAKEI | | |
| FACET 2 | HAKEI | | |
| FACET 3 | | | |

## Land System Aa218

CLIMATE 1101° SAN CARLOS RIO NEG
AREA 17689014 HAS.
ALTITUDE 150 MTS.
PHYSIOGRAPHIC UNIT NO. 33
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

LANDFORM DIAGRAM, LAND SYSTEM No. 218
Subdivision of landscape into facets




= Tropical rain forest  = Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 97 | 3 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 60 | |
| < 8% | | 40 | 45 |
| 8-30 % | | 50 | 5 |
| > 30 % | | 10 | |
| ALTITUDE IN MTS | 150 | 145 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 100 | | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 1 | |
| CROPS | 1 | 1 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | D | E | |
| SUBORDERS | DOR | EAQ | |
| GREAT GROUPS | DORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | M B | |
| EXCHANGEABLE AL | A A | B b | |
| EXCHANGEABLE CA | M B | A M | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | M K | A K | |
| EXCHANGEABLE NA | M B | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | M M | A A | |

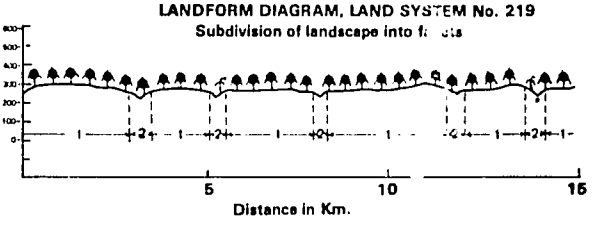
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | B | U | |
| SULPHUR | U | U | |
| ZINC | S | U | |
| IRON | U | U | |
| COPPER | S | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | U | |
| SALINITY | B | U | |
| NATRIC | B | U | |
| CAT CLAY | N | U | |
| X-RAY AMORPHOUS | N | U | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HA | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Aa219

CLIMATE 8580 TIPUTINI
AREA 6820934 HAS.
ALTITUDE 250 MTS.
PHYSIOGRAPHIC UNIT NO.156
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

LANDFORM DIAGRAM, LAND SYSTEM No. 219
Subdivision of landscape into facets




= Tropical rain forest  = Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 50 | |
| < 8% | 50 | 10 | |
| 8-30 % | 30 | 10 | |
| > 30 % | 10 | 30 | |
| ALTITUDE IN MTS | 250 | 180 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 90 | 80 | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | 10 | 20 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | ITR | EAQ | |
| GREAT GROUPS | ITROY | EAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M A | M M | |
| EXCHANGEABLE AL | A A | A A | |
| EXCHANGEABLE CA | M A | M B | |
| EXCHANGEABLE MG | A A | M B | |
| EXCHANGEABLE K | A K | M K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | M B | B B | |
| CATION EXCH. CAPAC. | M M | M M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | T | U | |
| SULPHUR | U | U | |
| ZINC | S | U | |
| IRON | U | U | |
| COPPER | S | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | H | | |
| FACET 2 | G | | |
| FACET 3 | | | |

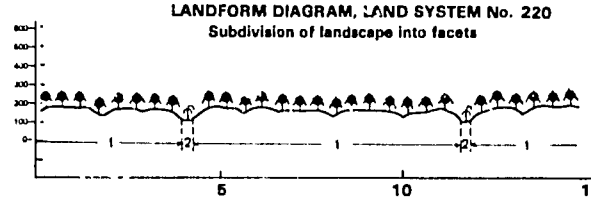
## Land System Aa220

CLIMATE 3570 IQUITOS
AREA 23576813 HAS.
ALTITUDE 150 MTS.
PHYSIOGRAPHIC UNIT NO. 33
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 220

Subdivision of landscape into facets




= Tropical rain forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 60 | |
| < 8% | 60 | 45 | |
| 8-30 % | 30 | 5 | |
| > 30 % | 10 | | |
| ALTITUDE IN MTS | 150 | 145 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 99 | | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | 1 | |
| CROPS | 1 | 1 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDPA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | P | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | P | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | B | U | |
| SULPHUR | U | U | |
| ZINC | S | U | |
| IRON | U | U | |
| COPPER | S | U | |
| BORON | U | U | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | J | U | |
| SE | U | U | |
| CR | U | U | |
| NI | J | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | HAP | | |
| FACET 2 | U | | |
| FACET 3 | | | |

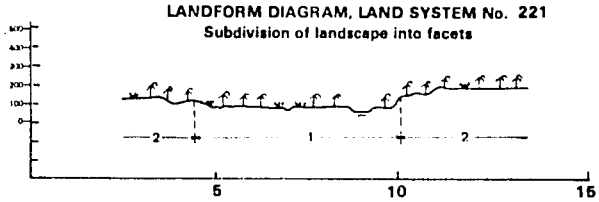
## Land System Ob221

CLIMATE 7250 ARAUCA
AREA 1051391 HAS.
ALTITUDE 90 MTS.
PHYSIOGRAPHIC UNIT NO.160
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 221

Subdivision of landscape into facets




= Palm forest

= Seasonally inundated pampa (grasslands)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 50 | 50 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 80 | 30 | |
| < 8% | 20 | 70 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 90 | 110 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 30 | 10 | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | 70 | 90 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 5 | |
| CROPS | 0 | 5 | |

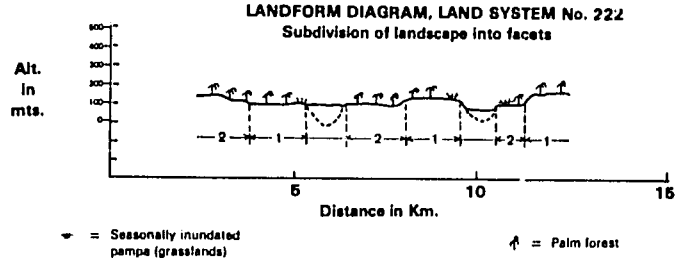
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UAQ | EFL | |
| GREAT GROUPS | UAQTR | EFLTH | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | P | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | SU | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | M M | M M | |
| EXCHANGEABLE K | A K | M K | |
| EXCHANGEABLE NA | A M | M M | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | E M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | A B | |
| PHOSPHORUS | B M | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CU | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | LL | |
| MODIFIERS FACET 1 | GHE | | |
| FACET 2 | O | | |
| FACET 3 | | | |

## Land System Aa222

CLIMATE 8580 TIPUTINI
AREA 766631 HAS.
ALTITUDE 120 MTS.
PHYSIOGRAPHIC UNIT NO.160
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 50 | 50 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 80 | 30 | |
| < 8% | | 20 | 70 |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 900 | 110 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 30 | 10 | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | 70 | 90 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 5 | |
| CROPS | 0 | 5 | |

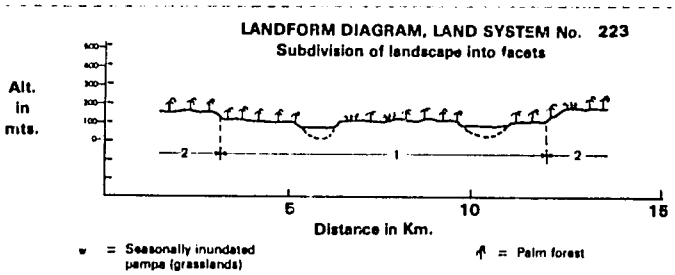
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EFL | |
| GREAT GROUPS | EAQFL | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | G | B | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | S S | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A M | M M | |
| EXCHANGEABLE K | A M | M K | |
| EXCHANGEABLE NA | A M | M M | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A A | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | A B | |
| PHOSPHORUS | A M | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | O | | |
| FACET 3 | | | |

## Land System Aa223

CLIMATE 770 TAUARETE
AREA 4790847 HAS.
ALTITUDE 120 MTS.
PHYSIOGRAPHIC UNIT NO.160
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 80 | 30 | |
| < 8% | | 20 | 70 |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 90 | 110 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 30 | 10 | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | 70 | 90 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 5 | |
| CROPS | 0 | 5 | |

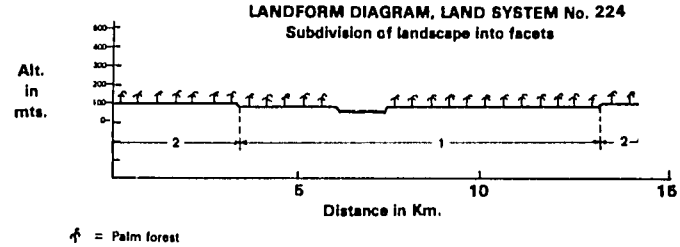
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EFL | |
| GREAT GROUPS | EAQFL | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M H | N M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | M M | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | M M | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | A B | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | GHAK | | |
| FACET 2 | O | | |
| FACET 3 | | | |

## Land System Aa224

CLIMATE 3570 IQUITOS
AREA 3082604 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 37
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 70 | |
| < 8% | 10 | 28 | |
| 8-30 % | | 2 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 102 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | 3 | |
| CROPS | 1 | 2 | |

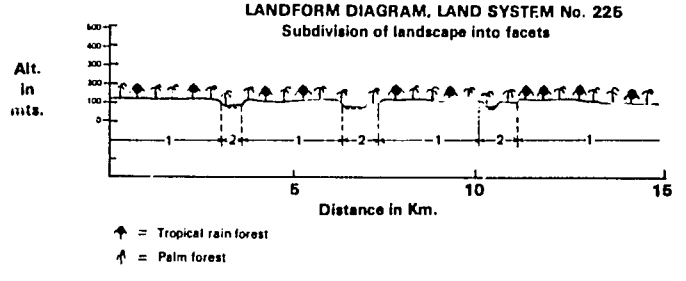
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EAQ | |
| GREAT GROUPS | EAQFL | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | A K | A K | |
| EXCHANGEABLE NA | B - | B B | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | M B | |
| PHOSPHORUS | A A | A A | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Aa225

CLIMATE 770 IAUARETE
AREA 10379768 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | O | |
| PERCENTAGE OF L.S. | 92 | 8 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 60 | 80 | |
| < 8% | 38 | 15 | |
| 8-30 % | 2 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 98 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 40 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 60 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 2 | |
| CROPS | 1 | 2 | |

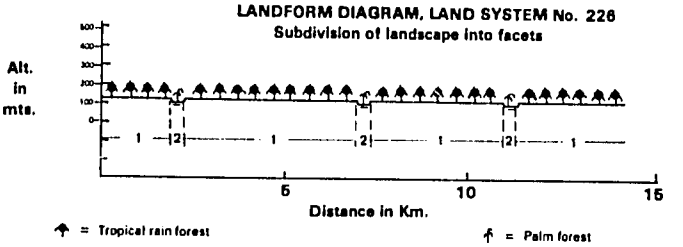
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UAQ | EAQ | |
| GREAT GROUPS | UAQPL | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M M | A A | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | M K | M M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | A M | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | GHA | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Aa226

CLIMATE 770 IAUARETE
AREA 1067395 HAS.
ALTITUDE 110 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 75 | |
| < 8% | 95 | 20 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 98 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 100 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 2 | |
| CROPS | 1 | 2 | |

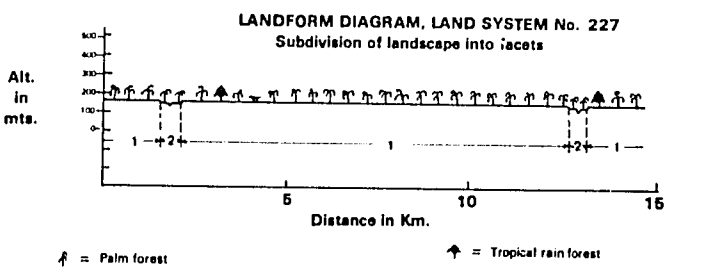
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | D | E | |
| SUBORDERS | DOR | EAQ | |
| GREAT GROUPS | DORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | P | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M M | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Aa227

CLIMATE 720 CRUZEIRO DO SUL
AREA 68103 HAS.
ALTITUDE 150 MTS.
PHYSIOGRAPHIC UNIT NO. 47
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 80 | 90 | |
| < 8% | 18 | 7 | |
| 8-30 % | 2 | 3 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 150 | 146 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 25 | |
| CROPS | 3 | 30 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | | E | |
| SUBORDERS | SAQ | EAQ | |
| GREAT GROUPS | SAQTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L S | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | B A | B B | |
| EXCHANGEABLE CA | M B | A A | |
| EXCHANGEABLE MG | A B | A A | |
| EXCHANGEABLE K | A K | A M | |
| EXCHANGEABLE NA | A B | M B | |
| TOTAL EXCH. BASES | M B | A A | |
| CATION EXCH. CAPAC. | A E | A A | |

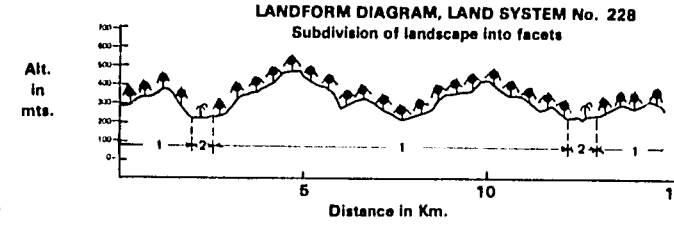
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A M | |
| PHOSPHORUS | A B | A A | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LS | LL | |
| MODIFIERS FACET 1 | GH | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Fa228

CLIMATE 720 CRUZEIRO DO SUL
AREA 619995 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO. 48
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

LANDFORM DIAGRAM, LAND SYSTEM No. 228
Subdivision of landscape into facets




= Tropical rain forest  = Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | V | |
| PERCENTAGE OF L.S. | 92 | 8 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | 25 | 20 | |
| 8-30 % | 50 | 5 | |
| > 30 % | 25 | | |
| ALTITUDE IN MTS | 300 | 250 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 99 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 20 | |
| CROPS | 1 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AUD | EAQ | |
| GREAT GROUPS | AUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | M B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | A M | A M | |
| EXCHANGEABLE NA | M B | M P | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

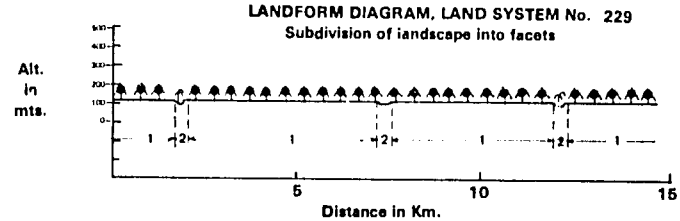
| | FACETS 1 | 2 |
|---|---|---|
| SOIL CHEM. PROP. (CONT). | | |
| ORGANIC MATTER % | M B | M P |
| PHOSPHORUS | A A | A M |
| PHOSPHORUS FIXATION | O | O |
| MANGANESE | U | U |
| SULPHUR | U | U |
| ZINC | U | U |
| IRON | U | U |
| COPPER | U | U |
| BORON | U | U |
| MOLYBDENUM | U | U |
| FREE CARBONATES | A | A |
| SALINITY | B | P |
| NATRIC | B | B |
| CAT CLAY | N | N |
| X-RAY AMORPHOUS | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | |
| CO | U | U |
| I | U | U |
| SE | U | U |
| CR | U | U |
| NI | U | U |
| OTHERS | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | |
| TYPE AND SUBSTRATA TYPES | LC | LL |
| MODIFIERS FACET 1 | | |
| FACET 2 | G | |
| FACET 3 | | |

## Land System Aa229

CLIMATE 720 CRUZEIRO DO SUL
AREA 160451 HAS.
ALTITUDE 110 MTS.
PHYSIOGRAPHIC UNIT NO. 47
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

LANDFORM DIAGRAM, LAND SYSTEM No. 229
Subdivision of landscape into facets




= Tropical rain forest  = Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | O | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 50 | 75 | |
| < 8% | 48 | 20 | |
| 8-30 % | 2 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 110 | 106 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 100 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 20 | |
| CROPS | 5 | 30 | |

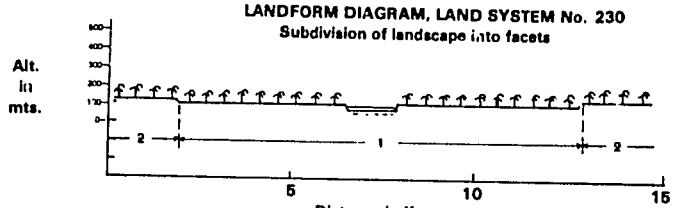
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | D | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | A A | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | M B | A A | |
| EXCHANGEABLE K | M K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT) | | | |
| ORGANIC MATTER % | A M | A M | |
| PHOSPHORUS | B B | A A | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | HA | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System As230

CLIMATE 720 CRUZEIRO DO SUL
AREA 439271 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 49
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 99 | 40 | |
| < 8% | 1 | 60 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 104 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 40 | |
| CROPS | 25 | 40 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | I | |
| SUBORDERS | IAQ | IAQ | |
| GREAT GROUPS | IAQTR | IAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | D | B | |
| HYDRAUL. CONDUCT. | B | B | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | A | A | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | C C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B A | B A | |
| EXCHANGEABLE AL | B A | B A | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | A M | A M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A A | A A | |

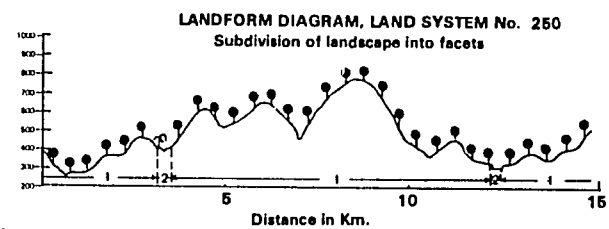
| | FACETS 1 | 2 |
|---|---|---|
| SOIL CHEM. PROP. (CONTI. | | |
| ORGANIC MATTER % | A B | A B |
| PHOSPHORUS | A M | A M |
| PHOSPHORUS FIXATION | O | O |
| MANGANESE | U | U |
| SULPHUR | U | U |
| ZINC | U | U |
| IRON | U | U |
| COPPER | U | U |
| BORON | U | U |
| MOLYBDENUM | U | U |
| FREE CARBONATES | A | A |
| SALINITY | B | B |
| NATRIC | B | B |
| CAT CLAY | N | N |
| X-RAY AMORPHOUS | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | |
| CO | U | U |
| I | U | U |
| SE | U | U |
| CR | U | U |
| NI | U | U |
| OTHERS | U | U |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CC CC
MODIFIERS FACET 1 GH
FACET 2 H
FACET 3

## Land System Gb250

CLIMATE 11110 SANTA ELENA
AREA 2894882 HAS.
ALTITUDE 1000 MTS.
PHYSIOGRAPHIC UNIT NO. 33
GENERALIZED CLASSIFICATION
UPLANDS,ABOVE 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 25 | |
| < 9% | 5 | 65 | |
| 9-30 % | 45 | 10 | |
| > 30 % | 50 | | |
| ALTITUDE IN MTS | 1000 | 950 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 5 | |
| CROPS | 1 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EOR | CFL | |
| GREAT GROUPS | EORTR | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | S | P | |
| INIT. INFIL. RATE | M | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | I | I | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | U | |
| TEXTURE | L L | L S | |
| COARSE MATERIAL | M A | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | B B | A A | |
| EXCHANGEABLE K | K K | A M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | M M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONTI. | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

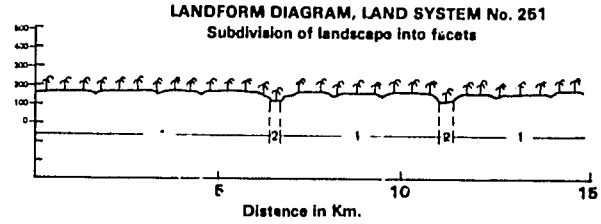
FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LR LS
MODIFIERS FACET 1 HAK
FACET 2
FACET 3

## Land System Aa251

CLIMATE 800 MANAUS
AREA 2342309 HAS.
ALTITUDE 150 MTS.
PHYSIOGRAPHIC UNIT NO. 35
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

LANDFORM DIAGRAM, LAND SYSTEM No. 251
Subdivision of landscape into facets




= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 70 | 90 | |
| < 8% | 30 | 10 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 150 | 148 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | 100 | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 25 | 20 | |
| CROPS | 10 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EAQ | |
| GREAT GROUPS | EAQPS | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | B | B | |
| HYDRAUL. CONDUCT. | B | B | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | I | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | S S | L S | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | B B | A B | |
| EXCHANGEABLE MG | B B | A B | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A B | |
| CATION EXCH. CAPAC. | M E | M E | |

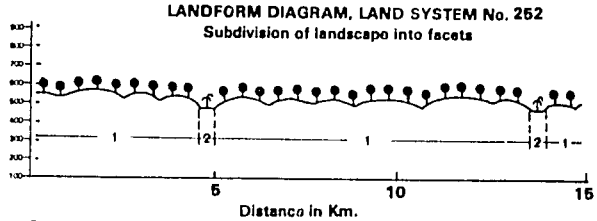
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | LS | |
| MODIFIERS FACET 1 | GAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab252

CLIMATE 800 MANAUS
AREA 565380T HAS.
ALTITUDE 500 MTS.
PHYSIOGRAPHIC UNIT NO. 35
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

LANDFORM DIAGRAM, LAND SYSTEM No. 252
Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 70 | |
| < 8% | 50 | 25 | |
| 8-30 % | 40 | 5 | |
| > 30 % | 10 | | |
| ALTITUDE IN MTS | 500 | 485 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 99 | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 20 | |
| CROPS | 1 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M E | A A | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | A M | A A | |

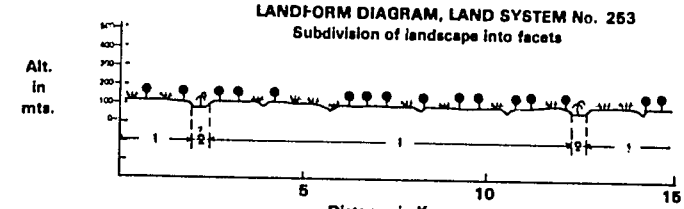
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab253

CLIMATE 800 MANAUS
AREA 4115226 HAS.
ALTITUDE 110 MTS.
PHYSIOGRAPHIC UNIT NO. 35
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

LANDFORM DIAGRAM, LAND SYSTEM No. 253
Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)
= Palm forest
= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 25 | 90 | |
| < 8% | 75 | 5 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 110 | 105 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 45 | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 55 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 15 | |
| CROPS | 5 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | DOR | EAQ | |
| GREAT GROUPS | DORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | D | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L I | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H M | M M | |
| AL SATURATION % | M A | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | M B | A A | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | P B | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | M E | A A | |

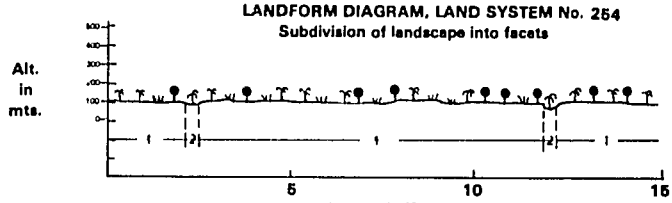
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M B | |
| PHOSPHORUS | M M | A B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab254

CLIMATE 800 MANAUS
AREA 2176775 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 35
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

LANDFORM DIAGRAM, LAND SYSTEM No. 254
Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)
= Palm forest
= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 80 | 80 | |
| < 8% | 20 | 15 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 95 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 15 | |
| CROPS | 10 | 15 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | S | E | |
| SUBORDERS | SAQ | EAQ | |
| GREAT GROUPS | SAQTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S S | L S | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A H | B B | |
| EXCHANGEABLE AL | B M | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | E E | A M | |

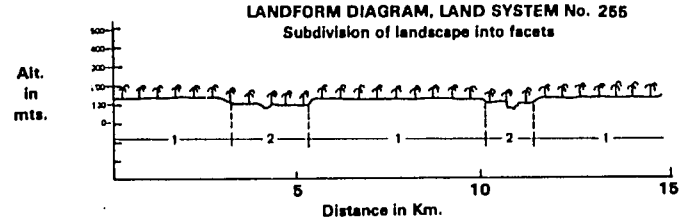
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M B | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | LS | |
| MODIFIERS FACET 1 | GAKE | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab255

CLIMATE 800 MANAUS
AREA 1226685 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 37
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 255
Subdivision of landscape into facets




= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 60 | 80 | |
| < 8% | 35 | 15 | |
| 8-30 % | 5 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 95 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 15 | |
| CROPS | 15 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EAQ | |
| GREAT GROUPS | EAQFL | EAQHY | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | A A | |
| EXCHANGEABLE AL | M M | A A | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | B B | B B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | A A | |

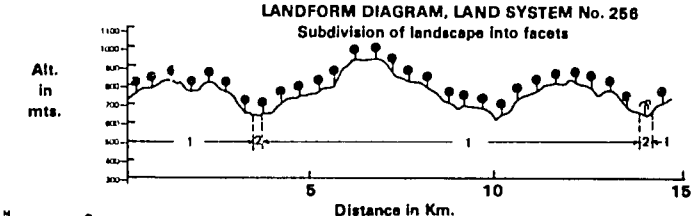
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | A M | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | A | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | J | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | GHAKE | | |
| FACET 2 | GHAK | | |
| FACET 3 | | | |

## Land System Go256

CLIMATE 1111C SANTA ELENA
AREA 1742951 HAS.
ALTITUDE 750 MTS.
PHYSIOGRAPHIC UNIT NO. 33
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 256
Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 60 | |
| < 8% | 25 | 30 | |
| 8-30 % | 50 | 10 | |
| > 30 % | 25 | | |
| ALTITUDE IN MTS | 700 | 650 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 20 | |
| CROPS | 3 | 15 | |

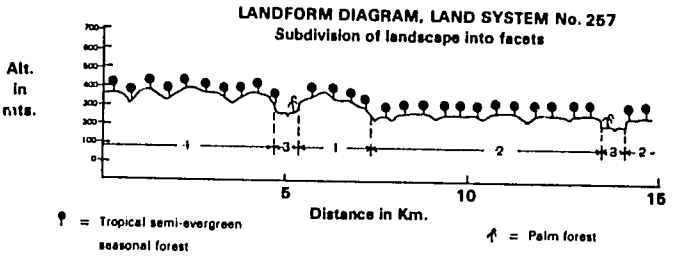
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUO | EAQ | |
| GREAT GROUPS | UUOTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | B | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M A | M M | |
| EXCHANGEABLE AL | M M | B M | |
| EXCHANGEABLE CA | B B | M B | |
| EXCHANGEABLE MG | B B | M B | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | M B | |
| CATION EXCH. CAPAC. | E E | M M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | HAKE | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab257

CLIMATE 11110 SANTA ELENA
AREA 6068393 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO. 34
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | M | V |
| PERCENTAGE OF L.S. | 80 | 15 | 5 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | 75 |
| < 8% | 80 | 35 | 20 |
| 8-30 % | 20 | 60 | 5 |
| > 30 % | | 5 | |
| ALTITUDE IN MTS | 330 | 380 | 330 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | 100 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | 100 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | 20 | 20 |
| CROPS | 1 | 10 | 10 |

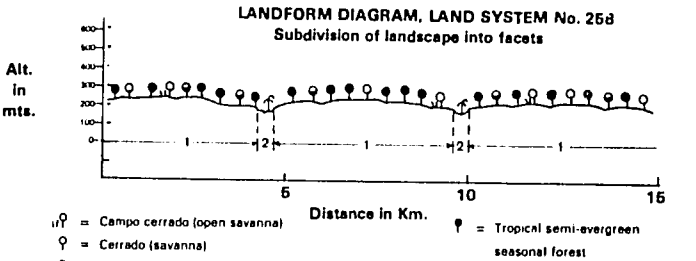
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | U | E |
| SUBORDERS | UUD | UUD | EAQ |
| GREAT GROUPS | UUDTR | UUDTR | EAQFL |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | B |
| DEPTH | P | P | M |
| INIT. INFIL. RATE | M | B | M |
| HYDRAUL. CONDUCT. | B | B | M |
| DRAINAGE | B | G | G |
| MOIST. HOLD. CAP. | M | M | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | U | U | U |
| EXPANDING CLAYS | O | O | O |
| TEXTURE | C C | C L | L L |
| COARSE MATERIAL | B B | B M | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | M A | M A | M B |
| EXCHANGEABLE AL | M M | M M | B B |
| EXCHANGEABLE CA | B B | B B | A A |
| EXCHANGEABLE MG | B B | B B | A M |
| EXCHANGEABLE K | K K | K K | A K |
| EXCHANGEABLE NA | B B | B B | B B |
| TOTAL EXCH. BASES | B B | B B | A A |
| CATION EXCH. CAPAC. | E E | E E | A A |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | B B | M |
| PHOSPHORUS | M B | M B | A |
| PHOSPHORUS FIXATION | I | I | O |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | CC | LL |
| MODIFIERS FACET 1 | HAKEI | | |
| FACET 2 | HAKEI | | |
| FACET 3 | G | | |

## Land System Ac258

CLIMATE 11450 304 VISTA BRASIL
AREA 294667 HAS.
ALTITUDE 220 MTS.
PHYSIOGRAPHIC UNIT NO. 35
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 60 | |
| < 8% | 90 | 35 | |
| 8-30 % | 5 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 220 | 215 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | 10 | | |
| C | 10 | | |
| CD | 20 | | |
| TRF | | | |
| SESF | 60 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 15 | |
| CROPS | 5 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EPS | EAQ | |
| GREAT GROUPS | EPSQU | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | S S | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | M M | |
| EXCHANGEABLE AL | M M | M B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | M F | M M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M M | M B | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

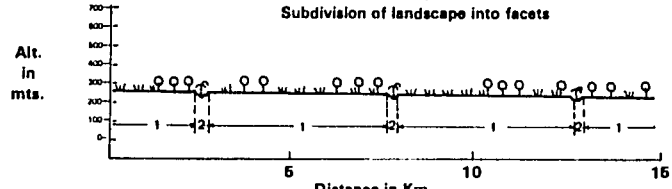
## Land System Ac259

CLIMATE 11460 BOA VISTA BRASIL
AREA 363028 HAS.
ALTITUDE 250 MTS.
PHYSIOGRAPHIC UNIT NO. 35
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 259

Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Campo cerrado (open savanna)

= Cerrado (savanna)

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 75 | |
| < 8% | 95 | 20 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 250 | 225 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 40 | | |
| CC | 30 | | |
| C | 30 | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 30 | 20 | |
| CROPS | 10 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | DUS | EAQ | |
| GREAT GROUPS | DUSHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | S | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L R | L L | |
| COARSE MATERIAL | M A | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | M B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | M K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | E E | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LR | LL | |
| MODIFIERS FACET 1 | DHKE | | |
| FACET 2 | G | | |
| FACET 3 | | | |

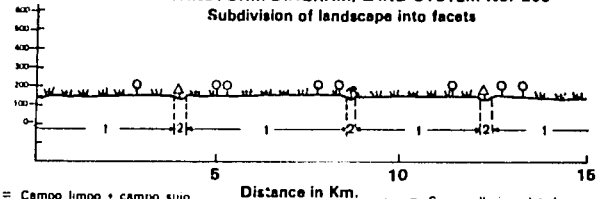
## Land System Ac260

CLIMATE 11460 BOA VISTA BRASIL
AREA 440083 HAS.
ALTITUDE 150 MTS.
PHYSIOGRAPHIC UNIT NO. 35
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 260

Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Campo cerrado (open savanna)

= Palm forest

= Other

w = Seasonally inundated pampa (grasslands)

= Cerrado (savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 95 | 95 | |
| < 8% | 5 | 5 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 150 | 145 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 70 | | |
| CL + CS | 10 | | |
| CC | 10 | | |
| C | 10 | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 10 | |
| CROPS | 10 | 15 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EAQ | |
| GREAT GROUPS | EAQPS | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S S | L S | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | M B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | B B | A B | |
| EXCHANGEABLE MG | B B | A B | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A B | |
| CATION EXCH. CAPAC. | M M | A E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | M B | |
| PHOSPHORUS | B B | A B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | LS | |
| MODIFIERS FACET 1 | GAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

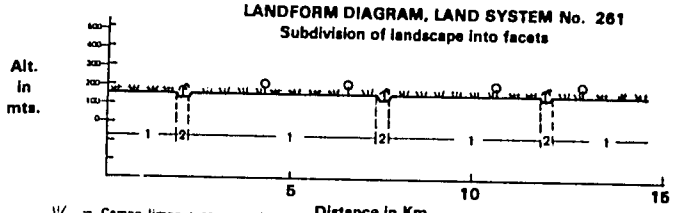
## Land System Ac261

CLIMATE 11460 BOA VISTA BRASIL
AREA 149945 HAS.
ALTITUDE 150 MTS.
PHYSIOGRAPHIC UNIT NO. 35
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS.SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS.MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 261

Subdivision of landscape into facets




= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
= Palm forest
= Campo cerrado (open savanna)
= Cerrado (savanna)
= Seasonally inundated pampa (grasslands)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 80 | 95 | |
| < 8% | | 20 | 3 |
| 8-30 % | | | 2 |
| > 30 % | | | |
| ALTITUDE IN MTS | 150 | 145 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 40 | | |
| CL + CS | 30 | | |
| CC | 25 | | |
| C | 5 | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 80 | 40 | |
| CROPS | 20 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UAQ | EAQ | |
| GREAT GROUPS | UAQAL | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | S L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | M M | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | E E | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M B | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES SL LL
MODIFIERS FACET 1 SHAKE
FACET 2 G
FACET 3

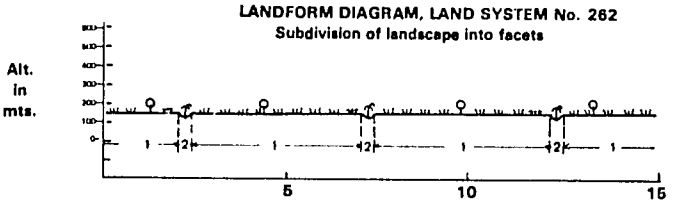
## Land System Ac262

CLIMATE 11460 BOA VISTA BRASIL
AREA 719255 HAS.
ALTITUDE 150 MTS.
PHYSIOGRAPHIC UNIT NO. 35
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
WELL DRAINED LANDS
FLAT LANDS.SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS.MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 262

Subdivision of landscape into facets




= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
= Palm forest
= Seasonally inundated pampa (grasslands)
= Campo cerrado (open savanna)
= Cerrado (savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 80 | |
| < 8% | 95 | 18 | |
| 8-30 % | | 2 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 150 | 145 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 5 | | |
| CL + CS | 85 | | |
| CC | 5 | | |
| C | 5 | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 90 | 40 | |
| CROPS | 10 | 25 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M A | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | M B | A A | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | K K | M M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | M E | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LC LL
MODIFIERS FACET 1 HK
FACET 2 G
FACET 3

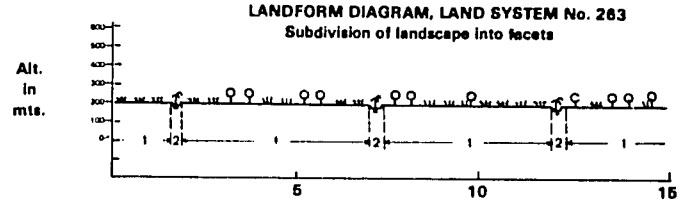
## Land System Ac263

CLIMATE 11460 BOA VISTA BRASIL
AREA 352066 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 35
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 263

Subdivision of landscape into facets




= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Palm forest

= Seasonally inundated pampa (grasslands)

= Cerrado (savanna)

= Campo cerrado (open savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 60 | 90 | |
| < 8% | 40 | | 8 |
| 8-30 % | | | 2 |
| > 30 % | | | |
| ALTITUDE IN MTS | 200 | 195 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 40 | | |
| CL + CS | 20 | | |
| CC | 5 | | |
| C | 35 | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 70 | 30 | |
| CROPS | 20 | 30 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UAJ | EAQ | |
| GREAT GROUPS | UACPL | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | J | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | M M | A M | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | K K | M M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A B | |
| CATION EXCH. CAPAC. | E E | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | U | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | GHKE | | |
| FACET 2 | G | | |
| FACET 3 | | | |

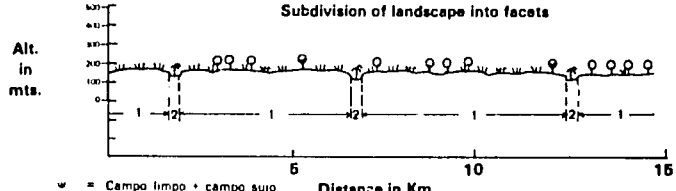
## Land System Ac264

CLIMATE 11460 BOA VISTA BRASIL
AREA 719333 HAS.
ALTITUDE 150 MTS.
PHYSIOGRAPHIC UNIT NO. 35
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 264

Subdivision of landscape into facets




= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Palm forest

= Seasonally inundated pampa (grasslands)

= Cerrado (savanna)

= Campo cerrado (open savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 75 | |
| < 8% | 90 | 20 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 150 | 145 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 5 | | |
| CL + CS | 40 | | |
| CC | 25 | | |
| C | 20 | | |
| CD | 10 | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 60 | 40 | |
| CROPS | 35 | 30 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | P | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | A M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M M | M M | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | I | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HAKI | | |
| FACET 2 | G | | |
| FACET 3 | | | |

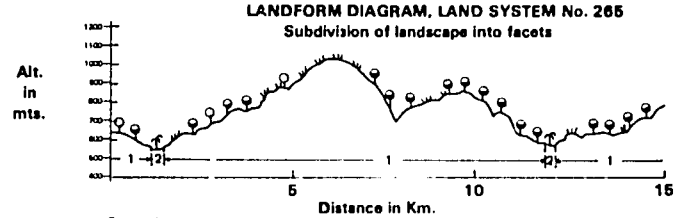
## Land System Gc265

CLIMATE 11460 BOA VISTA BRASIL
AREA 823213 HAS.
ALTITUDE 1000 MTS.
PHYSIOGRAPHIC UNIT NO. 33
GENERALIZED CLASSIFICATION
UPLANDS,ABOVE 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 50 | |
| < 8% | 20 | 40 | |
| 8-30 % | 50 | 10 | |
| > 30 % | 30 | | |
| ALTITUDE IN MTS | 1000 | 900 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 20 | | |
| CC | 15 | | |
| C | 15 | | |
| CD | 50 | | |
| TRF | | | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 10 | |
| CROPS | 3 | 10 | |




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
= Palm forest
= Campo cerrado (open savanna)
= Cerrado (savanna)
= Cerradão (closed savanna)

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EOR | EFL | |
| GREAT GROUPS | EORTR | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | S | M | |
| INIT. INFIL. RATE | M | A | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | I | I | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C R | L S | |
| COARSE MATERIAL | M A | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | M M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M P | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CR LS
MODIFIERS FACET 1 DHAK
FACET 2
FACET 3

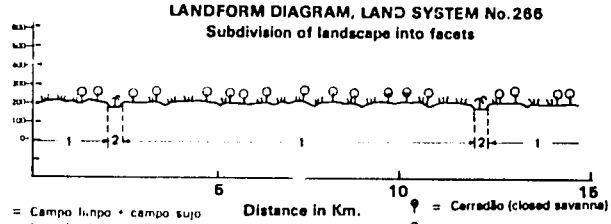
## Land System Ac266

CLIMATE 11460 BOA VISTA BRASIL
AREA 175700 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 35
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 20 | 75 | |
| < 8% | 78 | 25 | |
| 8-30 % | 2 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 200 | 195 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 30 | | |
| CC | 30 | | |
| C | 30 | | |
| CD | 10 | | |
| TRF | | | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 30 | 40 | |
| CROPS | 20 | 30 | |




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
= Campo cerrado (open savanna)
= Cerradão (closed savanna)
= Cerrado (savanna)
= Palm forest

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AUS | EAQ | |
| GREAT GROUPS | AUSHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | R | B | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M B | B B | |
| EXCHANGEABLE AL | M B | B B | |
| EXCHANGEABLE CA | B M | A A | |
| EXCHANGEABLE MG | B M | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B A | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | E E | A A | |

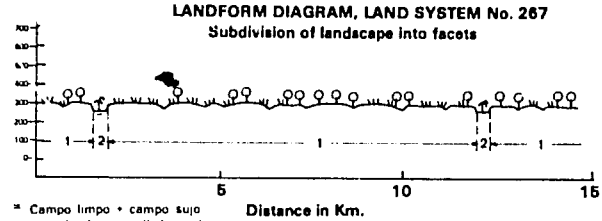
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M B | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LC LL
MODIFIERS FACET 1 DKE
FACET 2 G
FACET 3

## Land System Ac267

CLIMATE 11463 BOA VISTA BRASIL
AREA 390349 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO. 27
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 80 | |
| < 8% | | 90 | 10 |
| 8-30 % | | | 2 |
| > 30 % | | | |
| ALTITUDE IN MTS | 300 | 295 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 50 | | |
| CC | 25 | | |
| C | 25 | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 30 | 20 | |
| CROPS | 10 | 20 | |

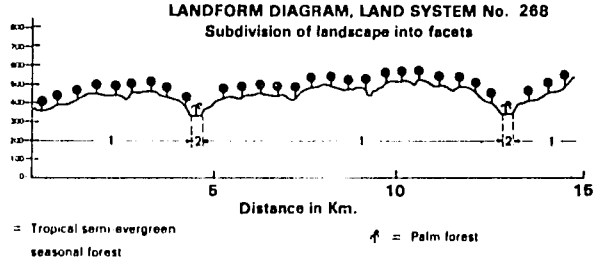
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | JOH | EA. | |
| GREAT GROUPS | JOKHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | S | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | P | D | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A M | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | M B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | M M | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | M M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | I | D | |
| MANGANESE | J | U | |
| SULPHUR | U | U | |
| ZINC | J | U | |
| IRON | J | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | J | U | |
| CR | J | J | |
| NI | U | U | |
| OTHERS | J | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HAI | | |
| FACET 2 | S | | |
| FACET 3 | | | |

## Land System Ab268

CLIMATE 820 PARINTINS
AREA 219221 HAS.
ALTITUDE 400 MTS.
PHYSIOGRAPHIC UNIT NO. 34
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 40 | |
| < 8% | | 25 | 55 |
| 8-30 % | | 60 | 5 |
| > 30 % | | 15 | |
| ALTITUDE IN MTS | 400 | 385 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | 5 | 20 |
| CROPS | | 3 | 20 |

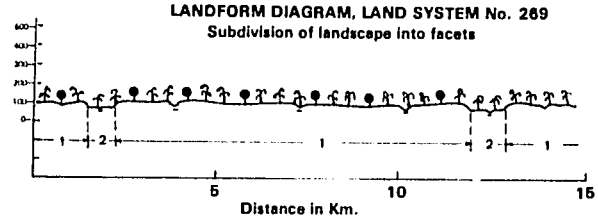
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | J | E | |
| SUBORDERS | UUD | EFL | |
| GREAT GROUPS | UUDTR | EFLTK | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | P | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | E E | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M M | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SL | LL | |
| MODIFIERS FACET 1 | HAKF | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Ab269

CLIMATE 820 PARINTINS
AREA 32170 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 39
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 92 | 8 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 75 | 60 | |
| < 8% | 20 | 18 | |
| 8-30 % | 5 | 2 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 98 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 25 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 75 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 30 | |
| CROPS | 20 | 25 | |

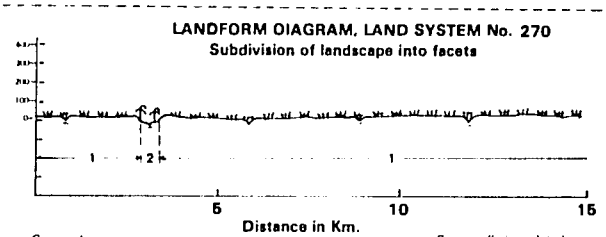
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UAQ | EAQ | |
| GREAT GROUPS | UAQPL | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | A | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | B | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | M A | B B | |
| EXCHANGEABLE CA | A B | A A | |
| EXCHANGEABLE MG | A B | A A | |
| EXCHANGEABLE K | M M | A K | |
| EXCHANGEABLE NA | B B | M M | |
| TOTAL EXCH. BASES | M B | A M | |
| CATION EXCH. CAPAC. | A M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | A M | |
| PHOSPHORUS | B B | A A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | GH | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ac270

CLIMATE 900 SOURE
AREA 2612214 HAS.
ALTITUDE 20 MTS.
PHYSIOGRAPHIC UNIT NO. 28
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Seasonally inundated pampa (grasslands)

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 97 | 3 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 85 | 80 | |
| < 8% | 15 | 20 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 20 | 18 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 85 | | |
| CL + CS | 15 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | IAQ | EAQ | |
| GREAT GROUPS | IAQTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M M | A M | |
| PHOSPHORUS | B B | M M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |

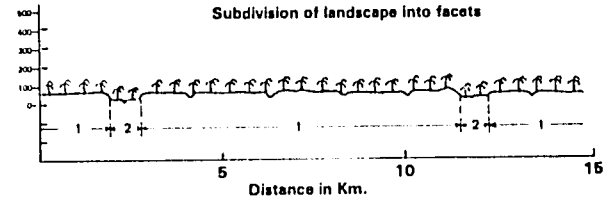
## Land System Ac271

CLIMATE 900 SQURE
AREA 4659633 HAS.
ALTITUDE 50 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<9%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 271

Subdivision of landscape into facets




= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 32 | 9 | 3 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 99 | |
| < 9% | 10 | 1 | |
| 8-33 % | | | |
| > 33 % | | | |
| ALTITUDE IN MTS | 53 | 48 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 8 | 10 | |
| CROPS | 4 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | LAQ | |
| GREAT GROUPS | EAQHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | P | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | R | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M P | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | M K | A A | |
| EXCHANGEABLE NA | A A | A A | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | M B | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | J | J | |
| SULPHUR | J | U | |
| ZINC | J | U | |
| IRON | J | J | |
| COPPER | J | U | |
| BORON | U | J | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | J | U | |
| NI | U | U | |
| OTHERS | J | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | SM | | |
| FACET 2 | G | | |
| FACET 3 | | | |

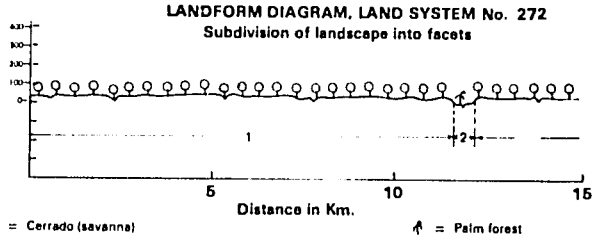
## Land System Ac272

CLIMATE 900 SQURE
AREA 1453451 HAS.
ALTITUDE 50 MTS.
PHYSIOGRAPHIC UNIT NO. 29
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<9%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 272

Subdivision of landscape into facets




= Cerrado (savanna)  = Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 94 | 6 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 85 | |
| < 9% | 90 | 10 | |
| 8 33 % | | 5 | |
| > 33 % | | | |
| ALTITUDE IN MTS | 50 | 45 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | 100 | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 5 | |
| CROPS | 5 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | D | E | |
| SUBORDERS | DOR | EAQ | |
| GREAT GROUPS | DORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | E E | A M | |

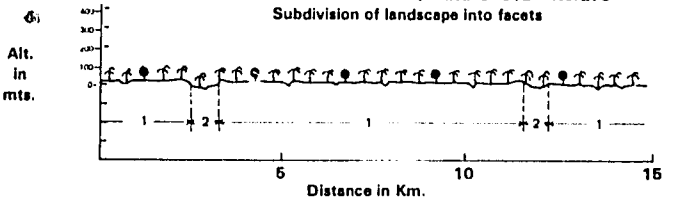
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M B | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | J | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | HKE | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Aa273

CLIMATE 640 BELEM
AREA 139614 HAS.
ALTITUDE 20 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 273
Subdivision of landscape into facets




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 92 | 8 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 80 | 95 | |
| < 8% | 18 | 3 | |
| 8-30 % | 2 | 2 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 20 | 18 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 20 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 80 | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 8 | 60 | |
| CROPS | 4 | 30 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | JAW | EAW | |
| GREAT GROUPS | JAOPL | EAOFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | B | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B A | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A M | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | A M | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | U | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

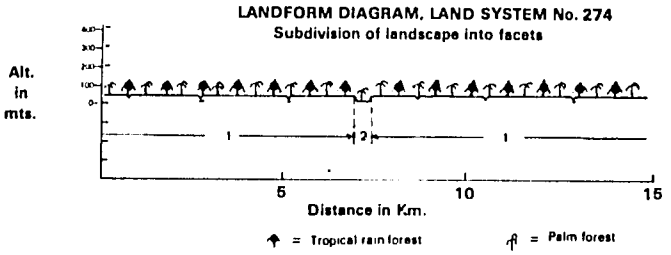
FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LC LL
MODIFIERS FACET 1 GHAK
FACET 2 G
FACET 3

## Land System Ac274

CLIMATE 900 SDURE
AREA 241073 HAS.
ALTITUDE 10 MTS.
PHYSIOGRAPHIC UNIT NO. 28
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 274
Subdivision of landscape into facets




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 97 | 3 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 95 | |
| < 8% | 10 | 3 | |
| 8-30 % | | 2 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 10 | 5 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 3 | |
| CROPS | 0 | 3 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | IAQ | EAQ | |
| GREAT GROUPS | IAQTR | EAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | B | [illegible] | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | M M | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

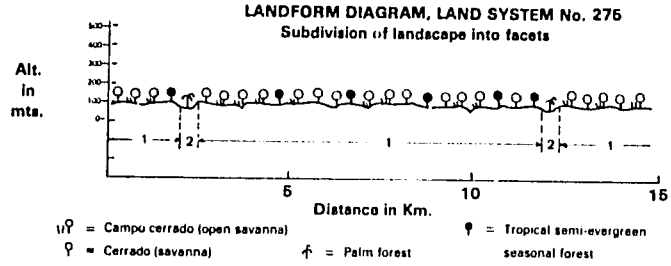
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A A | A M | |
| PHOSPHORUS | A A | A M | |
| PHOSPHORUS FIXATION | I | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | C | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CC LL
MODIFIERS FACET 1 GHI
FACET 2 G
FACET 3

## Land System Ab275

CLIMATE 820 PARINTINS
AREA 199185 HAS.
ALTITUDE 90 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 90 | |
| < 8% | 85 | 8 | |
| 8-30 % | 5 | 2 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 90 | 88 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | 45 | | |
| C | 35 | | |
| CO | | | |
| IRF | | | |
| SESF | 20 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 3 | |
| CROPS | 5 | 5 | |

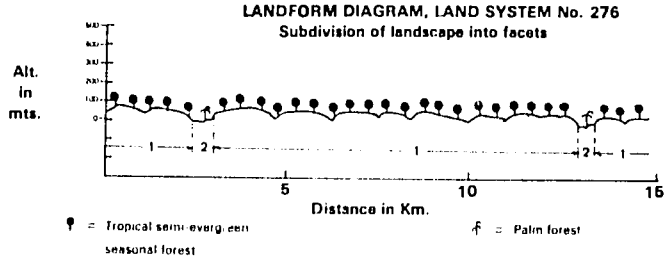
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EPS | EAQ | |
| GREAT GROUPS | EPSQU | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S S | L S | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | A A | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | B M | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | M M | A M | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A B | |
| CATION EXCH. CAPAC. | M M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | D B | M M | |
| PHOSPHORUS FIXATION | J | J | |
| MANGANESE | J | J | |
| SULPHUR | J | U | |
| ZINC | U | U | |
| IRON | J | U | |
| COPPER | U | U | |
| BORON | J | J | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | J | |
| I | J | U | |
| SE | U | U | |
| CR | J | J | |
| NI | J | J | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | LS | |
| MODIFIERS FACET 1 | HK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab276

CLIMATE 610 ALTO TAPAJOS
AREA 7582593 HAS.
ALTITUDE 50 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 92 | 8 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 90 | |
| < 8% | 90 | 8 | |
| 8-30 % | 5 | 2 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 50 | 45 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| IRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 8 | 20 | |
| CROPS | 4 | 15 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | D | E | |
| SUBORDERS | DOR | EAQ | |
| GREAT GROUPS | DORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | A A | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | M B | A M | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M E | A M | |

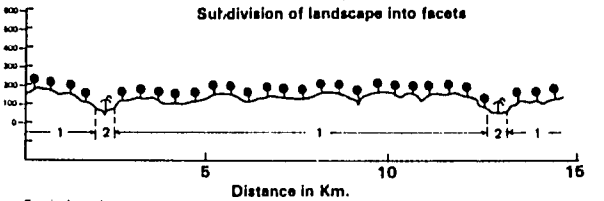
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | J | J | |
| MANGANESE | J | J | |
| SULPHUR | J | J | |
| ZINC | U | U | |
| IRON | J | J | |
| COPPER | J | U | |
| BORON | J | J | |
| MOLYBDENUM | J | J | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | J | |
| I | J | J | |
| SE | J | U | |
| CR | J | J | |
| NI | J | J | |
| OTHERS | J | J | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | J | | |
| FACET 3 | | | |

## Land System Ab277

CLIMATE 780 IMPERATRIZ
AREA 1990068 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 42
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
WELL DRAINED LANDS
FLAT LANDS.SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS.MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 277**
Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 92 | 8 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | 75 | 20 | |
| 8-30 % | 23 | 5 | |
| > 30 % | 2 | | |
| ALTITUDE IN MTS | 100 | 95 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 99 | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 20 | |
| CROPS | 2 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | J | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | M B | A A | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M E | A M | |

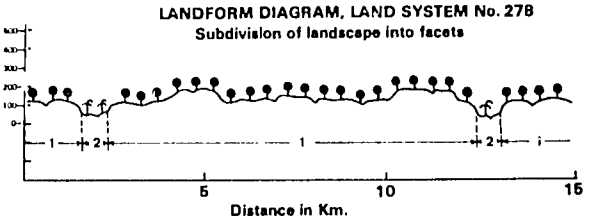
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | B B | A A | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | J | U | |
| SULPHUR | J | U | |
| ZINC | U | U | |
| IRON | J | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | U | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | J | U | |
| SE | U | U | |
| CR | J | U | |
| NI | J | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab278

CLIMATE 780 IMPERATRIZ
AREA 7886852 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 44
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
WELL DRAINED LANDS
FLAT LANDS.SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS.MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 278**
Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 92 | 8 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 80 | |
| < 8% | 75 | 15 | |
| 8-30 % | 23 | 5 | |
| > 30 % | 2 | | |
| ALTITUDE IN MTS | 100 | 95 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 8 | 20 | |
| CROPS | 4 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUO | EAQ | |
| GREAT GROUPS | UUOTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | B | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | A M | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M M | A M | |

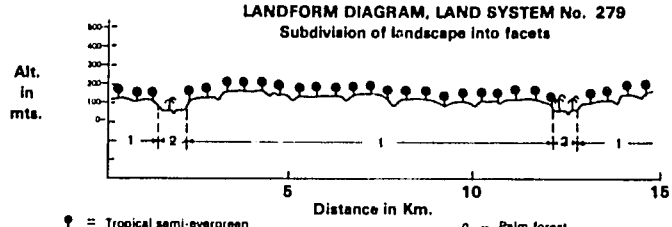
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | M M | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | J | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | HK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab279

CLIMATE 780 IMPERATRIZ
AREA 1384002 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 44
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 279**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 92 | 8 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | 70 | 20 | |
| 8-30 % | 25 | 5 | |
| > 30 % | 5 | | |
| ALTITUDE IN MTS | 100 | 95 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 99 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 3 | 20 | |
| CROPS | 2 | 30 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A M | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | B B | A A | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | A M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | B B | A A | |
| PHOSPHORUS FIXATION | I | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

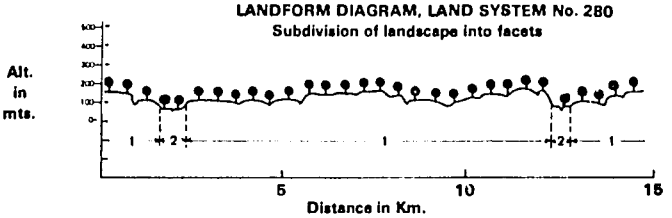
FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CC LL
MODIFIERS FACET 1 HAKI
FACET 2 G
FACET 3

## Land System Ab280

CLIMATE 610 ALTO TAPAJOS
AREA 2709164 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 44
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 280**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | C | |
| PERCENTAGE OF L.S. | 92 | 8 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | 45 | 20 | |
| 8-30 % | 50 | 5 | |
| > 30 % | 5 | 5 | |
| ALTITUDE IN MTS | 100 | 100 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | 100 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 6 | 6 | |
| CROPS | 2 | 2 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OUO | EAQ | |
| GREAT GROUPS | OUOTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | B | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A M | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | M B | A A | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LC LL
MODIFIERS FACET 1 HAK
FACET 2 G
FACET 3

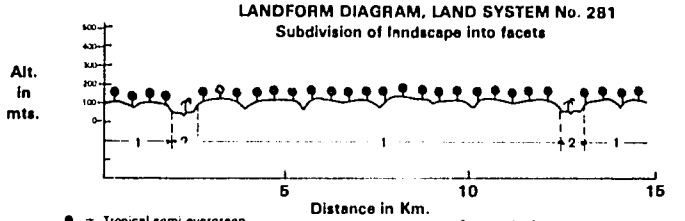
## Land System Ab281

CLIMATE 610 ALTO TAPAJOS
AREA 905239 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 281

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 92 | 8 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | 75 | 20 | |
| 8-30 % | 20 | 5 | |
| > 30 % | 5 | | |
| ALTITUDE IN MTS | 100 | 90 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 3 | 25 | |
| CROPS | 2 | 35 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | L | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | M B | A A | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | M M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | B B | A A | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | O | | |
| FACET 3 | | | |

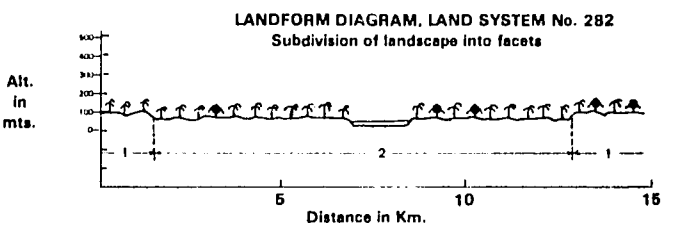
## Land System Ab282

CLIMATE 910 TAPERINHA-SANTAREM
AREA 2014502 HAS.
ALTITUDE 80 MTS.
PHYSIOGRAPHIC UNIT NO. 37
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 282

Subdivision of landscape into facets




= Palm forest

= Tropical rain forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | I | I | |
| PERCENTAGE OF L.S. | 30 | 70 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 95 | 65 | |
| < 8% | 5 | 30 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 80 | 78 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | 100 | 35 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 40 | 60 | |
| CROPS | 10 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | I | |
| SUBORDERS | IAQ | IAQ | |
| GREAT GROUPS | IAQTR | IAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | M M | M M | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | M A | M A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | A M | A B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | GK | | |
| FACET 2 | GK | | |
| FACET 3 | | | |

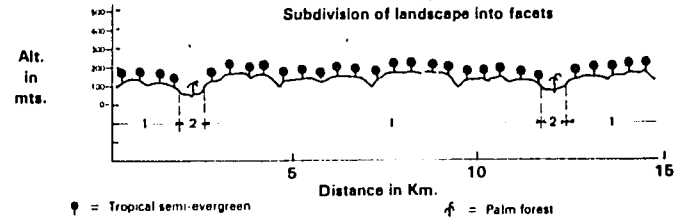
## Land System Ab283

CLIMATE 910 TAPERINHA-SANTAREM
AREA 365195 HAS.
ALTITUDE 140 MTS.
PHYSIOGRAPHIC UNIT NO. 37
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 283

Subdivision of landscape into facets




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | 30 | 20 | |
| 8-30 % | 60 | 5 | |
| > 30 % | 10 | | |
| ALTITUDE IN MTS | 140 | 130 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 3 | 10 | |
| CROPS | 3 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | ODR | EAQ | |
| GREAT GROUPS | EORTH | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | P | |
| DEPTH | S | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | P | G | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C R | L L | |
| COARSE MATERIAL | B A | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | H H | O P | |
| EXCHANGEABLE AL | A M | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | B B | A A | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | A A | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CR | LL | |
| MODIFIERS FACET 1 | HK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

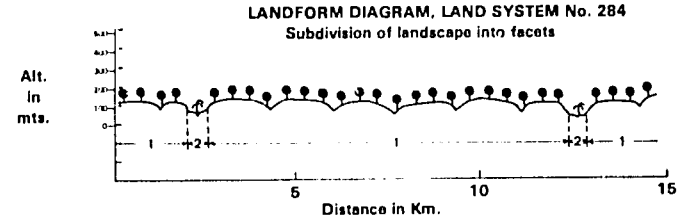
## Land System Ab284

CLIMATE 910 TAPERINHA-SANTAREM
AREA 3532292 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 40
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 284

Subdivision of landscape into facets




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 75 | |
| < 8% | 90 | 20 | |
| 8-30 % | 5 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 5 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 25 | 60 | |
| CROPS | 15 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | J | E | |
| SUBORDERS | ODR | EAQ | |
| GREAT GROUPS | ODRHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | R | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A M | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | E E | A M | |

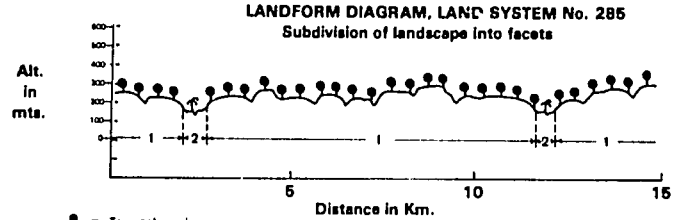
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | HAKE | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab285

CLIMATE 820 PARINTINS
AREA 112973 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No. 285**
**Subdivision of landscape into facets**




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | 25 | 20 | |
| 8-30 % | 70 | 5 | |
| > 30 % | 5 | | |
| ALTITUDE IN MTS | 200 | 190 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 30 | 20 | |
| CROPS | 20 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AUD | EAQ | |
| GREAT GROUPS | AUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A A | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | A K | A M | |
| EXCHANGEABLE NA | A A | A M | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A M | A A | |

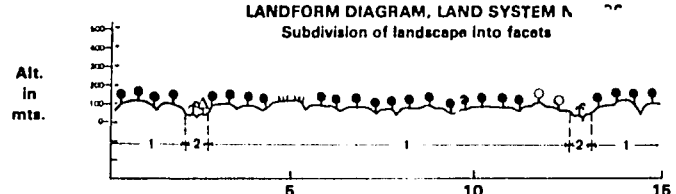
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | A M | |
| PHOSPHORUS | M B | A A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab286

CLIMATE 820 PARINTINS
AREA 438192 HAS.
ALTITUDE 80 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM N**
**Subdivision of landscape into facets**




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 85 | |
| < 8% | 60 | 10 | |
| 8-30 % | 30 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 80 | 75 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 5 | | |
| CC | | | |
| C | 5 | | |
| CO | | | |
| TRF | | | |
| SESF | 90 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 3 | |
| CROPS | 1 | 2 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AUD | EAQ | |
| GREAT GROUPS | AUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A M | |

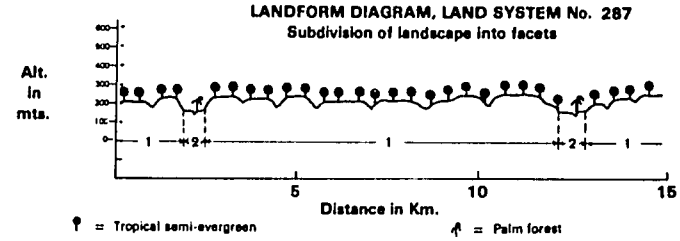
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | A M | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab287

CLIMATE 910 TAPERINHA-SANTAREM
AREA 340978 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No. 287**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | 45 | 20 | |
| 8-30 % | 50 | 5 | |
| > 30 % | 5 | | |
| ALTITUDE IN MTS | 200 | 195 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 50 | 40 | |
| CROPS | 30 | 35 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A A | |
| EXCHANGEABLE MG | A M | A A | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A M | A A | |

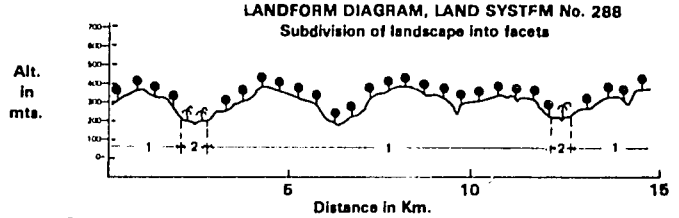
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M M | A M | |
| PHOSPHORUS | B B | A A | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | J | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | J | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab288

CLIMATE 910 TAPERINHA-SANTAREM
AREA 758455 HAS.
ALTITUDE 280. MTS.
PHYSIOGRAPHIC UNIT NO. 38
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 288**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 70 | |
| < 8% | 20 | 25 | |
| 8-30 % | 30 | 5 | |
| > 30 % | 50 | | |
| ALTITUDE IN MTS | 280 | 265 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 3 | 20 | |
| CROPS | 2 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A M | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M M | A A | |

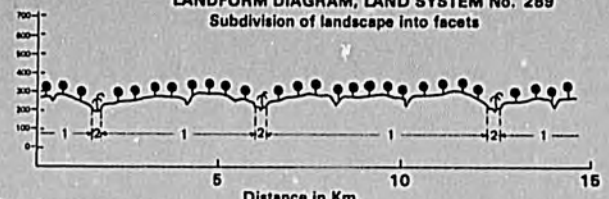
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | B B | A A | |
| PHOSPHORUS FIXATION | I | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HAKI | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab289

CLIMATE 820 PARINTINS
AREA 10683008 HAS.
ALTITUDE 250 MTS.
PHYSIOGRAPHIC UNIT NO. 30
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No. 289**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 25 | 70 | |
| < 8% | 50 | 10 | |
| 8-30 % | 25 | 20 | |
| > 30 % | 5 | | |
| ALTITUDE IN MTS | 250 | 245 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 5 | |
| CROPS | 1 | 3 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | J | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | J | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C | C L | L |
| COARSE MATERIAL | B | B B | B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H | H M | M |
| AL SATURATION % | A | A B | B |
| EXCHANGEABLE AL | A | M B | B |
| EXCHANGEABLE CA | B | B A | M |
| EXCHANGEABLE MG | B | B M | M |
| EXCHANGEABLE K | K | K M | K |
| EXCHANGEABLE NA | M | B M | B |
| TOTAL EXCH. BASES | B | B A | M |
| CATION EXCH. CAPAC. | M | M A | M |

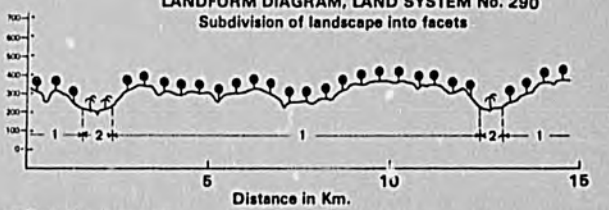
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M | M A | M |
| PHOSPHORUS | B | B M | B |
| PHOSPHORUS FIXATION | I | O | |
| MANGANESE | U | U | |
| SULPHUR | J | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | J | U | |
| SE | U | U | |
| CR | J | U | |
| NI | J | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HAKI | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab290

CLIMATE 820 PARINTINS
AREA 35720 HAS.
ALTITUDE 280 MTS.
PHYSIOGRAPHIC UNIT NO. 30
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 290**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 70 | |
| < 8% | 20 | 25 | |
| 8-30 % | 50 | 5 | |
| > 30 % | 30 | | |
| ALTITUDE IN MTS | 280 | 265 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 20 | |
| CROPS | 1 | 15 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C R | L | L |
| COARSE MATERIAL | M A | B | B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | H | M |
| AL SATURATION % | H H | B | B |
| EXCHANGEABLE AL | A M | B | B |
| EXCHANGEABLE CA | M B | A | A |
| EXCHANGEABLE MG | B B | A | M |
| EXCHANGEABLE K | K K | A | K |
| EXCHANGEABLE NA | B B | M | B |
| TOTAL EXCH. BASES | B B | A | A |
| CATION EXCH. CAPAC. | M E | A | M |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A | M |
| PHOSPHORUS | B B | A | A |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | J | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | J | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CR | LL | |
| MODIFIERS FACET 1 | HK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

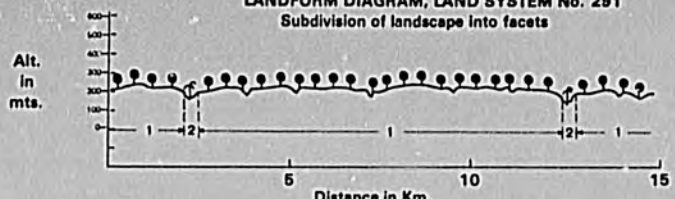
## Land System Ab291

CLIMATE 820 PARINTINS
AREA 2503834 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 31
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 291

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 80 | |
| < 8% | 50 | 10 | |
| 8-30 % | 40 | 10 | |
| > 30 % | 10 | | |
| ALTITUDE IN MTS | 200 | 195 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 3 | |
| CROPS | 1 | 3 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | J | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | R | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | R | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B R | A A | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | MAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

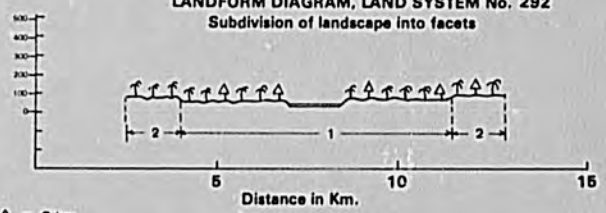
## Land System Ab292

CLIMATE 910 TAPERINHA-SANTAREM
AREA 386472 HAS.
ALTITUDE 80 MTS.
PHYSIOGRAPHIC UNIT NO. 37
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 292

Subdivision of landscape into facets




= Other

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 99 | 50 | |
| < 8% | 1 | 48 | |
| 8-30 % | | 2 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 80 | 78 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 25 | 35 | |
| CROPS | 10 | 25 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EAQ | |
| GREAT GROUPS | EAQFL | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | B | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M M | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | A A | A M | |
| TOTAL EXCH. BASES | B M | A M | |
| CATION EXCH. CAPAC. | A A | A A | |

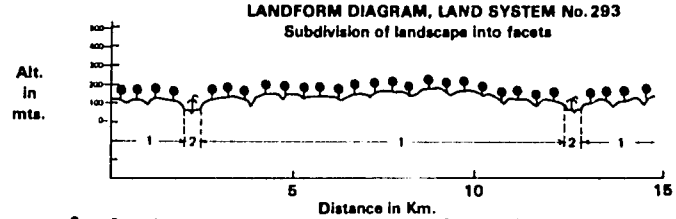
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M B | |
| PHOSPHORUS | M M | M M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | GH | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab293

CLIMATE 910 TAPERINHA-SANTAREM
AREA 1226552 HAS.
ALTITUDE 110 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No. 293**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 70 | |
| < 8% | 60 | 20 | |
| 8-30 % | 35 | 10 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 110 | 105 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 30 | 60 | |
| CROPS | 10 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | L | |
| SUBORDERS | ODR | LAQ | |
| GREAT GROUPS | DORHA | LAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L | L | L L |
| COARSE MATERIAL | B | B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | M M |
| AL SATURATION % | A | A | B B |
| EXCHANGEABLE AL | A | M | B B |
| EXCHANGEABLE CA | B | B | A A |
| EXCHANGEABLE MG | B | B | A M |
| EXCHANGEABLE K | K | K | A K |
| EXCHANGEABLE NA | B | B | B B |
| TOTAL EXCH. BASES | B | B | A A |
| CATION EXCH. CAPAC. | M | E | A A |

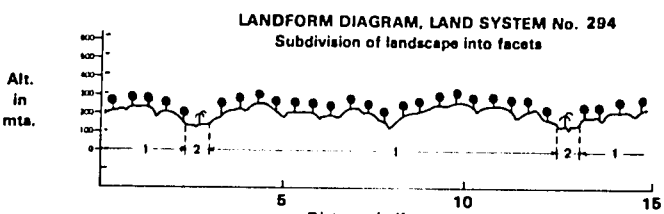
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M | B | M B |
| PHOSPHORUS | B | B | A M |
| PHOSPHORUS FIXATION | O | | O |
| MANGANESE | U | | U |
| SULPHUR | U | | U |
| ZINC | U | | U |
| IRON | U | | U |
| COPPER | U | | U |
| BORON | U | | U |
| MOLYBDENUM | U | | U |
| FREE CARBONATES | A | | A |
| SALINITY | B | | B |
| NATRIC | B | | B |
| CAT CLAY | N | | N |
| X-RAY AMORPHOUS | N | | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | U |
| I | U | | U |
| SE | U | | U |
| CR | U | | U |
| NI | U | | U |
| OTHERS | U | | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | | LL |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab294

CLIMATE 820 PARINTINS
AREA 3062776 HAS.
ALTITUDE 170 MTS.
PHYSIOGRAPHIC UNIT NO. 27
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No. 294**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | 35 | 20 | |
| 8-30 % | 50 | 5 | |
| > 30 % | 15 | | |
| ALTITUDE IN MTS | 170 | 150 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 5 | |
| CROPS | 1 | 3 | |

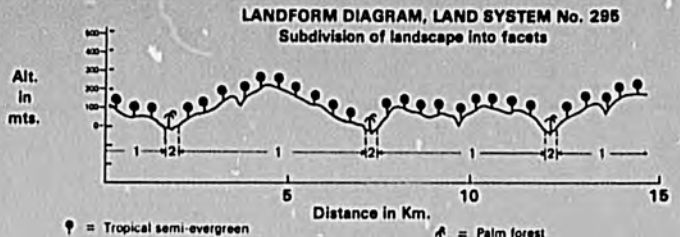
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | ODR | EAQ | |
| GREAT GROUPS | DORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | A | B | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C | C | L L |
| COARSE MATERIAL | B | B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | M M |
| AL SATURATION % | A | A | B B |
| EXCHANGEABLE AL | A | M | B B |
| EXCHANGEABLE CA | B | B | A M |
| EXCHANGEABLE MG | B | B | A M |
| EXCHANGEABLE K | K | K | A M |
| EXCHANGEABLE NA | B | B | A M |
| TOTAL EXCH. BASES | B | B | A M |
| CATION EXCH. CAPAC. | M | M | A M |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M | M | A M |
| PHOSPHORUS | B | B | A M |
| PHOSPHORUS FIXATION | I | | O |
| MANGANESE | U | | U |
| SULPHUR | U | | U |
| ZINC | U | | U |
| IRON | U | | U |
| COPPER | U | | U |
| BORON | U | | U |
| MOLYBDENUM | U | | U |
| FREE CARBONATES | A | | A |
| SALINITY | B | | B |
| NATRIC | B | | B |
| CAT CLAY | N | | N |
| X-RAY AMORPHOUS | N | | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | U |
| I | U | | U |
| SE | U | | U |
| CR | U | | U |
| NI | U | | U |
| OTHERS | U | | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | | LL |
| MODIFIERS FACET 1 | HAKI | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab295

CLIMATE 820 PARINTINS
AREA 2008904 HAS.
ALTITUDE 350 MTS.
PHYSIOGRAPHIC UNIT NO. 31
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 65 | |
| < 8% | 20 | 25 | |
| 8-30 % | 50 | 10 | |
| > 30 % | 30 | | |
| ALTITUDE IN MTS | 350 | 345 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | 2 | |
| CROPS | 1 | 2 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | B | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A M | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | B B | A A | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | M M | A M | |

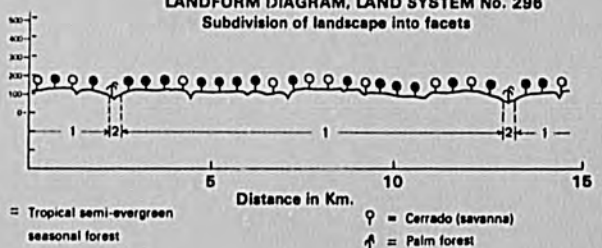
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M M | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CC LL
MODIFIERS FACET 1 HAK
FACET 2 G
FACET 3

## Land System Gc296

CLIMATE 900 SOURE
AREA 537639 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 32
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 3 | 85 | |
| < 8% | 70 | 10 | |
| 8-30 % | 27 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 95 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | 45 | | |
| CD | | | |
| TRF | | | |
| SESF | 65 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 50 | 10 | |
| CROPS | 50 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | E E | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | A M | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

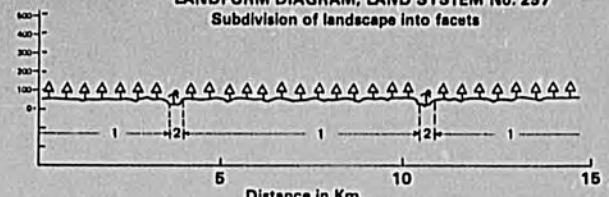
FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LL LL
MODIFIERS FACET 1 HKE
FACET 2 G
FACET 3

## Land System Ac297

CLIMATE 900 SOURE
AREA 378787 HAS.
ALTITUDE 30 MTS.
PHYSIOGRAPHIC UNIT NO. 29
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 297**
**Subdivision of landscape into facets**




= Other
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 97 | 3 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 70 | 95 | |
| < 8% | 30 | 5 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 33 | 26 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 2 | |
| CROPS | 3 | 2 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AAQ | EAQ | |
| GREAT GROUPS | AAGTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M M | A A | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | A M | M M | |
| EXCHANGEABLE NA | A A | M B | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

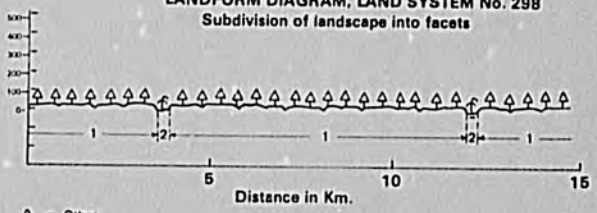
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M M | A M | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | J | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | J | U | |
| COPPER | U | U | |
| BORON | J | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | J | U | |
| SE | U | U | |
| CR | J | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | H | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ac298

CLIMATE 900 SOURE
AREA 498380 HAS.
ALTITUDE 5 MTS.
PHYSIOGRAPHIC UNIT NO. 28
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No. 298**
**Subdivision of landscape into facets**




= Other
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 97 | 3 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 95 | 99 | |
| < 8% | 5 | 1 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 5 | 5 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 1 | |
| CROPS | 2 | 1 | |

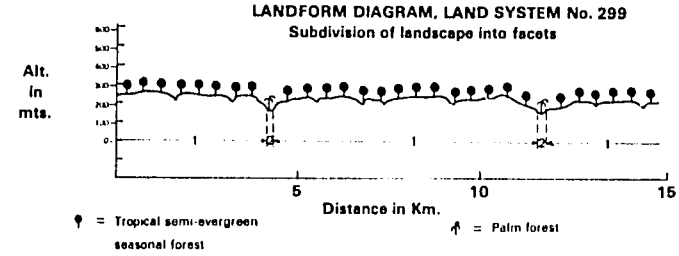
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | IAQ | EAQ | |
| GREAT GROUPS | IAQHU | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | A M | |
| PHOSPHORUS | M M | M M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Gb299

CLIMATE 820 PARINTINS
AREA 72340 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 30
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 97 | 3 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 60 | |
| < 8% | 65 | 38 | |
| 8-30 % | 30 | 2 | |
| > 30 % | 5 | | |
| ALTITUDE IN MTS | 200 | 195 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 1 | |
| CROPS | 1 | 1 | |

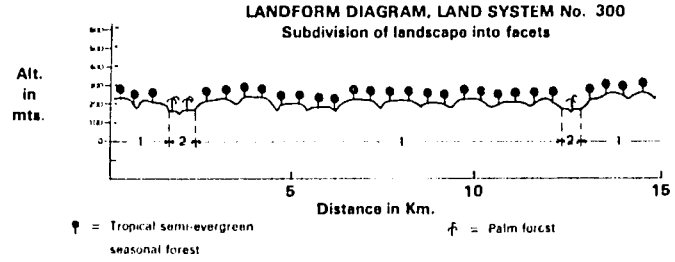
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AUD | CSG | |
| GREAT GROUPS | AUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | S | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | J | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A B | B B | |
| EXCHANGEABLE AL | A B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A M | |
| EXCHANGEABLE K | M K | M M | |
| EXCHANGEABLE NA | B B | M M | |
| TOTAL EXCH. BASES | A A | A M | |
| CATION EXCH. CAPAC. | A A | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | M M | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | J | U | |
| ZINC | J | U | |
| IRON | U | U | |
| COPPER | J | J | |
| BORON | U | U | |
| MOLYBDENUM | J | J | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | J | J | |
| SE | U | U | |
| CR | U | U | |
| NI | J | J | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | U | | |
| FACET 3 | | | |

## Land System Ab300

CLIMATE 610 ALTO TAPAJOS
AREA 390172 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 44
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 77 | |
| < 8% | 35 | 25 | |
| 8-30 % | 50 | 5 | |
| > 30 % | 15 | | |
| ALTITUDE IN MTS | 200 | 180 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 6 | 25 | |
| CROPS | 2 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | D | E | |
| SUBORDERS | DDR | EAQ | |
| GREAT GROUPS | DDRHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. COND CT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | J | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A M | B B | |
| EXCHANGEABLE CA | B A | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | M K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M E | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | B B | A A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | J | J | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | J | J | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | J | J | |
| SE | U | U | |
| CR | U | U | |
| NI | U | J | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | U | | |
| FACET 3 | | | |

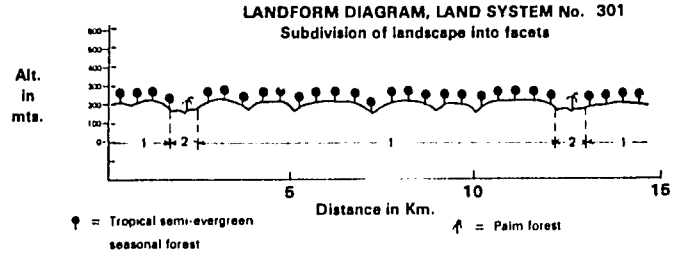
## Land System Ab301

CLIMATE 610 ALTO TAPAJOS
AREA 162285 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 42
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 301

Subdivision of landscape into facets




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 70 | |
| < 8% | 85 | 25 | |
| 8-30 % | 10 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 200 | 195 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 4 | 20 | |
| CROPS | 2 | 15 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | ODR | EAQ | |
| GREAT GROUPS | ODREU | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | M B | A M | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | A K | A M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M E | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | B B | A A | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | H | | |
| FACET 2 | G | | |
| FACET 3 | | | |

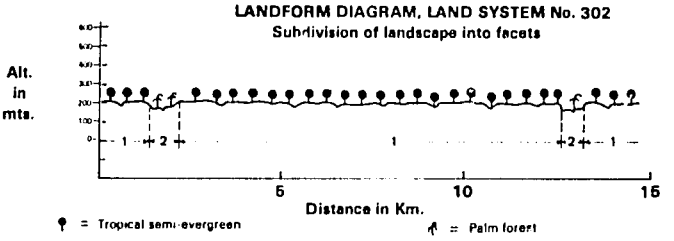
## Land System Ab302

CLIMATE 610 ALTO TAPAJOS
AREA 221136 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 44
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 302

Subdivision of landscape into facets




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 75 | |
| < 8% | 90 | 23 | |
| 8-30 % | | 2 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 200 | 198 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 20 | |
| CROPS | 4 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | ODR | EAQ | |
| GREAT GROUPS | ODREU | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | M B | A A | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | A K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M E | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | B B | A A | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | H | | |
| FACET 2 | G | | |
| FACET 3 | | | |

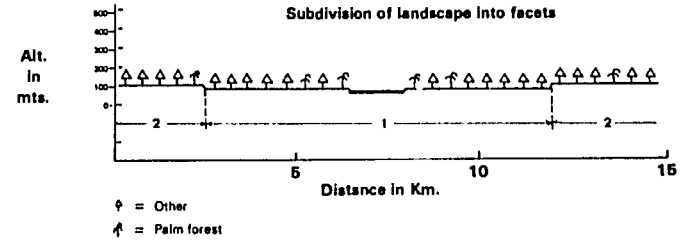
## Land System Ab303

CLIMATE 780 IMPERATRIZ
AREA 172221 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 44
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 303

Subdivision of landscape into facets




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 99 | 60 | |
| < 8% | 1 | 40 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 98 | 100 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 30 | |
| CROPS | 15 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EAQ | |
| GREAT GROUPS | LAQTR | EAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | A A | |
| EXCHANGEABLE AL | A A | A A | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | B B | B B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | GHAK | | |
| FACET 2 | HAK | | |
| FACET 3 | | | |

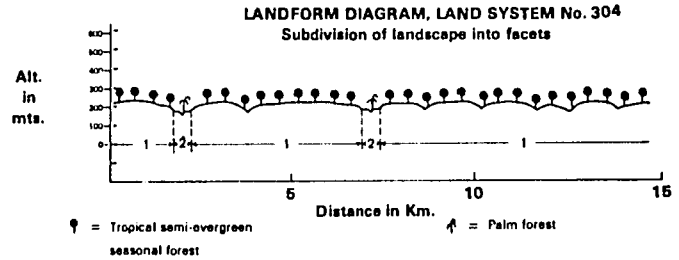
## Land System Ab304

CLIMATE 610 ALTO TAPAJOS
AREA 1227096 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 44
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 304

Subdivision of landscape into facets




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 80 | |
| < 8% | 80 | 15 | |
| 8-30 % | 8 | 5 | |
| > 30 % | 2 | | |
| ALTITUDE IN MTS | 200 | 195 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 10 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 6 | 20 | |
| CROPS | 3 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B A | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | H A | B B | |
| EXCHANGEABLE AL | B M | B B | |
| EXCHANGEABLE CA | M B | A A | |
| EXCHANGEABLE MG | M B | A A | |
| EXCHANGEABLE K | M K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | M B | A M | |
| CATION EXCH. CAPAC. | M E | A A | |

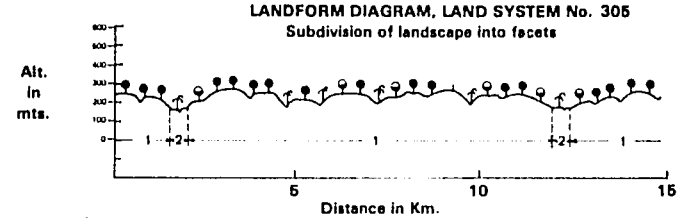
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | B B | A A | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | H | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab305

CLIMATE 780 IMPERATRIZ
AREA 518828 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 43
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 305**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest
= Cerradão (closed savanna)
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | | 70 | |
| < 8% | 30 | 25 | |
| 8-30 % | 50 | 5 | |
| > 30 % | 20 | | |
| ALTITUDE IN MTS | 200 | 195 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | 15 | | |
| TRF | | | |
| SESF | 70 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 15 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 30 | |
| CROPS | 5 | 30 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | H A | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | M B | A A | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | A K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | M E | A A | |

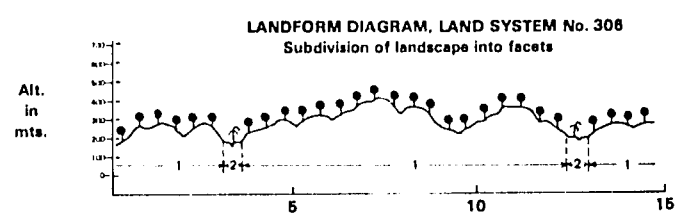
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | B B | A A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | J | U | |
| SULPHUR | J | U | |
| ZINC | J | U | |
| IRON | J | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | J | U | |
| CR | J | U | |
| NI | U | U | |
| OTHERS | J | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | H | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab306

CLIMATE 610 ALTO TAPAJOS
AREA 382020 HAS.
ALTITUDE 290 MTS.
PHYSIOGRAPHIC UNIT NO. 41
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 306**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | | 70 | |
| < 8% | 35 | 20 | |
| 8-30 % | 50 | 10 | |
| > 30 % | 15 | | |
| ALTITUDE IN MTS | 280 | 200 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 20 | |
| CROPS | 1 | 15 | |

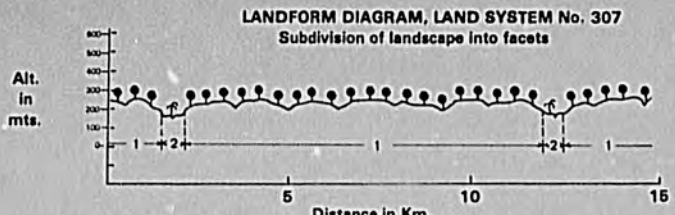
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B A | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | H A | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | M B | A A | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | A K | A M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M E | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | B B | A A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | J | U | |
| COPPER | U | U | |
| BORON | J | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | H | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab307

CLIMATE 610 ALTO TAPAJOS
AREA 3328562 HAS.
ALTITUDE 220 MTS.
PHYSIOGRAPHIC UNIT NO. 41
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET [illegible] M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | 50 | 20 | |
| 8-30 % | 40 | 5 | |
| > 30 % | 10 | | |
| ALTITUDE IN MTS | 220 | 200 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 20 | |
| CROPS | 2 | 15 | |

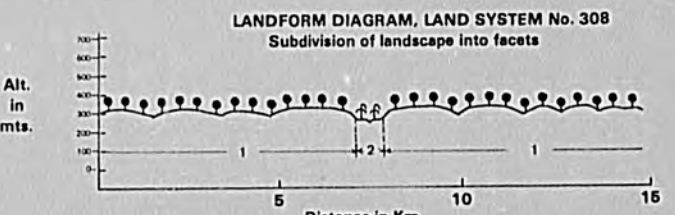
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B A | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M A | B B | |
| EXCHANGEABLE AL | A M | B B | |
| EXCHANGEABLE CA | M B | A M | |
| EXCHANGEABLE MG | A B | A M | |
| EXCHANGEABLE K | M K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | M B | A M | |
| CATION EXCH. CAPAC. | M M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | B B | A A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | J | J | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | J | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | J | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | HA | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab308

CLIMATE 610 ALTO TAPAJOS
AREA 959189 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO. 41
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 2 | 75 | |
| < 8% | 70 | 22 | |
| 8-30 % | 25 | 3 | |
| > 30 % | 3 | | |
| ALTITUDE IN MTS | 300 | 295 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 30 | 20 | |
| CROPS | 10 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AUD | EAQ | |
| GREAT GROUPS | AUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | A M | A M | |
| EXCHANGEABLE NA | M B | A M | |
| TOTAL EXCH. BASES | A A | A M | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M M | |
| PHOSPHORUS | B B | A A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | J | U | |
| SULPHUR | J | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | G | | |
| FACET 3 | | | |

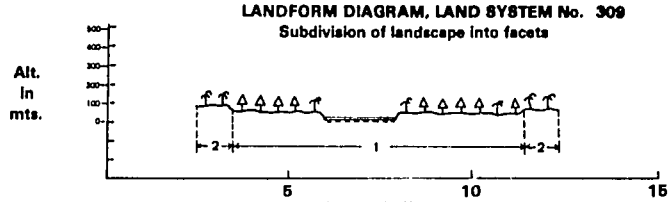
140'

## Land System Ab309

CLIMATE 610 ALTO TAPAJOS
AREA 141012 HAS.
ALTITUDE 150 MTS.
PHYSIOGRAPHIC UNIT NO. 44
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 309**
Subdivision of landscape into facets




= Other
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 60 | 60 | |
| < 8% | 35 | 35 | |
| 8-30 % | 5 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 150 | 150 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 15 | |
| CROPS | 15 | 15 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EAQ | |
| GREAT GROUPS | EAQFL | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A M | A A | |
| EXCHANGEABLE K | A M | A M | |
| EXCHANGEABLE NA | M B | A M | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A A | A A | |

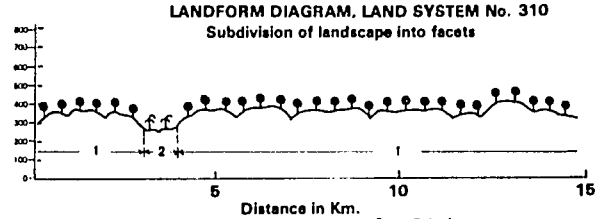
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | A M | |
| PHOSPHORUS | M M | A A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | J | U | |
| ZINC | U | U | |
| IRON | J | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | J | U | |
| SE | U | U | |
| CR | J | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | G | G | |
| FACET 3 | | | |

## Land System Ab310

CLIMATE 610 ALTO TAPAJOS
AREA 2014448 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO. 44
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 310**
Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 92 | 8 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 75 | | |
| < 8% | 40 | 20 | |
| 8-30 % | 50 | 5 | |
| > 30 % | 10 | | |
| ALTITUDE IN MTS | 300 | 285 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 3 | 20 | |
| CROPS | 1 | 15 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | M M | A A | |
| EXCHANGEABLE MG | M M | A M | |
| EXCHANGEABLE K | M K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | M B | A M | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | A A | A A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | G | | |
| FACET 3 | | | |

141

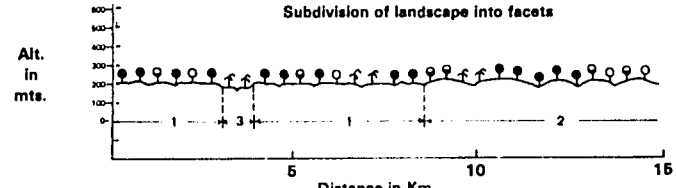
## Land System Ab311

CLIMATE 610 ALTO TAPAJOS
AREA 487100 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 44
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 311

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest
= Cerradão (closed savanna)
= Cerrado (savanna)
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | X | V |
| PERCENTAGE OF L.S. | 50 | 42 | 8 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 1 | 5 | 75 |
| < 8% | 99 | 75 | 20 |
| 8-30 % | | 20 | 5 |
| > 30 % | | | |
| ALTITUDE IN MTS | 200 | 220 | 195 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | 10 | 15 | |
| CD | 10 | 25 | |
| TRF | | | |
| SESF | 70 | 30 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 10 | 30 | 100 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 25 | 30 |
| CROPS | 10 | 25 | 40 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | U | E |
| SUBORDERS | EPS | UUD | EAQ |
| GREAT GROUPS | EPSQU | UUDTR | EAQFL |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | B |
| DEPTH | P | P | M |
| INIT. INFIL. RATE | A | M | M |
| HYDRAUL. CONDUCT. | A | M | M |
| DRAINAGE | B | B | G |
| MOIST. HOLD. CAP. | B | M | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | U | U | U |
| EXPANDING CLAYS | O | O | O |
| TEXTURE | S S | L C | L L |
| COARSE MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | M A | M A | B B |
| EXCHANGEABLE AL | M A | M M | B B |
| EXCHANGEABLE CA | M B | M B | A A |
| EXCHANGEABLE MG | M M | A B | A M |
| EXCHANGEABLE K | K K | M K | A K |
| EXCHANGEABLE NA | B B | B B | M B |
| TOTAL EXCH. BASES | B B | M B | A M |
| CATION EXCH. CAPAC. | M M | M M | A A |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | M B |
| PHOSPHORUS | M B | B B | A A |
| PHOSPHORUS FIXATION | O | O | O |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | LC | LL |
| MODIFIERS FACET 1 | HK | | |
| FACET 2 | H | | |
| FACET 3 | G | | |

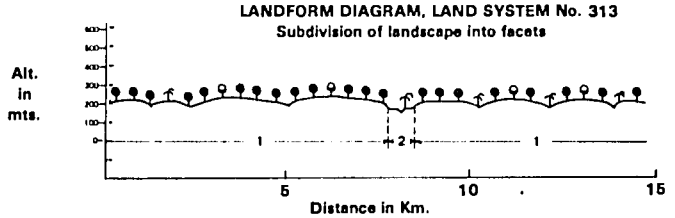
## Land System Ab313

CLIMATE 610 ALTO TAPAJOS
AREA 16305 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 43
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 313

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest
= Cerradão (closed savanna)
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | 75 | 20 | |
| 8-30 % | 25 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 200 | 195 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | 10 | | |
| TRF | | | |
| SESF | 80 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 10 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 30 | 45 | |
| CROPS | 10 | 30 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | M | E | |
| SUBORDERS | MUD | EAQ | |
| GREAT GROUPS | MUDAR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | A A | A A | |
| EXCHANGEABLE NA | B B | A B | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | A M | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab315

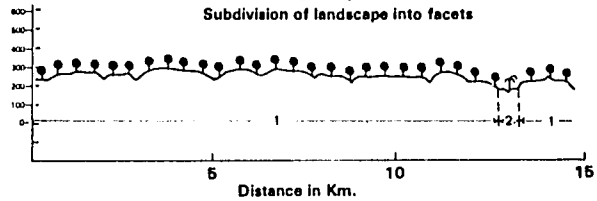
CLIMATE 610 ALTO TAPAJOS
AREA 8387739 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 44
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M

FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 315

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | 45 | 20 | |
| 8-30 % | 50 | 5 | |
| > 30 % | 5 | | |
| ALTITUDE IN MTS | 200 | 190 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 20 | |
| CROPS | 1 | 15 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UDR | EAQ | |
| GREAT GROUPS | UDRHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M B | A A | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | M K | A M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | M M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | HA | | |
| FACET 2 | G | | |
| FACET 3 | | | |

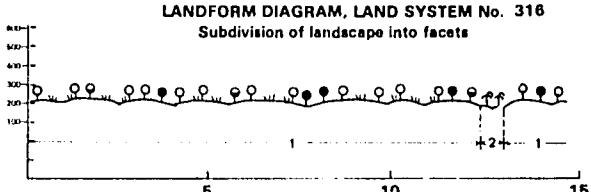
## Land System Ab316

CLIMATE 610 ALTO TAPAJOS
AREA 4559710 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 44
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 316

Subdivision of landscape into facets




= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Cerrado (savanna)

= Tropical semi-evergreen seasonal forest

= Campo cerrado (open savanna)

= Palm forest

= Cerradão (closed savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 75 | |
| < 8% | 85 | 22 | |
| 8-30 % | 10 | 3 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 200 | 195 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 20 | | |
| CC | 20 | | |
| C | 20 | | |
| CD | 20 | | |
| TRF | | | |
| SESF | 20 | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 8 | 25 | |
| CROPS | 4 | 25 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EPS | EAQ | |
| GREAT GROUPS | EPSQU | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S S | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | M B | |
| EXCHANGEABLE K | M K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | A M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M M | M B | |
| PHOSPHORUS | B B | M M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | LL | |
| MODIFIERS FACET 1 | HA | | |
| FACET 2 | G | | |
| FACET 3 | | | |

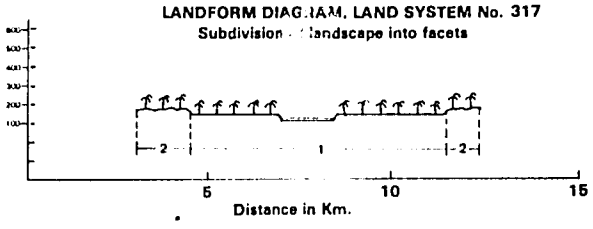
## Land System Ab317

CLIMATE 610 ALTO TAPAJOS
AREA 836951 HAS.
ALTITUDE 150 MTS.
PHYSIOGRAPHIC UNIT NO. 35
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 317

Subdivision of landscape into facets




= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 99 | 45 | |
| < 8% | 1 | 50 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 153 | 152 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 20 | |
| CROPS | 10 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | - |
| SUBORDERS | EAQ | EFL | |
| GREAT GROUPS | EAQFL | EFLTA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | A | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | A K | A K | |
| EXCHANGEABLE NA | M B | B B | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONTI. | | | |
| ORGANIC MATTER % | A M | A M | |
| PHOSPHORUS | M M | M M | |
| PHOSPHORUS FIXATION | U | U | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

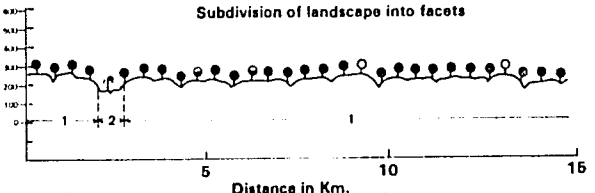
## Land System Ab318

CLIMATE 610 ALTO TAPAJOS
AREA 12111919 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 46
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 318

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Cerradão (closed savanna)

= Cerrado (savanna)

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 92 | 8 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | 35 | 20 | |
| 8-30 % | 60 | 5 | |
| > 30 % | 5 | | |
| ALTITUDE IN MTS | 200 | 195 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | 5 | | |
| CD | 5 | | |
| TRF | | | |
| SESF | 90 | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 3 | 25 | |
| CROPS | 1 | 30 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | O | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | E E | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONTI. | | | |
| ORGANIC MATTER % | B B | A M | |
| PHOSPHORUS | B B | M M | |
| PHOSPHORUS FIXATION | U | U | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HAKE | | |
| FACET 2 | G | | |
| FACET 3 | | | |

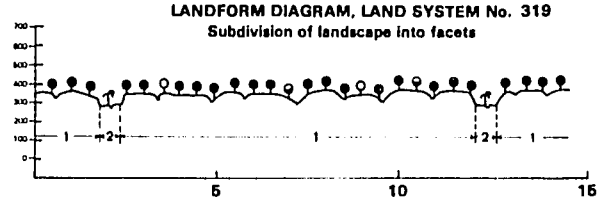
## Land System Ab319

CLIMATE 830 PORTO VELHO
AREA 2146896 HAS.
ALTITUDE 350 MTS.
PHYSIOGRAPHIC UNIT NO. 45
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 319

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest
= Palm forest
= Cerradão (closed savanna)
= Cerrado (savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | 66 | 18 | |
| 8-30 % | 30 | 7 | |
| > 30 % | 2 | | |
| ALTITUDE IN MTS | 350 | 300 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | 5 | | |
| CO | 5 | | |
| TRF | | | |
| SESF | 90 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 20 | |
| CROPS | 2 | 15 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION. | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | P | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M B | A A | |
| EXCHANGEABLE MG | M B | A A | |
| EXCHANGEABLE K | M K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | M M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | HA | | |
| FACET 2 | G | | |
| FACET 3 | | | |

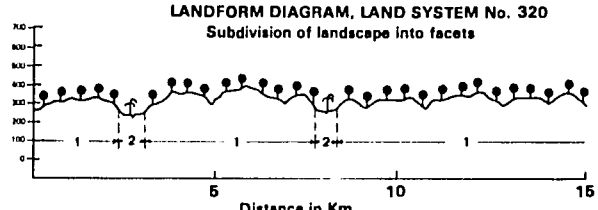
## Land System Ab320

CLIMATE 830 PORTO VELHO
AREA 1736429 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO. 45
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 320

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | 30 | 20 | |
| 8-30 % | 50 | 5 | |
| > 30 % | 20 | | |
| ALTITUDE IN MTS | 300 | 255 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 10 | |
| CROPS | 1 | 15 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | ITR | EAQ | |
| GREAT GROUPS | ITROY | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

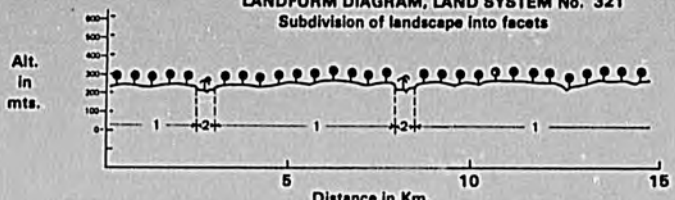
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab321

CLIMATE 610 ALTO TAPAJOS
AREA 1707372 HAS.
ALTITUDE 250 MTS.
PHYSIOGRAPHIC UNIT NO. 50
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 321**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | 80 | 20 | |
| 8-30 % | 18 | 5 | |
| > 30 % | 2 | | |
| ALTITUDE IN MTS | 250 | 245 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 15 | |
| CROPS | 2 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | ? | h | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A M | B B | |
| EXCHANGEABLE AL | A M | B B | |
| EXCHANGEABLE CA | M B | A A | |
| EXCHANGEABLE MG | M B | A A | |
| EXCHANGEABLE K | M K | A A | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | M E | A A | |

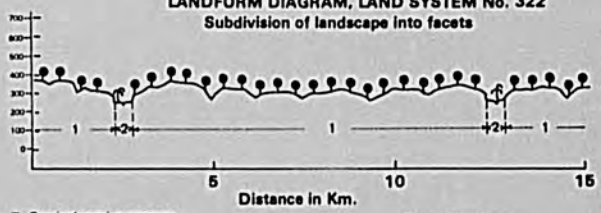
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | HA | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab322

CLIMATE 610 ALTO TAPAJOS
AREA 292754 HAS.
ALTITUDE 330 MTS.
PHYSIOGRAPHIC UNIT NO. 45
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 322**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 30 | 75 | |
| < 8% | 50 | 20 | |
| 8-30 % | 20 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 250 | 245 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 20 | |
| CROPS | 6 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | M M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | J | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

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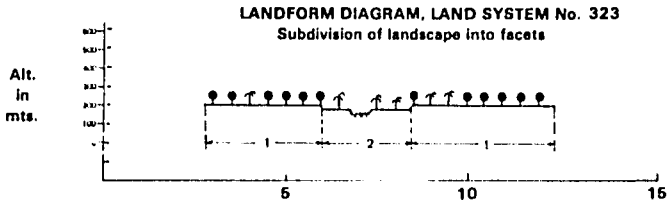
## Land System Ab323

CLIMATE 610 ALTO TAPAJOS
AREA 133059 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 45
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 90 | |
| < 8% | 90 | 5 | |
| 8-30 % | 5 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 200 | 196 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 80 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 20 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 4 | 15 | |
| CROPS | 2 | 15 | |

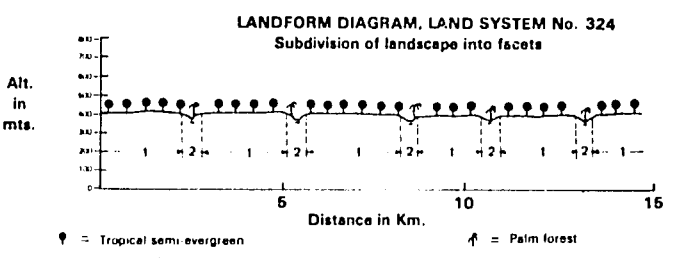
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EPS | EAQ | |
| GREAT GROUPS | EPSQU | EAQPL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RAT. | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | J | J | |
| TEXTURE | S S | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | A A | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | A A | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M F | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M M | A M | |
| PHOSPHORUS | F B | B B | |
| PHOSPHORUS FIXATION | J | J | |
| MANGANESE | J | J | |
| SULPHUR | J | U | |
| ZINC | J | U | |
| IRON | J | J | |
| COPPER | U | U | |
| BORON | J | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | J | |
| I | U | U | |
| SE | U | U | |
| CR | J | U | |
| NI | U | U | |
| OTHERS | J | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab324

CLIMATE 0 ALTO TAPAJOS
AREA 80 HAS.
ALTITUDE 400 MTS.
PHYSIOGRAPHIC UNIT NO. 15
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EPS | EAQ | |
| GREAT GROUPS | EPSQU | EAQPL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | | | |
| DEPTH | | | |
| INIT. INFIL. RATE | | | |
| HYDRAUL. CONDUCT. | | | |
| DRAINAGE | | | |
| MOIST. HOLD. CAP. | | | |
| TEMP. REGIME | | | |
| MOIST. REGIME | | | |
| EXPANDING CLAYS | | | |
| TEXTURE | S S | L L | |
| COARSE MATERIAL | | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | | | |
| AL SATURATION % | | | |
| EXCHANGEABLE AL | | | |
| EXCHANGEABLE CA | | | |
| EXCHANGEABLE MG | | | |
| EXCHANGEABLE K | | | |
| EXCHANGEABLE NA | | | |
| TOTAL EXCH. BASES | | | |
| CATION EXCH. CAPAC. | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | | | |
| PHOSPHORUS | | | |
| PHOSPHORUS FIXATION | | | |
| MANGANESE | | | |
| SULPHUR | | | |
| ZINC | | | |
| IRON | | | |
| COPPER | | | |
| BORON | | | |
| MOLYBDENUM | | | |
| FREE CARBONATES | | | |
| SALINITY | | | |
| NATRIC | | | |
| CAT CLAY | | | |
| X-RAY AMORPHOUS | | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | | | |
| I | | | |
| SE | | | |
| CR | | | |
| NI | | | |
| OTHERS | | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | | | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

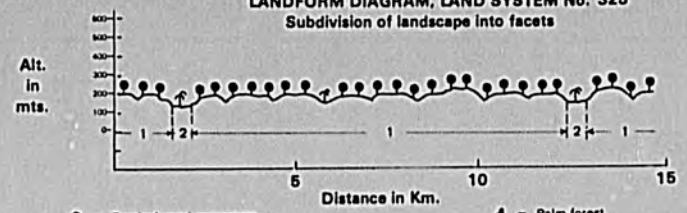
## Land System Ab325

CLIMATE 613 ALTO TAPAJOS
AREA 1021803 HAS.
ALTITUDE 180 MTS.
PHYSIOGRAPHIC UNIT NO. 45
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 325

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | 40 | 20 | |
| 8-30 % | 50 | 5 | |
| > 30 % | 10 | | |
| ALTITUDE IN MTS | 180 | 150 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 95 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 5 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 6 | 25 | |
| CROPS | 3 | 25 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | M | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B M | B B | |
| EXCHANGEABLE AL | B M | B B | |
| EXCHANGEABLE CA | M M | A A | |
| EXCHANGEABLE MG | A M | A A | |
| EXCHANGEABLE K | A M | A A | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | M B | A M | |
| CATION EXCH. CAPAC. | M M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | G | | |
| FACET 3 | | | |

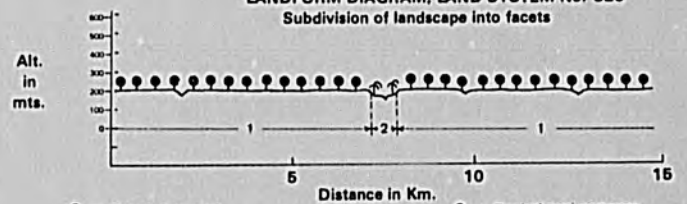
## Land System Ab326

CLIMATE 613 ALTO TAPAJOS
AREA 45196 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 46
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 326

Subdivision of landscape into facets




= Cerrado (savanna)

= Cerradão (closed savanna)

= Palm forest

= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | | | |
| PERCENTAGE OF L.S. | 0 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | | | |
| SUBORDERS | | | |
| GREAT GROUPS | | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | | | |
| DEPTH | | | |
| INIT. INFIL. RATE | | | |
| HYDRAUL. CONDUCT. | | | |
| DRAINAGE | | | |
| MOIST. HOLD. CAP. | | | |
| TEMP. REGIME | | | |
| MOIST. REGIME | | | |
| EXPANDING CLAYS | | | |
| TEXTURE | | | |
| COARSE MATERIAL | | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | | | |
| AL SATURATION % | | | |
| EXCHANGEABLE AL | | | |
| EXCHANGEABLE CA | | | |
| EXCHANGEABLE MG | | | |
| EXCHANGEABLE K | | | |
| EXCHANGEABLE NA | | | |
| TOTAL EXCH. BASES | | | |
| CATION EXCH. CAPAC. | | | |

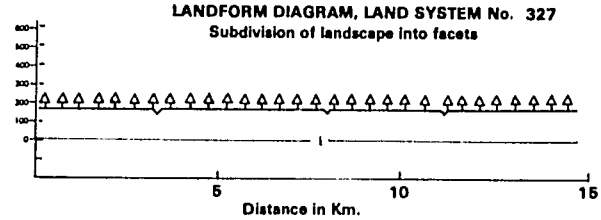
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | | | |
| PHOSPHORUS | | | |
| PHOSPHORUS FIXATION | | | |
| MANGANESE | | | |
| SULPHUR | | | |
| ZINC | | | |
| IRON | | | |
| COPPER | | | |
| BORON | | | |
| MOLYBDENUM | | | |
| FREE CARBONATES | | | |
| SALINITY | | | |
| NATRIC | | | |
| CAT CLAY | | | |
| X-RAY AMORPHOUS | | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | | | |
| I | | | |
| SE | | | |
| CR | | | |
| NI | | | |
| OTHERS | | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | | | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Ab327

CLIMATE 910 TAPERINHA-SANTAREM
AREA 34950 HAS.
ALTITUDE 170 MTS.
PHYSIOGRAPHIC UNIT NO. 38
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

LANDFORM DIAGRAM, LAND SYSTEM No. 327
Subdivision of landscape into facets




= Other

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | | |
| < 8% | 10 | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 170 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | | |
| CROPS | 0 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | | |
| SUBORDERS | EPS | | |
| GREAT GROUPS | EPSOU | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | M | | |
| INIT. INFIL. RATE | A | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | G | | |
| MOIST. HOLD. CAP. | B | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | U | | |
| EXPANDING CLAYS | O | | |
| TEXTURE | S | S | |
| COARSE MATERIAL | B | B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | |
| AL SATURATION % | A | A | |
| EXCHANGEABLE AL | A | A | |
| EXCHANGEABLE CA | B | B | |
| EXCHANGEABLE MG | B | B | |
| EXCHANGEABLE K | K | K | |
| EXCHANGEABLE NA | B | B | |
| TOTAL EXCH. BASES | B | B | |
| CATION EXCH. CAPAC. | E | E | |

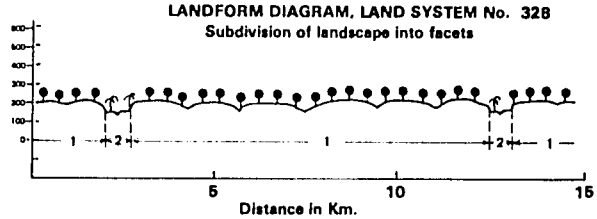
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M | B | |
| PHOSPHORUS | B | B | |
| PHOSPHORUS FIXATION | O | | |
| MANGANESE | U | | |
| SULPHUR | U | | |
| ZINC | U | | |
| IRON | U | | |
| COPPER | U | | |
| BORON | U | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | |
| I | U | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | | |
| MODIFIERS FACET 1 | GHAKE | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Ab328

CLIMATE 610 ALTO TAPAJOS
AREA 1959869T HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

LANDFORM DIAGRAM, LAND SYSTEM No. 328
Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 92 | 8 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 75 | | |
| < 8% | 75 | 20 | |
| 8-30 % | 20 | 5 | |
| > 30 % | 5 | | |
| ALTITUDE IN MTS | 200 | 195 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CU | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 20 | |
| CROPS | 1 | 15 | |

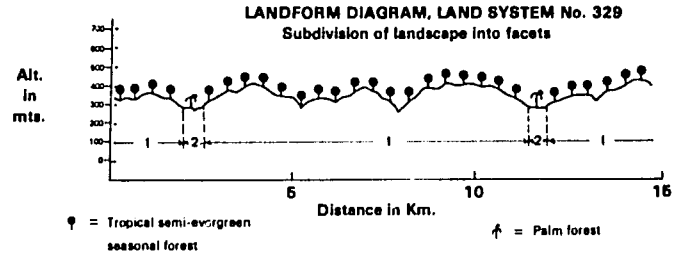
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORAC | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C | C | L L |
| COARSE MATERIAL | B | B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H | H | M M |
| AL SATURATION % | A | A | B B |
| EXCHANGEABLE AL | A | A | B B |
| EXCHANGEABLE CA | B | B | A M |
| EXCHANGEABLE MG | M | M | A M |
| EXCHANGEABLE K | K | K | A K |
| EXCHANGEABLE NA | B | B | M B |
| TOTAL EXCH. BASES | B | B | A M |
| CATION EXCH. CAPAC. | M | M | A A |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M | B | M B |
| PHOSPHORUS | B | B | M M |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab329

CLIMATE 610 ALTO TAPAJOS
AREA 40220 HAS.
ALTITUDE 350 MTS.
PHYSIOGRAPHIC UNIT NO. 46
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 50 | |
| < 8% | 10 | 40 | |
| 8-30 % | 40 | 10 | |
| > 30 % | 50 | | |
| ALTITUDE IN MTS | 350 | 290 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 30 | |
| CROPS | 10 | 30 | |

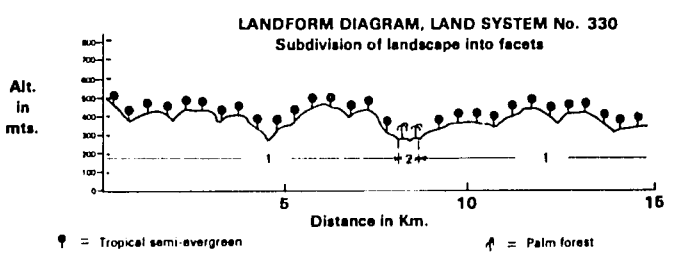
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | M | E | |
| SUBORDERS | HUD | EAQ | |
| GREAT GROUPS | HUDAR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | S B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | S B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | A A | A M | |
| EXCHANGEABLE NA | A M | M M | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. CONT). | | | |
| ORGANIC MATTER % | A M | M M | |
| PHOSPHORUS | A M | M M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab330

CLIMATE 760 HUMAITA
AREA 3663865 HAS.
ALTITUDE 400 MTS.
PHYSIOGRAPHIC UNIT NO. 49
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | 15 | 20 | |
| 8-30 % | 70 | 5 | |
| > 30 % | 15 | | |
| ALTITUDE IN MTS | 400 | 350 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | 15 | |
| CROPS | 1 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EOR | EAQ | |
| GREAT GROUPS | EORTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L R | L L | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A A | |
| EXCHANGEABLE MG | A M | A A | |
| EXCHANGEABLE K | A M | A M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | A M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LR | LL | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | G | | |
| FACET 3 | | | |

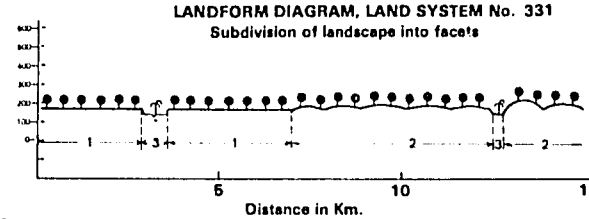
## Land System Ab331

CLIMATE 760 HUMAITA
AREA 5312465 HAS.
ALTITUDE 150 MTS.
PHYSIOGRAPHIC UNIT NO. 50
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 331

Subdivision of landscape into facets




= Tropical semi evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | X | V |
| PERCENTAGE OF L.S. | 47 | 47 | 6 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 3 | 2 | 75 |
| < 8% | 95 | 70 | 20 |
| 8-30 % | 2 | 25 | 5 |
| > 30 % | | 3 | |
| ALTITUDE IN MTS | 150 | 150 | 145 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | 100 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | 100 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 3 | 10 | |
| CROPS | 1 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | U | E |
| SUBORDERS | OOR | UUD | EAQ |
| GREAT GROUPS | OORAC | UUDPA | EAQFL |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | B |
| DEPTH | P | P | M |
| INIT. INFIL. RATE | A | M | M |
| HYDRAUL. CONDUCT. | A | M | M |
| DRAINAGE | A | B | G |
| MOIST. HOLD. CAP. | B | M | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | U | U | U |
| EXPANDING CLAYS | O | O | O |
| TEXTURE | C C | L C | L L |
| COARSE MATERIAL | A B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | A A | A A | M M |
| AL SATURATION % | A A | A A | B B |
| EXCHANGEABLE AL | A M | M M | B B |
| EXCHANGEABLE CA | B B | B B | A A |
| EXCHANGEABLE MG | B B | B B | A A |
| EXCHANGEABLE K | A A | A A | A A |
| EXCHANGEABLE NA | B B | B B | A M |
| TOTAL EXCH. BASES | B B | B B | A A |
| CATION EXCH. CAPAC. | M E | E E | A A |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | M B |
| PHOSPHORUS | B B | B B | M M |
| PHOSPHORUS FIXATION | O | O | O |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LC | LL |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | HAKE | | |
| FACET 3 | G | | |

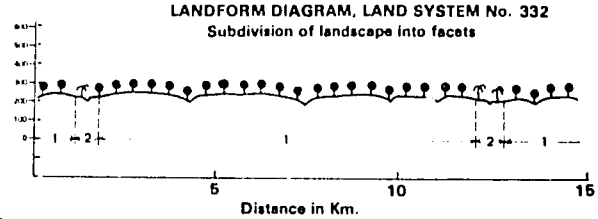
## Land System Ab332

CLIMATE 830 PORTO VELHO
AREA 2229304 HAS.
ALTITUDE 250 MTS.
PHYSIOGRAPHIC UNIT NO. 50
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 332

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 2 | 80 | |
| < 8% | 90 | 15 | |
| 8-30 % | 8 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 250 | 245 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 20 | |
| CROPS | 6 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AUO | EAQ | |
| GREAT GROUPS | AUOTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M M | A A | |
| EXCHANGEABLE MG | A M | A A | |
| EXCHANGEABLE K | K K | A M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A E | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A A | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | K | | |
| FACET 2 | G | | |
| FACET 3 | | | |

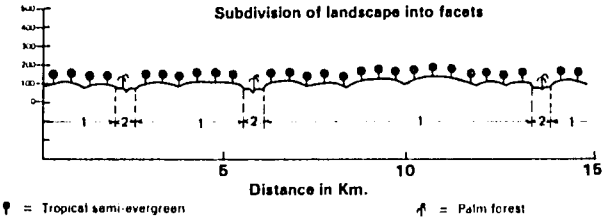
## Land System Ab333

CLIMATE 880 SENA MADURFIRA
AREA 10519850 HAS.
ALTITUDE 120 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 333

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 75 | |
| < 8% | 80 | 20 | |
| 8-30 % | 15 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 125 | 115 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 3 | 15 | |
| CROPS | 1 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | J | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDPA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | b | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | P | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | J | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | A B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | A A | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | M K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A M | |
| PHOSPHORUS | A B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | J | U | |
| SULPHUR | J | J | |
| ZINC | U | U | |
| IRON | J | J | |
| COPPER | J | U | |
| BORON | U | U | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | J | |
| I | U | U | |
| SE | U | U | |
| CR | J | J | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HA | | |
| FACET 2 | G | | |
| FACET 3 | | | |

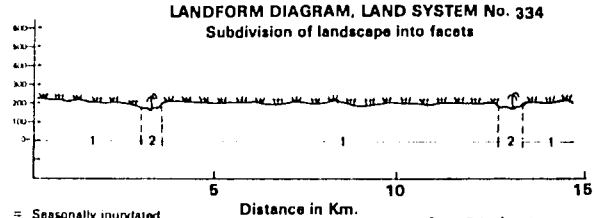
## Land System Ab334

CLIMATE 880 SENA MADUREIRA
AREA 973555 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 334

Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | N | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 75 | 95 | |
| < 8% | 25 | 5 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 200 | 198 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 100 | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 30 | |
| CROPS | 15 | 30 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | J | E | |
| SUBORDERS | DAQ | EAQ | |
| GREAT GROUPS | DAQPL | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | J | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | A M | A A | |

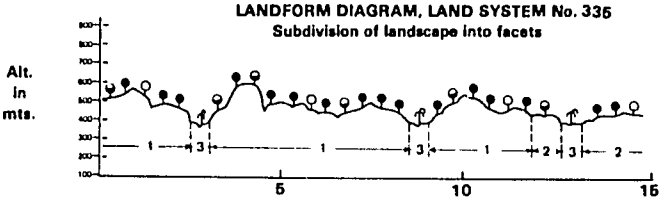
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | J | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | J | U | |
| SE | J | U | |
| CR | U | U | |
| NI | J | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | GHAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab335

CLIMATE 830 PORTO VELHO
AREA 511604 HAS.
ALTITUDE 500 MTS.
PHYSIOGRAPHIC UNIT NO. 48
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 335
Subdivision of landscape into facets




= Cerrado (savanna)
= Cerradão (closed savanna)
= Palm forest
= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | C | V |
| PERCENTAGE OF L.S. | 70 | 20 | 10 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | 60 |
| < 8% | 25 | 35 | 35 |
| 8-30 % | 25 | 50 | 5 |
| > 30 % | 50 | 15 | |
| ALTITUDE IN MTS | 500 | 450 | 400 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | 10 | 10 | |
| CD | 15 | 15 | |
| TRF | | | |
| SESF | 75 | 75 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | 15 | 20 |
| CROPS | 1 | 10 | 20 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | J | E |
| SUBORDERS | EOR | JUD | EAQ |
| GREAT GROUPS | EORTR | UUDPA | EAQFL |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | M | B |
| DEPTH | S | M | M |
| INIT. INFIL. RATE | M | M | M |
| HYDRAUL. CONDUCT. | A | M | M |
| DRAINAGE | B | B | G |
| MOIST. HOLD. CAP. | B | M | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | U | U | U |
| EXPANDING CLAYS | O | O | O |
| TEXTURE | L R | C C | L L |
| COARSE MATERIAL | M A | B M | B M |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | A M | B B | B B |
| EXCHANGEABLE AL | A A | B B | B B |
| EXCHANGEABLE CA | B B | A M | A A |
| EXCHANGEABLE MG | M M | A M | A A |
| EXCHANGEABLE K | M M | M K | A M |
| EXCHANGEABLE NA | B B | B B | M B |
| TOTAL EXCH. BASES | B B | A M | A A |
| CATION EXCH. CAPAC. | M M | A A | A A |

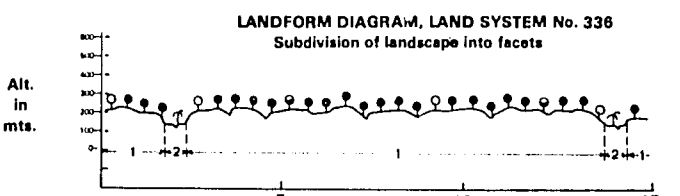
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M B | M B |
| PHOSPHORUS | B B | M A | A M |
| PHOSPHORUS FIXATION | O | T | O |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | J | U | U |
| IRON | U | U | J |
| COPPER | U | U | J |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | F | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | J |
| I | J | U | U |
| SE | J | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LR | CC | LL |
| MODIFIERS FACET 1 | HA | | |
| FACET 2 | I | | |
| FACET 3 | G | | |

## Land System Ab336

CLIMATE 830 PORTO VELHO
AREA 378423 HAS.
ALTITUDE 220 MTS.
PHYSIOGRAPHIC UNIT NO. 49
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 336
Subdivision of landscape into facets




= Cerrado (savanna)
= Cerradão (closed savanna)
= Palm forest
= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | 25 | 20 | |
| 8-30 % | 65 | 5 | |
| > 30 % | 10 | | |
| ALTITUDE IN MTS | 220 | 190 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | 15 | | |
| CD | 10 | | |
| TRF | | | |
| SESF | 75 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 10 | |
| CROPS | 1 | 15 | |

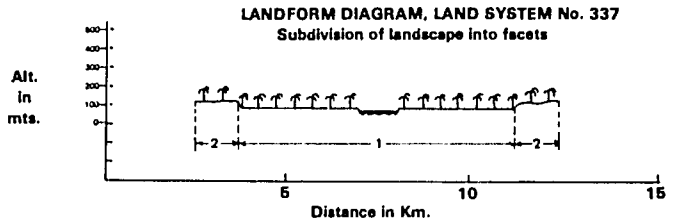
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M B | A A | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | K K | A M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | E E | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | HAKE | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab337

CLIMATE 830 PORTO VELHO
AREA 43255 HAS.
ALTITUDE 90 MTS.
PHYSIOGRAPHIC UNIT NO. 37
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 99 | 40 | |
| < 8% | 1 | 55 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 90 | 93 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 20 | |
| CROPS | 10 | 20 | |

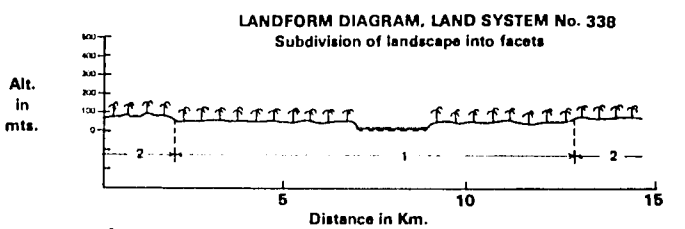
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | IAQ | EFL | |
| GREAT GROUPS | IAQTR | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | A M | A A | |
| EXCHANGEABLE K | M K | A M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | B M | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | A A | A A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | J | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | J | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | GHA | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Ab338

CLIMATE 610 ALTO TAPAJOS
AREA 1149522 HAS.
ALTITUDE 80 MTS.
PHYSIOGRAPHIC UNIT NO. 37
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 99 | 40 | |
| < 8% | 1 | 60 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 80 | 82 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 6 | |
| CROPS | 3 | 4 | |

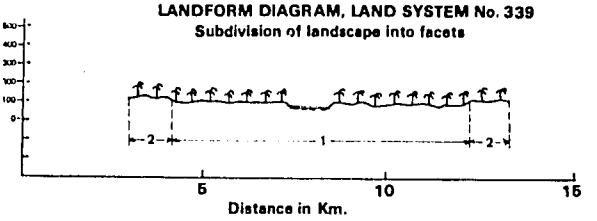
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | IAQ | EFL | |
| GREAT GROUPS | IAQTR | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M B | A A | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | M K | A M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | J | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | GHA | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab339

CLIMATE 830 PORTO VELHO
AREA 155568 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 37
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 99 | 40 | |
| < 8% | 1 | 55 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 102 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 20 | |
| CROPS | 10 | 15 | |

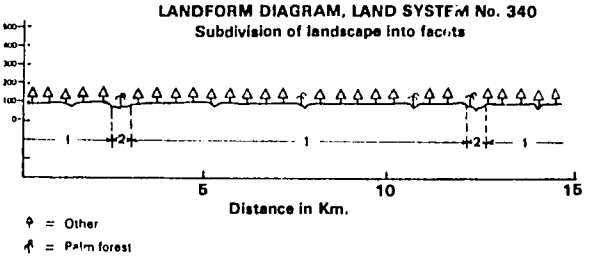
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | IAQ | EFL | |
| GREAT GROUPS | IAQTR | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | 9 | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | S | O | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | A M | A A | |
| EXCHANGEABLE MG | M B | A A | |
| EXCHANGEABLE K | M K | A M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | M B | A A | |
| CATION EXCH. CAPAC. | A M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M P | |
| PHOSPHORUS | A A | A A | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | J | J | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | J | J | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | LL | LL | |
| TYPE AND SUBSTRATA TYPES | | | |
| MODIFIERS FACET 1 | SHA | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Ab340

CLIMATE 760 HUMAITA
AREA 3610731 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | O | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 70 | 90 | |
| < 8% | 30 | 8 | |
| 8-30 % | | 2 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 98 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 4 | 20 | |
| CROPS | 2 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | D | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | A M | A A | |

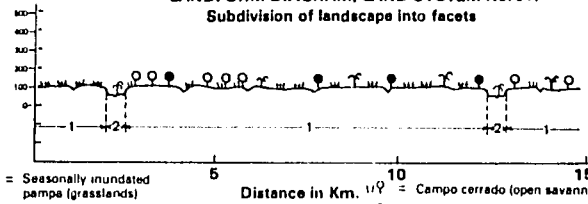
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | J | U | |
| SULPHUR | J | U | |
| ZINC | U | U | |
| IRON | J | U | |
| COPPER | J | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | LL | LL | |
| TYPE AND SUBSTRATA TYPES | | | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab341

CLIMATE 910 TAPERINHA-SANTAREM
AREA 147573 HAS.
ALTITUDE 90 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 341
Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)
w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
= Palm forest
= Campo cerrado (open savanna)
= Cerrado (savanna)
= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 60 | 75 | |
| < 8% | 35 | 20 | |
| 8-30 % | 5 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 90 | 88 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 93 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 80 | 30 | |
| CROPS | 20 | 50 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EPS | EAQ | |
| GREAT GROUPS | EPSQU | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | D | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S S | L S | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A M | B B | |
| EXCHANGEABLE AL | A M | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | M M | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M M | A M | |

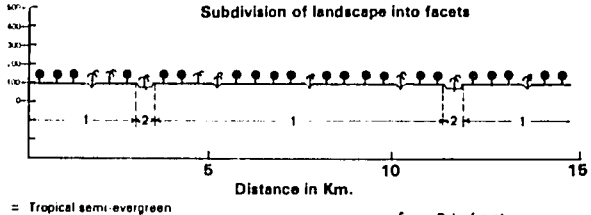
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | D | U | |
| ZINC | D | U | |
| IRON | U | U | |
| COPPER | D | U | |
| BORON | U | U | |
| MOLYBDENUM | D | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | D | U | |
| CR | U | U | |
| NI | D | U | |
| OTHERS | D | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | LS | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab342

CLIMATE 910 TAPERINHA-SANTAREM
AREA 693314 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 342
Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 20 | 75 | |
| < 8% | 80 | 23 | |
| 8-30 % | | 2 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 98 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 85 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 15 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 40 | 45 | |
| CROPS | 30 | 30 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | M M | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | A A | A A | |

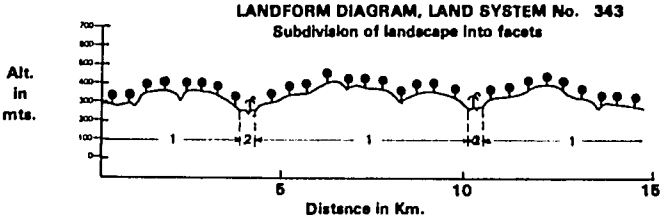
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M M | A M | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | D | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | D | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab343

CLIMATE 820 PARINTINS
AREA 5245912 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO. 38
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 343**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 40 | |
| < 8% | | 25 | 55 |
| 8-30 % | | 50 | 5 |
| > 30 % | | 25 | |
| ALTITUDE IN MTS | 300 | 275 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | 5 | 10 |
| CROPS | | 3 | 10 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EFL | |
| GREAT GROUPS | OORHA | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | B | A | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A B | M B | |
| EXCHANGEABLE AL | A B | M B | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | B B | B B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | M E | M M | |

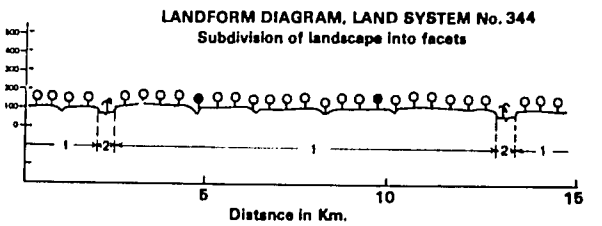
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M M | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | J | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LC | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | K | | |
| FACET 3 | | | |

## Land System Ab344

CLIMATE 900 SOURE
AREA 333572 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 38
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LAND.
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 344**
**Subdivision of landscape into facets**




= Cerrado (savanna)

= Palm forest

= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 75 | |
| < 8% | 88 | 23 | |
| 8-30 % | 2 | 2 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 98 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | 90 | | |
| CD | | | |
| TRF | | | |
| SESF | 10 | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | 20 | 35 |
| CROPS | | 20 | 20 |

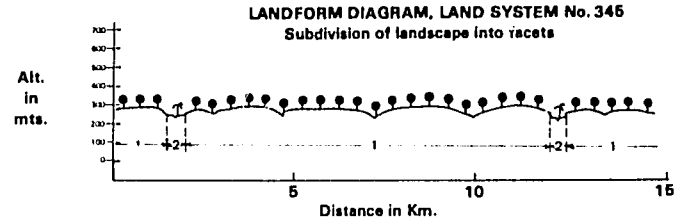
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B F | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | M M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M M | A M | |
| PHOSPHORUS | B B | M M | |
| PHOSPHORUS FIXATION | I | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HAKI | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab345

CLIMATE 820 PAPINTINS
AREA 5292665 HAS.
ALTITUDE 250 MTS.
PHYSIOGRAPHIC UNIT NO. 32
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 60 | |
| < 8% | 75 | 35 | |
| 8-30 % | 20 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 250 | 245 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 9 | 10 | |
| CROPS | 5 | 15 | |

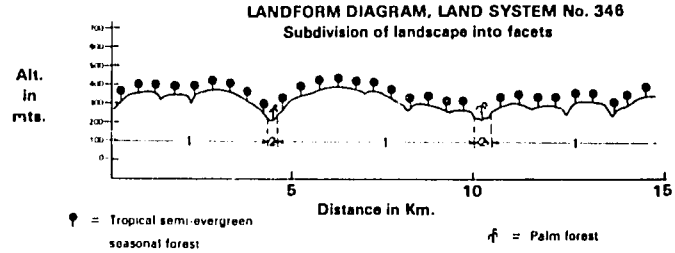
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | M B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | E E | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M B | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | I | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | HAKEI | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab346

CLIMATE 800 MANAUS
AREA 2780275 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO. 34
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 40 | |
| < 8% | 20 | 55 | |
| 8-30 % | 50 | 5 | |
| > 30 % | 30 | | |
| ALTITUDE IN MTS | 300 | 275 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 15 | |
| CROPS | 8 | 15 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EFL | |
| GREAT GROUPS | OORAC | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | B | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | B | O | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A B | M B | |
| EXCHANGEABLE AL | A B | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M E | A A | |

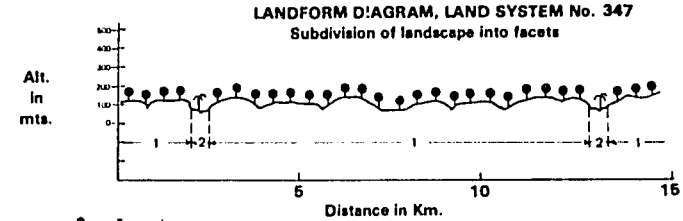
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Ab347

CLIMATE 820 PARINTINS
AREA 4636053 HAS.
ALTITUDE 110 MTS.
PHYSIOGRAPHIC UNIT NO. 39
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 347**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 2 | 75 | |
| < 8% | 80 | 20 | |
| 8-30 % | 18 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 110 | 105 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 3 | 10 | |
| CROPS | 2 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORUM | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | A M | |
| PHOSPHORUS | A M | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

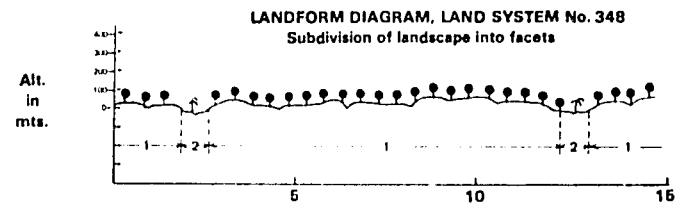
FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CC LL
MODIFIERS FACET 1 HAK
FACET 2 G
FACET 3

## Land System Ab348

CLIMATE 800 MANAUS
AREA 1711103 HAS.
ALTITUDE 110 MTS.
PHYSIOGRAPHIC UNIT NO. 39
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 348**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 75 | |
| < 8% | 70 | 20 | |
| 8-30 % | 20 | 5 | |
| > 30 % | 5 | | |
| ALTITUDE IN MTS | 110 | 105 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 3 | 20 | |
| CROPS | 1 | 25 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORAC | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M M | A A | |

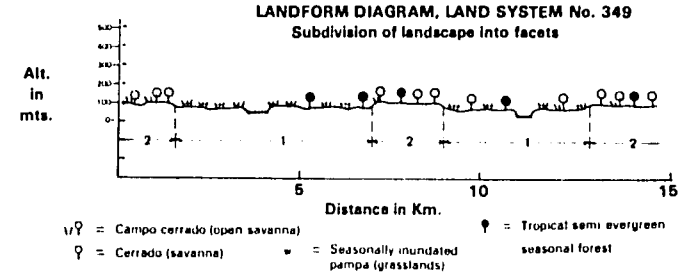
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M M | A M | |
| PHOSPHORUS | M B | M M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CC LL
MODIFIERS FACET 1 HAK
FACET 2 G
FACET 3

## Land System Ab349

CLIMATE 820 PARINTINS
AREA 566677 HAS.
ALTITUDE 90 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 99 | 75 | |
| < 8% | 1 | 25 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 90 | 80 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 60 | | |
| CL + CS | | | |
| CC | | 30 | |
| C | | 50 | |
| CD | | | |
| TRF | | | |
| SESF | 20 | 20 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 25 | 30 | |
| CROPS | 15 | 20 | |

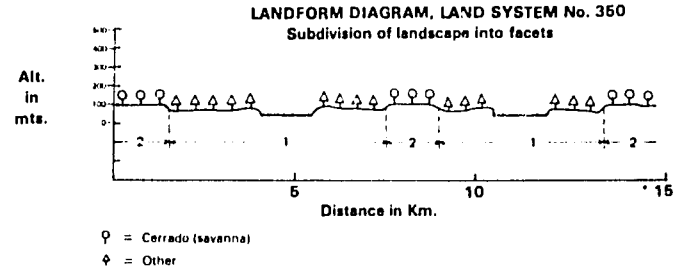
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | J | U | |
| SUBORDERS | JAQ | JAQ | |
| GREAT GROUPS | JAQPL | JAQPL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | B | B | |
| HYDRAUL. CONDUCT. | B | B | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | - | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | J | |
| EXPANDING CLAYS | J | J | |
| TEXTURE | L C | L C | |
| COARSE MATERIAL | B M | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M A | M A | |
| EXCHANGEABLE AL | M A | M A | |
| EXCHANGEABLE CA | A P | A B | |
| EXCHANGEABLE MG | A B | A B | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | M B | B B | |
| TOTAL EXCH. BASES | M B | M B | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | A M | |
| PHOSPHORUS | A M | A M | |
| PHOSPHORUS FIXATION | J | J | |
| MANGANESE | J | U | |
| SULPHUR | J | J | |
| ZINC | J | U | |
| IRON | J | U | |
| COPPER | J | U | |
| BORON | U | U | |
| MOLYBDENUM | J | J | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | - | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | J | U | |
| SE | J | U | |
| CR | J | U | |
| NI | J | U | |
| OTHERS | J | J | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LC | |
| MODIFIERS FACET 1 | GH | | |
| FACET 2 | GH | | |
| FACET 3 | | | |

## Land System Ab350

CLIMATE 820 PARINTINS
AREA 376210 HAS.
ALTITUDE 90 MTS.
PHYSIOGRAPHIC UNIT NO. 37
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 99 | 75 | |
| < 8% | 1 | 23 | |
| 8-30 % | | 2 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 90 | 88 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | 15 | |
| C | | 40 | |
| CD | | | |
| TRF | | | |
| SESF | | 45 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 30 | 40 | |
| CROPS | 20 | 25 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EAQ | |
| GREAT GROUPS | EAQTR | EAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | J | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | A M | A M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | A A | A A | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | G | | |
| FACET 3 | | | |

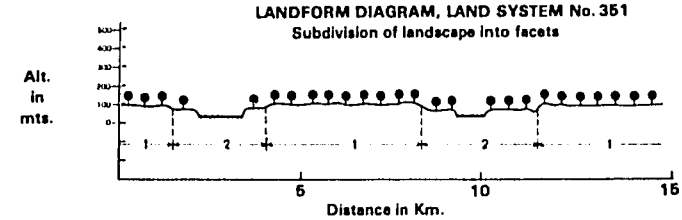
## Land System Ab351

CLIMATE 820 PARINTINS
AREA 97531 HAS.
ALTITUDE 90 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 351

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 18 | 75 | |
| < 8% | 80 | 20 | |
| 8-30 % | 2 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 90 | 87 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | 100 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 30 | 25 | |
| CROPS | 15 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | J | U | |
| SUBORDERS | UUG | UAQ | |
| GREAT GROUPS | UUDPL | UAQPL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | A | B | |
| HYDRAUL. CONDUCT. | B | B | |
| DRAINAGE | D | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | U | |
| TEXTURE | L C | L C | |
| COARSE MATERIAL | A M | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | M M | |
| EXCHANGEABLE AL | A A | M A | |
| EXCHANGEABLE CA | B B | A B | |
| EXCHANGEABLE MG | B B | A B | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | M B | |
| CATION EXCH. CAPAC. | M E | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | A M | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | J | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | J | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | J | U | |
| CR | J | U | |
| NI | U | U | |
| OTHERS | J | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LC | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | GH | | |
| FACET 3 | | | |

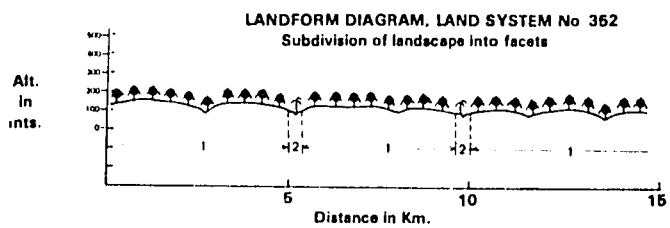
## Land System Aa352

CLIMATE 860 SAO GABRIEL RIO NE
AREA 1332666 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 33
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No 352

Subdivision of landscape into facets




= Tropical rain forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 60 | |
| < 8% | 75 | 45 | |
| 8-30 % | 20 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 95 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 100 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | 2 | |
| CROPS | 1 | 1 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | D | E | |
| SUBORDERS | DOR | EAQ | |
| GREAT GROUPS | DORAC | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | M B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M E | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | J | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | J | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

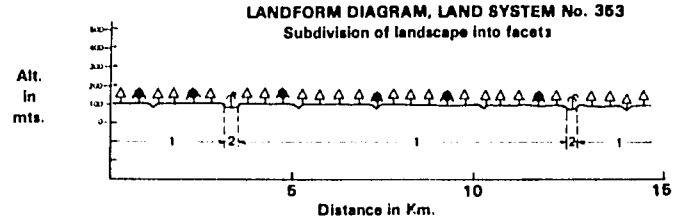
## Land System Aa353

CLIMATE 860 SAO GABRIEL RIO NE
AREA 8159214 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 35
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS.SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS.MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 353

Subdivision of landscape into facets




= Tropical rain forest = Other = Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 75 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 80 | 99 | |
| < 8% | 20 | 1 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 96 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 20 | | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | 60 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | 1 | |
| CROPS | 1 | 1 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | S | E | |
| SUBORDERS | SAQ | EAQ | |
| GREAT GROUPS | SAQTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | P | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | S L | L S | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | A K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | A M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | M B | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES SL LS
MODIFIERS FACET 1 GHA
FACET 2 G
FACET 3

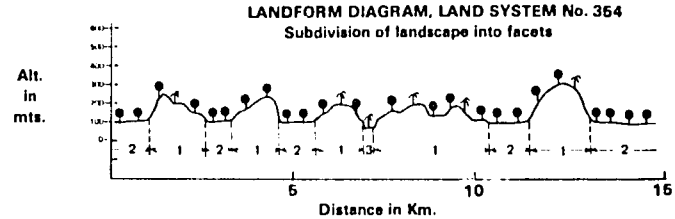
## Land System Aa354

CLIMATE 920 TARACUA
AREA 76755 HAS.
ALTITUDE 150 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
WELL DRAINED LANDS
HILLY LANDS.SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS.MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 354

Subdivision of landscape into facets




= Tropical semi evergreen seasonal forest = Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | O | P | V |
| PERCENTAGE OF L.S. | 75 | 28 | 2 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 75 | 80 | |
| < 8% | 5 | 23 | 15 |
| 8-30 % | 20 | 2 | 5 |
| > 30 % | 75 | | |
| ALTITUDE IN MTS | 150 | 100 | 95 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 80 | 100 | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | 20 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 1 | 1 |
| CROPS | 0 | 1 | 1 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | S | E |
| SUBORDERS | OOR | SAQ | EAQ |
| GREAT GROUPS | OORHA | SAQTR | EAQFL |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | B |
| DEPTH | L | M | M |
| INIT. INFIL. RATE | B | M | M |
| HYDRAUL. CONDUCT. | M | B | M |
| DRAINAGE | B | G | G |
| MOIST. HOLD. CAP. | B | B | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | U | U | U |
| EXPANDING CLAYS | O | O | O |
| TEXTURE | L R | S L | L S |
| COARSE MATERIAL | M A | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | A A | A A | M B |
| EXCHANGEABLE AL | M M | A M | B B |
| EXCHANGEABLE CA | B B | B B | A M |
| EXCHANGEABLE MG | B B | B B | A M |
| EXCHANGEABLE K | K K | K K | A K |
| EXCHANGEABLE NA | B B | B B | B B |
| TOTAL EXCH. BASES | B B | B B | A M |
| CATION EXCH. CAPAC. | E E | M M | A A |

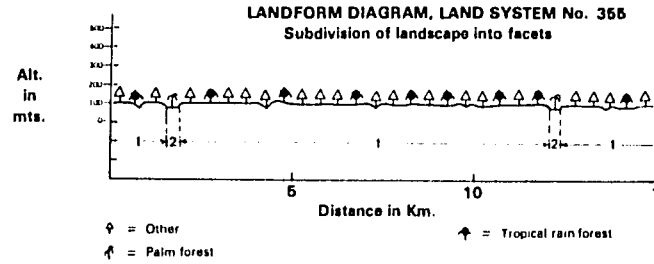
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M B | M B |
| PHOSPHORUS | B B | M B | A M |
| PHOSPHORUS FIXATION | O | O | O |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LR SL SL
MODIFIERS FACET 1 HAKE
FACET 2 GHAK
FACET 3 G

## Land System Aa355

CLIMATE 770 TAJARETE
AREA 28754 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 97 | 3 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 70 | 95 | |
| < 8% | 30 | 5 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 98 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 30 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 70 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | 1 | |
| CROPS | 1 | 1 | |

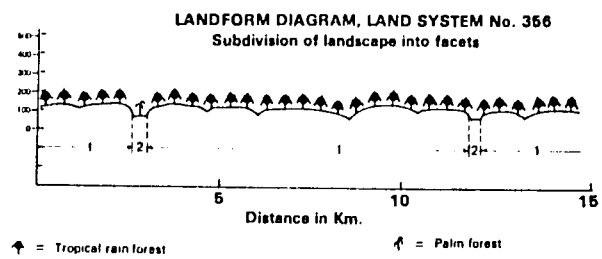
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | J | E | |
| SUBORDERS | UAG | EAQ | |
| GREAT GROUPS | UADTR | EADFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | B | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | J | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S L | L L | |
| COARSE MATERIAL | B A | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | J | U | |
| SULPHUR | J | U | |
| ZINC | U | U | |
| IRON | J | U | |
| COPPER | D | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | J | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SL | LL | |
| MODIFIERS FACET 1 | SHAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Aa356

CLIMATE 860 SAO GABRIEL RIO NE
AREA 169355 HAS.
ALTITUDE 0 MTS.
PHYSIOGRAPHIC UNIT NO. 35
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 80 | |
| < 8% | 65 | 10 | |
| 8-30 % | 10 | 10 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 120 | 110 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 100 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | 1 | |
| CROPS | 1 | 1 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUO | EAQ | |
| GREAT GROUPS | UUDPA | EADFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | J | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B F | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M E | A A | |

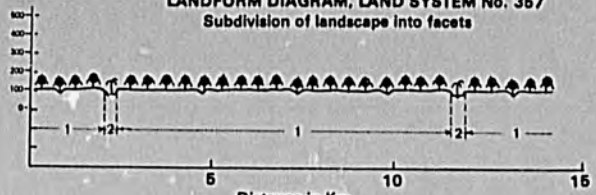
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M M | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | J | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Aa357

CLIMATE 740 FONTE BOA
AREA 7232833 HAS.
ALTITUDE 110 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 357**
**Subdivision of landscape into facets**




= Tropical rain forest  = Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 80 | |
| < 8% | 95 | 15 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 120 | 118 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 100 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 3 | 5 | |
| CROPS | 2 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDPL | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M M | A A | |
| EXCHANGEABLE MG | M M | A M | |
| EXCHANGEABLE K | K K | M M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

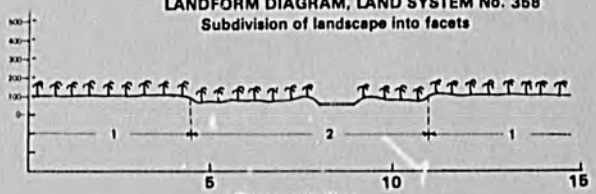
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | U | | |
| FACET 3 | | | |

## Land System Aa358

CLIMATE 700 CDARI
AREA 4433559 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 37
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 358**
**Subdivision of landscape into facets**




= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 65 | 35 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 60 | 95 | |
| < 8% | 38 | 5 | |
| 8-30 % | 2 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 98 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 5 | |
| CROPS | 10 | 2 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | IAQ | EAQ | |
| GREAT GROUPS | IAQTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | A A | A M | |
| EXCHANGEABLE MG | A A | A M | |
| EXCHANGEABLE K | A K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | A A | A M | |
| CATION EXCH. CAPAC. | A A | A M | |

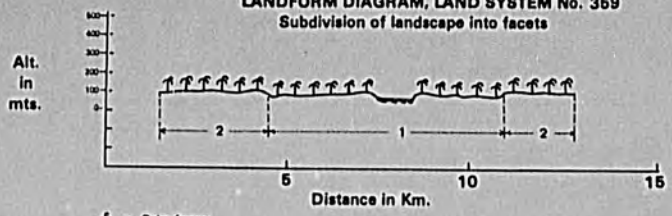
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | A A | A A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Aa359

CLIMATE 740 FONTE BOA
AREA 536188 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 359**
**Subdivision of landscape into facets**




= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 99 | 75 | |
| < 8% | | 25 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 98 | 100 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 5 | |
| CROPS | 3 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EAQ | |
| GREAT GROUPS | EAQFL | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | A K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

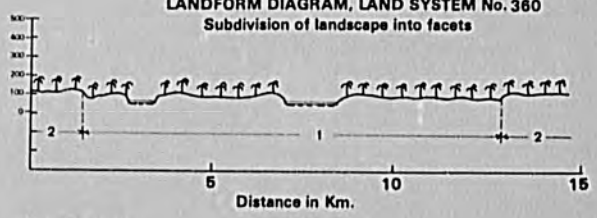
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | A M | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Aa360

CLIMATE 740 FONTE BOA
AREA 3142840 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 37
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 360**
**Subdivision of landscape into facets**




= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 75 | 25 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 95 | 60 | |
| < 8% | 5 | 45 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 98 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 5 | |
| CROPS | 1 | 4 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | IAQ | EAQ | |
| GREAT GROUPS | IAQTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | B B | |
| PHOSPHORUS | A A | A A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | GK | | |
| FACET 2 | GK | | |
| FACET 3 | | | |

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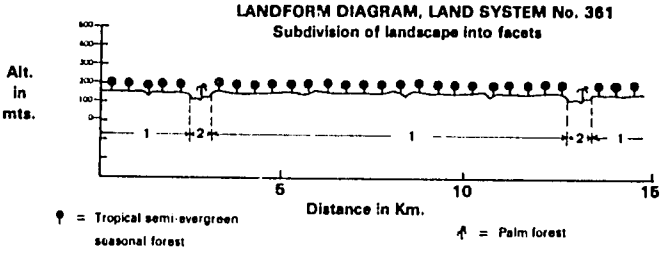
## Land System Ab361

CLIMATE 880 SENA MADURFIRA
AREA 232000 HAS.
ALTITUDE 140 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 361**
**Subdivision of landscape into facets**




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 30 | 88 | |
| < 8% | 70 | 10 | |
| 8-30 % | | 2 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 140 | 137 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 4 | 15 | |
| CROPS | 2 | 15 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | J | E | |
| SUBORDERS | UUD | EAU | |
| GREAT GROUPS | UUDPA | EAGFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | M E | A A | |

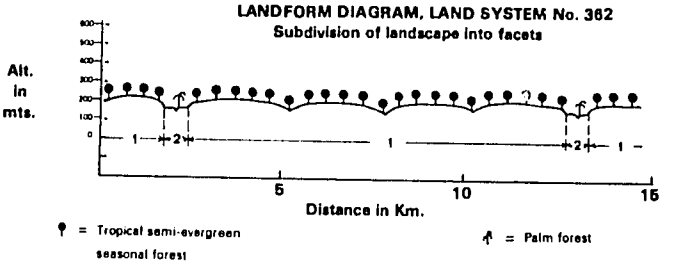
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M M | |
| PHOSPHORUS FIXATION | I | D | |
| MANGANESE | J | U | |
| SULPHUR | U | U | |
| ZINC | J | U | |
| IRON | J | U | |
| COPPER | U | U | |
| BORON | J | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | J | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | HAKI | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab362

CLIMATE 890 SENA MADUREIRA
AREA 1146287 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 362**
**Subdivision of landscape into facets**




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | X | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 2 | 75 | |
| < 8% | 97 | 20 | |
| 8-30 % | 1 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 200 | 200 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | 100 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 6 | 6 | |
| CROPS | 3 | 3 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | D | E | |
| SUBORDERS | DDR | EAQ | |
| GREAT GROUPS | DDRHA | EAGFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M B | A A | |
| EXCHANGEABLE MG | M B | A A | |
| EXCHANGEABLE K | M K | A A | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | A M | A A | |

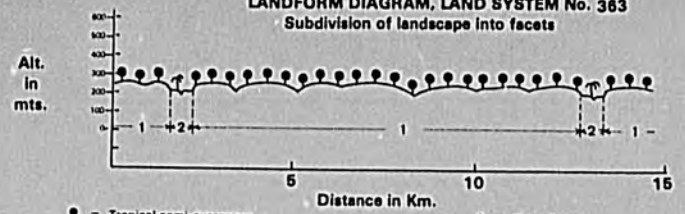
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A A | |
| PHOSPHORUS FIXATION | I | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HI | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab363

CLIMATE 880 SENA MADUREIRA
AREA 103667 HAS.
ALTITUDE 250 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 363
Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 75 | |
| < 8% | 85 | 20 | |
| 8-30 % | 10 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 250 | 245 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 6 | 15 | |
| CROPS | 3 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOK | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | B | |
| DRAINAGE | P | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | M A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M B | A A | |
| EXCHANGEABLE MG | M B | A A | |
| EXCHANGEABLE K | M K | A M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | A M | A A | |

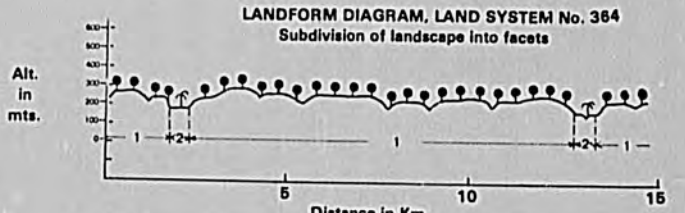
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | H | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab364

CLIMATE 880 SENA MADUREIRA
AREA 392166 HAS.
ALTITUDE 250 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 364
Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 92 | 8 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | 70 | 20 | |
| 8-30 % | 25 | 5 | |
| > 30 % | 5 | | |
| ALTITUDE IN MTS | 250 | 240 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 6 | 15 | |
| CROPS | 3 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | M A | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | A M | A A | |
| EXCHANGEABLE MG | A M | A A | |
| EXCHANGEABLE K | A M | A M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | A E | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | M B | |
| PHOSPHORUS | M B | A A | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | H | | |
| FACET 2 | G | | |
| FACET 3 | | | |

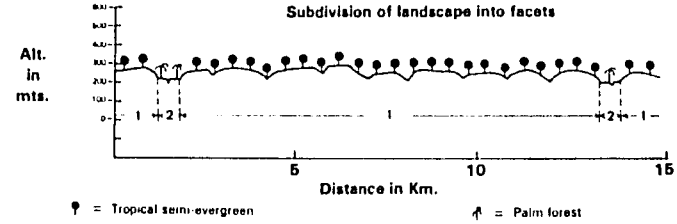
## Land System Ab365

CLIMATE 880 SENA MADUREIRA
AREA 308600 HAS.
ALTITUDE 250 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 365

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 92 | 8 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | 50 | 20 | |
| 8-30 % | 40 | 5 | |
| > 30 % | 10 | | |
| ALTITUDE IN MTS | 250 | 160 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 6 | 20 | |
| CROPS | 3 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AUD | EAQ | |
| GREAT GROUPS | AUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B M | G B | |
| EXCHANGEABLE AL | B M | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | A < | A A | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | A B | A A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | D | D | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | D | D | |
| COPPER | D | D | |
| BORON | D | D | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | D | U | |
| I | D | U | |
| SE | U | U | |
| CR | D | U | |
| NI | D | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | G | | |
| FACET 3 | | | |

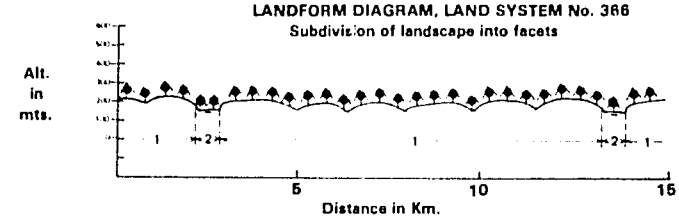
## Land System Ab366

CLIMATE 880 SENA MADUREIRA
AREA 1551599 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 47
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 366

Subdivision of landscape into facets




= Tropical rain forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | V | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 2 | 75 | |
| < 8% | 80 | 20 | |
| 8-30 % | 18 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 195 | 195 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 100 | 100 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 20 | |
| CROPS | 15 | 15 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M A | B B | |
| EXCHANGEABLE AL | M A | B B | |
| EXCHANGEABLE CA | A M | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | A < | A M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | D | D | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | D | U | |
| I | D | U | |
| SE | U | U | |
| CR | D | U | |
| NI | D | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | H | | |
| FACET 2 | G | | |
| FACET 3 | | | |

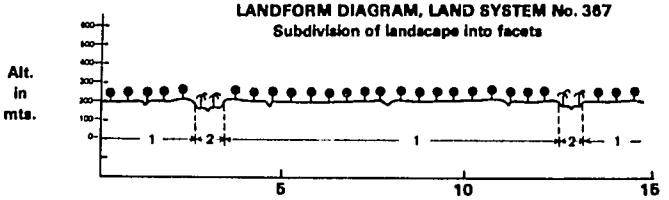
100

## Land System Ab367

CLIMATE 880 SENA MADUREIRA
AREA 291397 HAS.
ALTITUDE 180 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 367**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | O | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 20 | 75 | |
| < 8% | 80 | 23 | |
| 8-30 % | | 2 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 180 | 178 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 6 | 20 | |
| CROPS | 3 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDPL | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | D | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M B | A A | |
| EXCHANGEABLE MG | M B | A A | |
| EXCHANGEABLE K | A K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

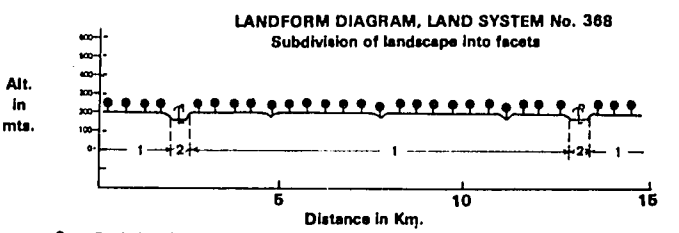
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | A B | A A | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | HA | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab368

CLIMATE 880 SENA MADUREIRA
AREA 249434 HAS.
ALTITUDE 180 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 368**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 20 | 75 | |
| < 8% | 80 | 20 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 180 | 178 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 20 | |
| CROPS | 3 | 20 | |

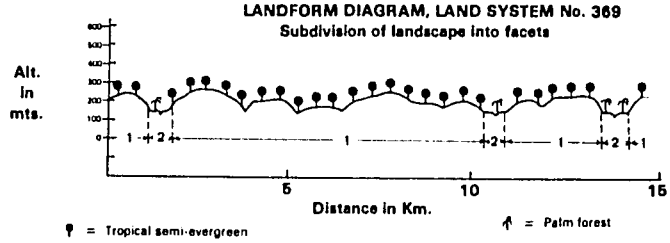
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | ITR | EAQ | |
| GREAT GROUPS | ITRDY | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | D | G | |
| MOIST. HOLD. CAP. | U | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | A M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | A B | A A | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | L | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab369

CLIMATE 880 SENA MADUREIRA
AREA 560942 HAS.
ALTITUDE 150 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | | 40 | 20 |
| 8-30 % | | 50 | 5 |
| > 30 % | | 10 | |
| ALTITUDE IN MTS | 150 | 100 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | 5 | 20 |
| CROPS | | 3 | 20 |

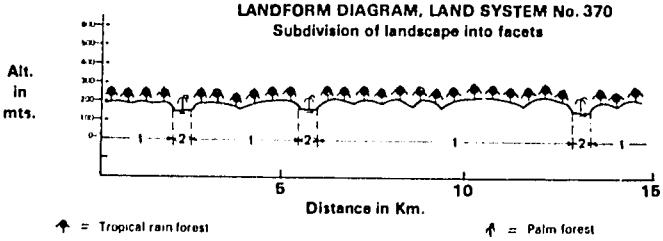
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | L | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | M B | A A | |
| EXCHANGEABLE K | M K | A M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | A M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HA | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Aa370

CLIMATE 720 CRUZEIRO DO SUL
AREA 1045373 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 67
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 2 | 75 | |
| < 8% | | 50 | 20 |
| 8-30 % | | 40 | 5 |
| > 30 % | | 8 | |
| ALTITUDE IN MTS | 200 | 135 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 99 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | 20 | 30 |
| CROPS | | 10 | 30 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AUO | EAQ | |
| GREAT GROUPS | AUOTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B M | B B | |
| EXCHANGEABLE AL | B A | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | M K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | B B | M M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | G | | |
| FACET 3 | | | |

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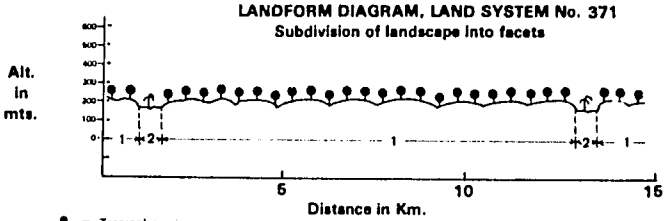
## Land System Ab371

CLIMATE 8A0 SENA MADUREIRA
AREA 2142644 HAS.
ALTITUDE 220 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 371
Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 75 | |
| < 8% | 40 | 20 | |
| 8-30 % | 50 | 5 | |
| > 30 % | 5 | | |
| ALTITUDE IN MTS | 220 | 115 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 4 | 15 | |
| CROPS | 1 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDPA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | U | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | B B | A A | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | M M | A A | |

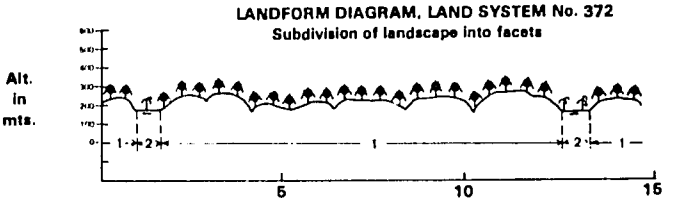
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | J | U | |
| SULPHUR | J | U | |
| ZINC | U | U | |
| IRON | J | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | J | |
| NI | J | J | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Aa372

CLIMATE 720 CRUZEIRO DO SUL
AREA 3336025 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 47
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 372
Subdivision of landscape into facets




= Tropical rain forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | T5 | |
| < 8% | 50 | 20 | |
| 8-30 % | 45 | 5 | |
| > 30 % | 5 | | |
| ALTITUDE IN MTS | 200 | 195 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 100 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 20 | |
| CROPS | 8 | 20 | |

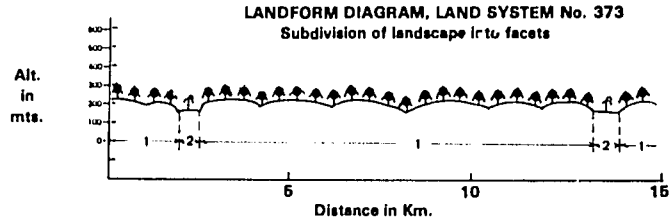
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AUD | EAQ | |
| GREAT GROUPS | AUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B P | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | K K | A A | |
| EXCHANGEABLE NA | M A | M B | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | M B | |
| PHOSPHORUS | B B | M M | |
| PHOSPHORUS FIXATION | J | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | K | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Aa373

CLIMATE 720 CRUZEIRO DO SUL
AREA 4630186 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO. 47
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
WELL DRAINED LANDS
FLAT LANDS.SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS.MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 92 | 6 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 80 | |
| < 8% | 70 | 15 | |
| 8-30 % | 20 | 5 | |
| > 30 % | 5 | | |
| ALTITUDE IN MTS | 200 | 175 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 100 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 25 | |
| CROPS | 10 | 30 | |

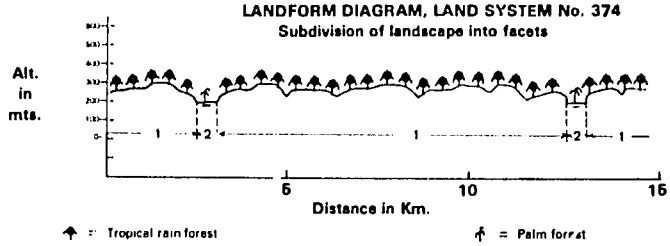
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | ITR | EAQ | |
| GREAT GROUPS | ITREU | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | P | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | P B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | M K | A A | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M M | M M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Aa374

CLIMATE 720 CRUZEIRO DO SUL
AREA 246936 HAS.
ALTITUDE 250 MTS.
PHYSIOGRAPHIC UNIT NO. 47
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
WELL DRAINED LANDS
HILLY LANDS.SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS.MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 75 | | |
| < 8% | 30 | 20 | |
| 8-30 % | 60 | 5 | |
| > 30 % | 10 | | |
| ALTITUDE IN MTS | 260 | 250 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 99 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 6 | 15 | |
| CROPS | 3 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AUD | EAQ | |
| GREAT GROUPS | AUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | J | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M A | B B | |
| EXCHANGEABLE AL | M A | B B | |
| EXCHANGEABLE CA | M B | A A | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | M E | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | J | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | J | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | HK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

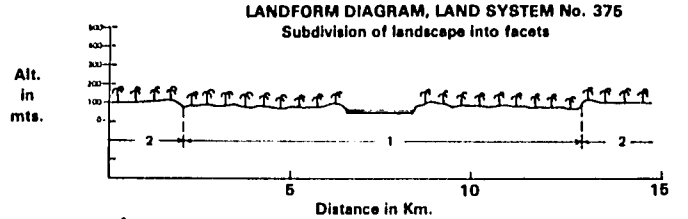
## Land System Ab375

CLIMATE 880 SENA MADUREIRA
AREA 3723120 HAS.
ALTITUDE 90 MTS.
PHYSIOGRAPHIC UNIT NO. 37
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 375

Subdivision of landscape into facets




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 95 | 40 | |
| < 8% | 5 | 50 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 90 | 95 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 30 | |
| CROPS | 10 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | I | |
| SUBORDERS | IAJ | IAQ | |
| GREAT GROUPS | IAQTR | IAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | O | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | A K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | A A | A A | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | J | J | |
| ZINC | J | U | |
| IRON | U | U | |
| COPPER | J | J | |
| BORON | U | J | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | GH | | |
| FACET 2 | | | |
| FACET 3 | | | |

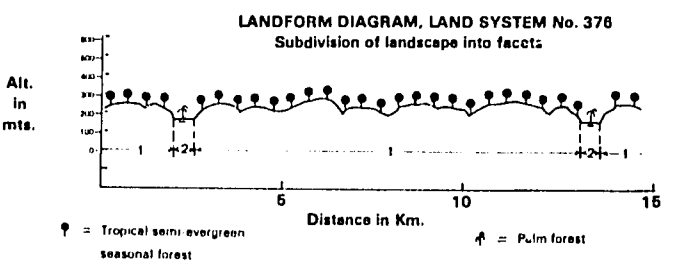
## Land System Ab376

CLIMATE 880 SENA MADUREIRA
AREA 189636 HAS.
ALTITUDE 220 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 376

Subdivision of landscape into facets




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 92 | 8 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 75 | | |
| < 8% | 25 | 20 | |
| 8-30 % | 60 | 5 | |
| > 30 % | 15 | | |
| ALTITUDE IN MTS | 220 | 210 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 4 | 15 | |
| CROPS | 2 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AUO | EAQ | |
| GREAT GROUPS | AUOTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | B A | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | A M | A A | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

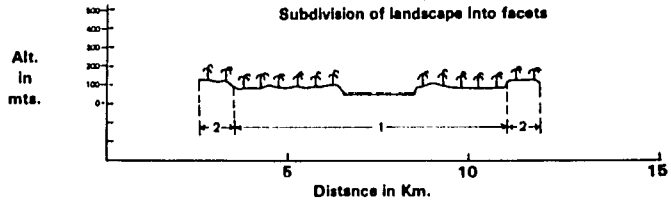
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | H | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab377

CLIMATE 880 SENA MADUREIRA
AREA 268761 HAS.
ALTITUDE 90 MTS.
PHYSIOGRAPHIC UNIT NO. 37
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 377**
**Subdivision of landscape into facets**




= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 95 | 30 | |
| < 8% | 5 | 70 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 90 | 92 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 30 | |
| CROPS | 10 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EFL | |
| GREAT GROUPS | EAQFL | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | A K | A K | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

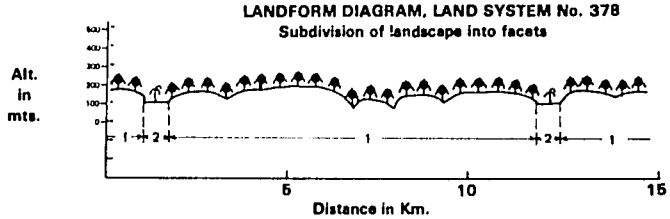
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | A A | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Aa378

CLIMATE 720 CRUZEIRO DO SUL
AREA 5216330 HAS.
ALTITUDE 150 MTS.
PHYSIOGRAPHIC UNIT NO. 47
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 378**
**Subdivision of landscape into facets**




= Tropical rain forest = Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 5 | 75 | |
| < 8% | 60 | 20 | |
| 8-30 % | 38 | 5 | |
| > 30 % | 2 | | |
| ALTITUDE IN MTS | 150 | 145 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 100 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 4 | 30 | |
| CROPS | 1 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUO | EAQ | |
| GREAT GROUPS | UUOTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M M | A A | |
| EXCHANGEABLE MG | M M | A A | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | M E | A A | |

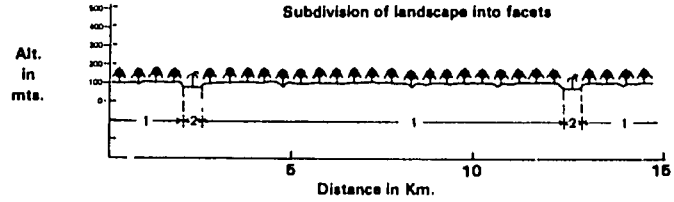
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | A A | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Aa379

CLIMATE 720 CRUZEIRO DO SUL
AREA 789704 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 379**
**Subdivision of landscape into facets**




= Tropical rain forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 80 | |
| < 8% | 95 | 18 | |
| 8-30 % | | 2 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 96 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 100 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 3 | 20 | |
| CROPS | 1 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUO | EAQ | |
| GREAT GROUPS | UUOPA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | B | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M M | A A | |
| EXCHANGEABLE MG | M M | A A | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | M E | A A | |

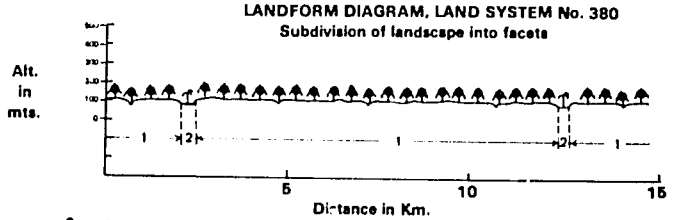
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | M B | A A | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | J | U | |
| SULPHUR | U | U | |
| ZINC | J | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | J | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Aa380

CLIMATE 700 CUARI
AREA 15369828 HAS.
ALTITUDE 110 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 380**
**Subdivision of landscape into facets**




= Tropical rain forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | O | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 30 | 80 | |
| < 8% | 70 | 15 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 110 | 10 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 100 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | 5 | |
| CROPS | 1 | 3 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUO | EAQ | |
| GREAT GROUPS | UUOPL | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M B | A M | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M M | A M | |

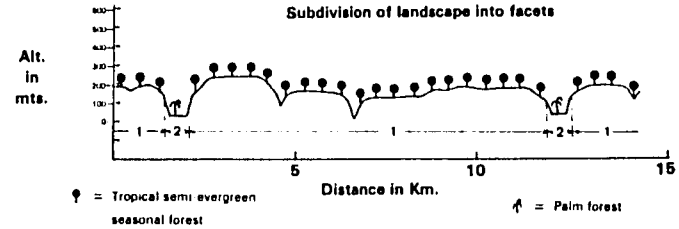
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | J | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab381

CLIMATE 800 MANAUS
AREA 308823 HAS.
ALTITUDE 140 MTS.
PHYSIOGRAPHIC UNIT NO. 38
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 381**
**Subdivision of landscape into facets**




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 70 | |
| < 9% | 70 | 20 | |
| 8-30 % | 25 | 8 | |
| > 30 % | 5 | 2 | |
| ALTITUDE IN MTS | 140 | 100 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| EC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 6 | 20 | |
| CROPS | 2 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | S | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A M | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M M | A M | |

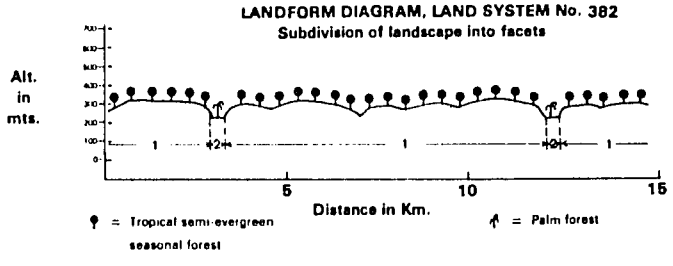
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | B B | M M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HA | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab382

CLIMATE 820 PARINTINS
AREA 1093239 HAS.
ALTITUDE 250 MTS.
PHYSIOGRAPHIC UNIT NO. 35
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No. 382**
**Subdivision of landscape into facets**




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 60 | |
| < 8% | 60 | 38 | |
| 8-30 % | 35 | 2 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 250 | 245 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 15 | |
| CROPS | 8 | 15 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | S L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | E E | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M B | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SL | LL | |
| MODIFIERS FACET 1 | HAKE | | |
| FACET 2 | G | | |
| FACET 3 | | | |

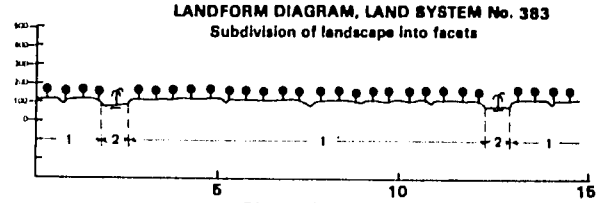
## Land System Ab383

CLIMATE 800 MANAUS
AREA 1471465 HAS.
ALTITUDE 110 MTS.
PHYSIOGRAPHIC UNIT NO. 35
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 383

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 92 | 9 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 75 | |
| < 8% | 95 | 10 | |
| 8-30 % | | 15 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 110 | 105 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 30 | |
| CROPS | 2 | 25 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | J | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUCPA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | R | M | |
| HYDRAUL. CONDUCT. | R | M | |
| DRAINAGE | P | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | S L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | A M | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | M B | A A | |
| EXCHANGEABLE K | K K | A M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | F F | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M M | A M | |
| PHOSPHORUS | B B | A A | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SL | LL | |
| MODIFIERS FACET 1 | HRE | | |
| FACET 2 | U | | |
| FACET 3 | | | |

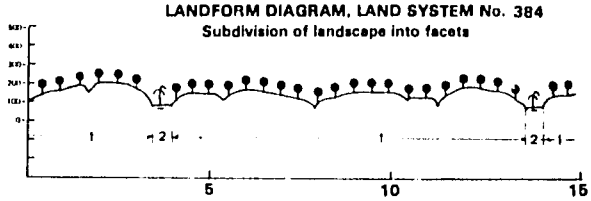
## Land System Ab384

CLIMATE 800 MANAUS
AREA 531245 HAS.
ALTITUDE 130 MTS.
PHYSIOGRAPHIC UNIT NO. 35
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 384

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 70 | |
| < 8% | 15 | 25 | |
| 8-30 % | 70 | 5 | |
| > 30 % | 15 | | |
| ALTITUDE IN MTS | 130 | 115 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 99 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 5 | |
| CROPS | 2 | 3 | |

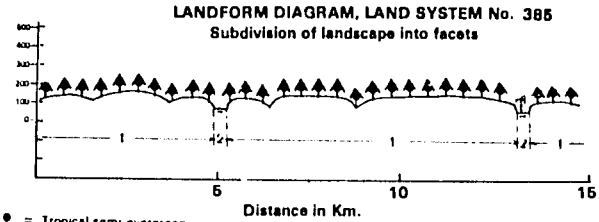
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORAC | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A M | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | M B | M M | |
| EXCHANGEABLE K | K K | M M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A A | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HA | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Aa385

CLIMATE 620 BARCELOS
AREA 241558 HAS.
ALTITUDE 120 MTS.
PHYSIOGRAPHIC UNIT NO. 35
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 75 | |
| < 8% | 85 | 20 | |
| 8-30 % | 10 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 120 | 110 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 100 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 5 | |
| CROPS | 1 | 5 | |

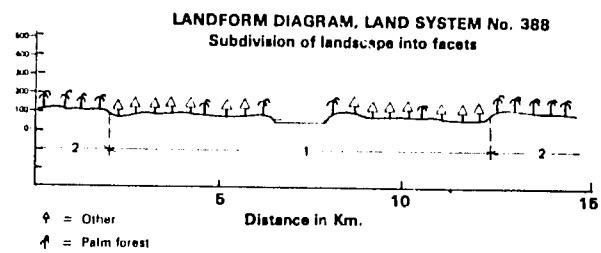
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORAC | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | A | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | A A | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | M B | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M M | A M | |
| PHOSPHORUS | M M | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HR | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab388

CLIMATE 800 MANAUS
AREA 1787795 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 37
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 99 | 70 | |
| < 8% | 1 | 25 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 98 | 100 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 20 | |
| CROPS | 10 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EAQ | |
| GREAT GROUPS | EAQFL | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A B | A M | |
| EXCHANGEABLE K | A K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A A | A A | |

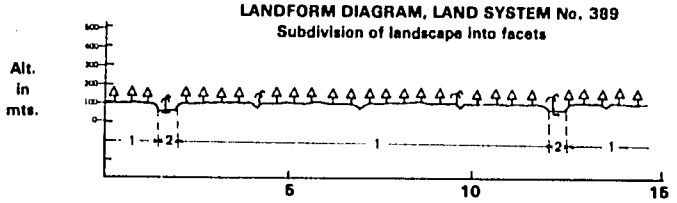
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | A M | |
| PHOSPHORUS | A M | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Aa389

CLIMATE 620 BARCELOS
AREA 7030232 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 389**
**Subdivision of landscape into facets**




= Other
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 75 | 99 | |
| < 8% | 25 | 1 | |
| 8-30 % | 5 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 98 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 3 | |
| CROPS | 1 | 3 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDPL | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | M M | A M | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | A A | A A | |

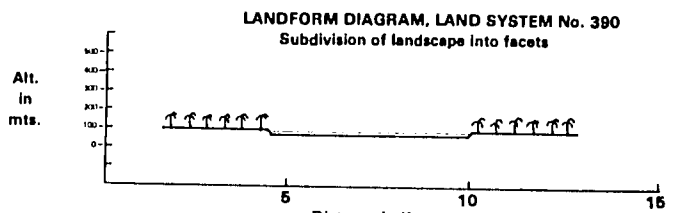
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | M B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | GHK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab390

CLIMATE 700 COARI
AREA 943360 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 37
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 390**
**Subdivision of landscape into facets**




= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 99 | | |
| < 8% | 1 | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | | |
| CROPS | 1 | | |

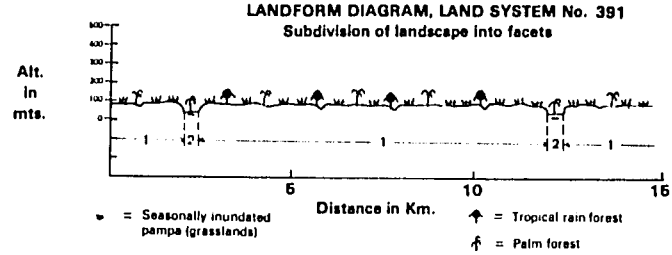
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | | |
| SUBORDERS | EAQ | | |
| GREAT GROUPS | EAQFL | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | M | | |
| INIT. INFIL. RATE | M | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | G | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | U | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | L L | | |
| COARSE MATERIAL | B B | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | | |
| AL SATURATION % | B B | | |
| EXCHANGEABLE AL | B B | | |
| EXCHANGEABLE CA | A M | | |
| EXCHANGEABLE MG | M M | | |
| EXCHANGEABLE K | A K | | |
| EXCHANGEABLE NA | B B | | |
| TOTAL EXCH. BASES | A M | | |
| CATION EXCH. CAPAC. | A M | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | | |
| PHOSPHORUS | A M | | |
| PHOSPHORUS FIXATION | D | | |
| MANGANESE | U | | |
| SULPHUR | U | | |
| ZINC | U | | |
| IRON | U | | |
| COPPER | U | | |
| BORON | U | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | |
| I | U | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Ab391

CLIMATE 800 MANAUS
AREA 505076 HAS.
ALTITUDE 95 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS.SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS.MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 80 | 95 | |
| < 8% | 20 | 4 | |
| 8-30 % | | 1 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 95 | 93 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 93 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 10 | |
| CROPS | 10 | 10 | |

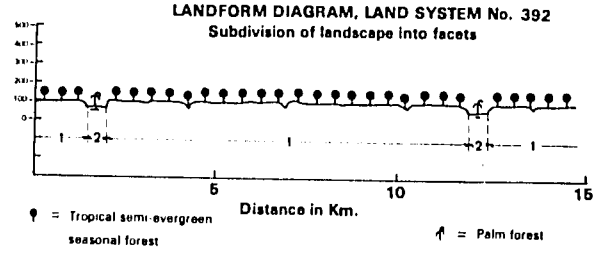
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | S | E | |
| SUBORDERS | SAQ | EAQ | |
| GREAT GROUPS | SAQTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | S S | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | A M | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | B B | A A | |
| EXCHANGEABLE K | K K | A M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B M | A A | |
| CATION EXCH. CAPAC | M B | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M B | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | LL | |
| MODIFIERS FACET 1 | GHK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab392

CLIMATE 800 MANAUS
AREA 1026388 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 39
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
WELL DRAINED LANDS
FLAT LANDS.SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS.MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 25 | 90 | |
| < 8% | 75 | 15 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 98 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 99 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 10 | |
| CROPS | 10 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | UOR | EAQ | |
| GREAT GROUPS | UORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A M | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | M K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | A M | M M | |

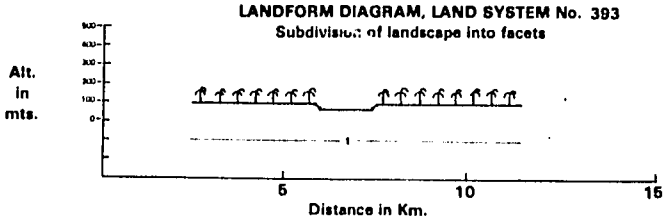
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M M | M M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HAI | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Aa393

CLIMATE 620 BARCELOS
AREA 503335 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 37
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 393**
Subdivision of landscape into facets




= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 99 | | |
| < 8% | 1 | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | | |
| CROPS | 1 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | | |
| SUBORDERS | EAQ | | |
| GREAT GROUPS | EAQFL | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | M | | |
| INIT. INFIL. RATE | M | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | G | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | U | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | L | L | |
| COARSE MATERIAL | B | B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | |
| AL SATURATION % | B | B | |
| EXCHANGEABLE AL | B | B | |
| EXCHANGEABLE CA | A | M | |
| EXCHANGEABLE MG | A | B | |
| EXCHANGEABLE K | A | K | |
| EXCHANGEABLE NA | B | B | |
| TOTAL EXCH. BASES | A | M | |
| CATION EXCH. CAPAC. | A | M | |

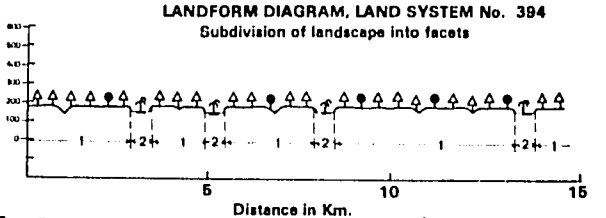
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M | B | |
| PHOSPHORUS | M | B | |
| PHOSPHORUS FIXATION | D | | |
| MANGANESE | U | | |
| SULPHUR | J | | |
| ZINC | J | | |
| IRON | U | | |
| COPPER | J | | |
| BORON | J | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | |
| I | J | | |
| SE | J | | |
| CR | U | | |
| NI | J | | |
| OTHERS | J | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Ab394

CLIMATE 763 HUMAITA
AREA 1692246 HAS.
ALTITUDE 180 MTS.
PHYSIOGRAPHIC UNIT NO. 50
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 394**
Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Other

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 70 | 95 | |
| < 8% | 30 | 3 | |
| 8-30 % | | 2 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 180 | 178 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 30 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 70 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 6 | 15 | |
| CROPS | 3 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | D | E | |
| SUBORDERS | ODR | EAQ | |
| GREAT GROUPS | DORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | D | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | O | |
| TEXTURE | C | C | L L |
| COARSE MATERIAL | B | B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | M M |
| AL SATURATION % | A | A | B B |
| EXCHANGEABLE AL | A | A | B B |
| EXCHANGEABLE CA | B | B | A A |
| EXCHANGEABLE MG | B | B | A M |
| EXCHANGEABLE K | M | K | A K |
| EXCHANGEABLE NA | B | B | B B |
| TOTAL EXCH. BASES | B | B | A M |
| CATION EXCH. CAPAC. | A | M | A A |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M | B | M B |
| PHOSPHORUS | B | B | M M |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | J | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | J | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HA | | |
| FACET 2 | G | | |
| FACET 3 | | | |

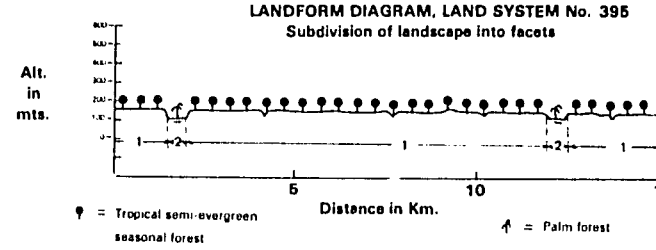
## Land System Ab395

CLIMATE 750 HUMAITA
AREA 171226 HAS.
ALTITUDE 150 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 3-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 395

Subdivision of landscape into facets




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 30 | 85 | |
| < 8% | 70 | 10 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 150 | 148 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 25 | |
| CROPS | 20 | 35 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | DOR | EAQ | |
| GREAT GROUPS | DORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A A | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | M K | A K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M P | |
| PHOSPHORUS FIXATION | I | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HAI | | |
| FACET 2 | G | | |
| FACET 3 | | | |

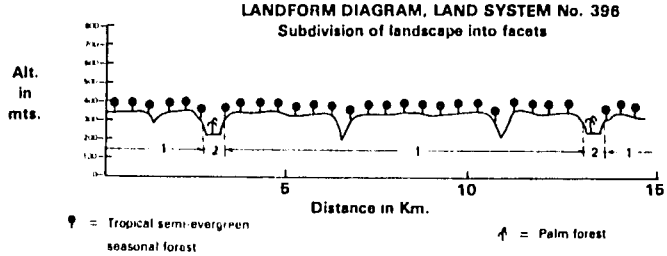
## Land System Ab396

CLIMATE 820 PARINTINS
AREA 105542 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO. 34
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 396

Subdivision of landscape into facets




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 50 | |
| < 8% | 97 | 45 | |
| 8-30 % | | 5 | |
| > 30 % | 3 | | |
| ALTITUDE IN MTS | 300 | 240 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 15 | |
| CROPS | 15 | 10 | |

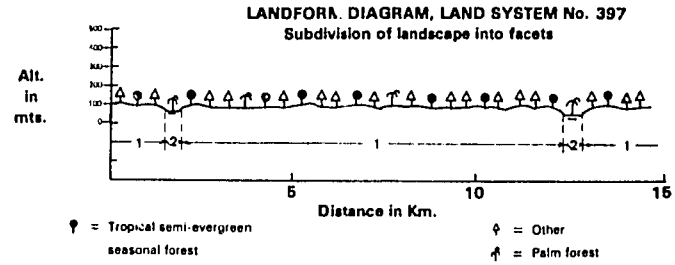
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | DOR | EFL | |
| GREAT GROUPS | DORHA | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A M | M B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | B B | M B | |
| EXCHANGEABLE MG | B B | B B | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | M M | M M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Ab397

CLIMATE 893 SERRA MADUREIRA
AREA 5458412 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 34
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 60 | 85 | |
| < 8% | 35 | 10 | |
| 8-30 % | 5 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 95 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 40 | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | 60 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 4 | 5 | |
| CROPS | 2 | 10 | |

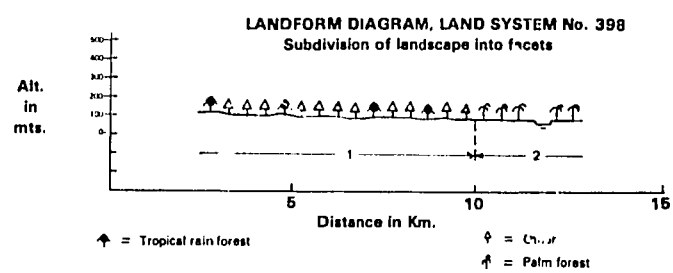
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | J | E | |
| SUBORDERS | UAQ | EAQ | |
| GREAT GROUPS | UAQTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | B | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M M | A A | |
| EXCHANGEABLE MG | M M | A A | |
| EXCHANGEABLE K | K K | A K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | A M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M M | |
| PHOSPHORUS | M B | A A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | D | U | |
| IRON | D | D | |
| COPPER | U | U | |
| BORON | D | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | GHAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Aa398

CLIMATE 740 FONTE BOA
AREA 131550 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 36
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | V | B | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 75 | 98 | |
| < 8% | 20 | 2 | |
| 8-30 % | 5 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 98 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 25 | | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | 75 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | 5 | |
| CROPS | 1 | 3 | |

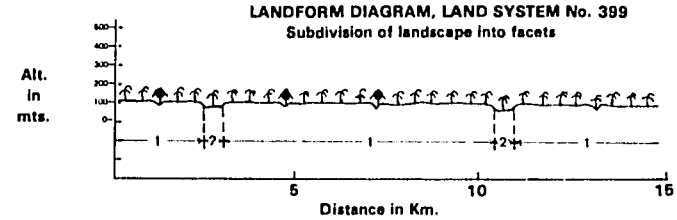
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | S | E | |
| SUBORDERS | SAQ | EAQ | |
| GREAT GROUPS | SAQTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S S | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | M B | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M E | M M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | D | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | LL | |
| MODIFIERS FACET 1 | GHK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Aa399

CLIMATE 740 FONTE 60A
AREA 253525 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO. 37
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 80 | 95 | |
| < 8% | 20 | | 3 |
| 8-30 % | | | 2 |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 96 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 2 | |
| CROPS | 3 | 3 | |

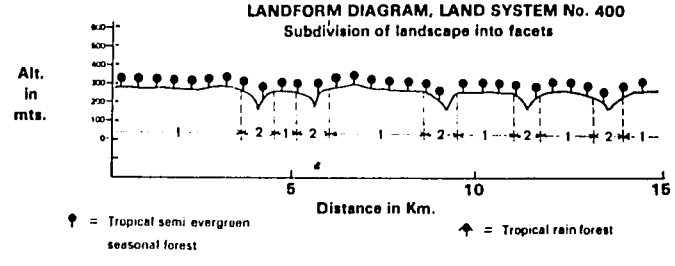
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | J | E | |
| SUBORDERS | UAL | EAL | |
| GREAT GROUPS | UAFL | EAFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | M A | B B | |
| EXCHANGEABLE AL | M A | B B | |
| EXCHANGEABLE CA | M B | A M | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | A M | A M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | M B | A M | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | M M | |
| PHOSPHORUS | M B | A A | |
| PHOSPHORUS FIXATION | S | S | |
| MANGANESE | J | U | |
| SULPHUR | J | U | |
| ZINC | J | U | |
| IRON | J | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | J | J | |
| SE | J | U | |
| CR | U | U | |
| NI | J | U | |
| OTHERS | J | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | JH | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab400

CLIMATE 90 COBIJA
AREA 3937852 HAS.
ALTITUDE 280 MTS.
PHYSIOGRAPHIC UNIT NO.255
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 66 | 34 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 90 | 30 | |
| 8-30 % | 10 | 40 | |
| > 30 % | | 30 | |
| ALTITUDE IN MTS | 290 | 230 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 99 | 99 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 0 | |
| CROPS | 1 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | J | J | |
| SUBORDERS | UOR | UOR | |
| GREAT GROUPS | UORHA | UORHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | A | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | C C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | H H | |
| AL SATURATION % | M M | M M | |
| EXCHANGEABLE AL | M M | M M | |
| EXCHANGEABLE CA | M B | M B | |
| EXCHANGEABLE MG | M M | M M | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | F E | E E | |

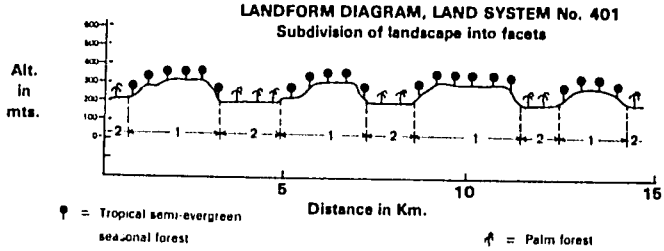
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | I | I | |
| MANGANESE | U | U | |
| SULPHUR | B | B | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | J | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | CC | |
| MODIFIERS FACET 1 | HEI | | |
| FACET 2 | HEI | | |
| FACET 3 | | | |

## Land System Ab401

CLIMATE 340 RIBERALTA
AREA 677000 HAS.
ALTITUDE 290 MTS.
PHYSIOGRAPHIC UNIT NO.255
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 401**
**Subdivision of landscape into facets**




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | D | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 90 | |
| < 8% | 30 | | |
| 8-30 % | 40 | | |
| > 30 % | 20 | | |
| ALTITUDE IN MTS | 290 | 190 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 90 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 90 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | D | I | |
| SUBORDERS | DOK | EAQ | |
| GREAT GROUPS | DOKHA | EAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | P | L | |
| INIT. INFIL. RATE | A | B | |
| HYDRAUL. CONDUCT. | A | B | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | A | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | O | |
| TEXTURE | C C | C C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | M B | M M | |
| EXCHANGEABLE MG | M M | M M | |
| EXCHANGEABLE K | M K | M M | |
| EXCHANGEABLE NA | M B | M M | |
| TOTAL EXCH. BASES | B B | M M | |
| CATION EXCH. CAPAC. | E E | M M | |

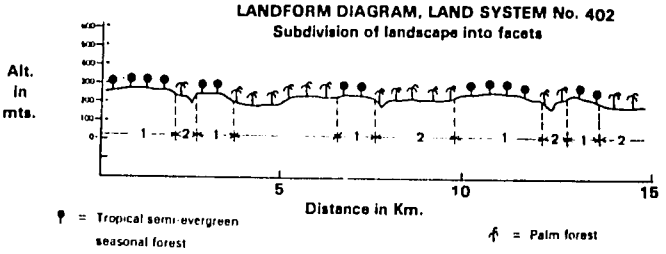
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A A | |
| PHOSPHORUS | B B | M M | |
| PHOSPHORUS FIXATION | I | D | |
| MANGANESE | U | U | |
| SULPHUR | B | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | J | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | J | J | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | CC | |
| MODIFIERS FACET 1 | HEI | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab402

CLIMATE 340 RIBERALTA
AREA 1452803 HAS.
ALTITUDE 220 MTS.
PHYSIOGRAPHIC UNIT NO.256
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 402**
**Subdivision of landscape into facets**




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 55 | 45 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 70 | |
| < 8% | 70 | 10 | |
| 8-30 % | 20 | 10 | |
| > 30 % | | 10 | |
| ALTITUDE IN MTS | 230 | 160 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 90 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 90 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | 0 | |
| CROPS | 1 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | D | D | |
| SUBORDERS | DOR | DOR | |
| GREAT GROUPS | DORAC | DORHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | S | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | O | |
| TEXTURE | C C | C C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | M M | |
| EXCHANGEABLE AL | A M | B B | |
| EXCHANGEABLE CA | B B | M B | |
| EXCHANGEABLE MG | M B | M M | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | M B | |
| CATION EXCH. CAPAC. | E E | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | I | D | |
| MANGANESE | S | S | |
| SULPHUR | U | U | |
| ZINC | B | B | |
| IRON | S | S | |
| COPPER | S | S | |
| BORON | B | B | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | J | U | |
| CR | J | U | |
| NI | U | U | |
| OTHERS | J | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | CC | |
| MODIFIERS FACET 1 | HKEI | | |
| FACET 2 | SHK | | |
| FACET 3 | | | |

## Land System Mc403

CLIMATE 190 GUAYARAMERIN
AREA 1955871 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO.256
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

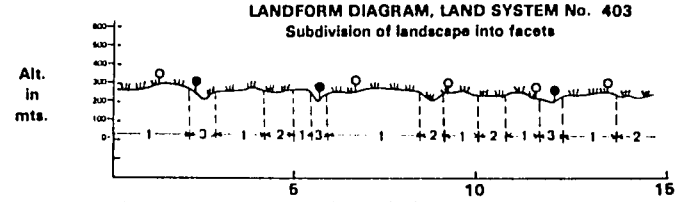
LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | D |
| PERCENTAGE OF L.S. | 60 | 30 | 10 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 80 | 20 |
| < 8% | 90 | 20 | 60 |
| 8-30 % | 10 | | 10 |
| > 30 % | | | 10 |
| ALTITUDE IN MTS | 200 | 200 | 170 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 80 | 20 |
| CL + CS | 80 | 20 | 20 |
| CC | 20 | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | 50 |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | 1 |
| CROPS | 0 | 0 | 1 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | D | D | D |
| SUBORDERS | DOR | DOR | DOR |
| GREAT GROUPS | DORHA | DORHA | DORHA |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | B |
| DEPTH | P | S | P |
| INIT. INFIL. RATE | A | B | M |
| HYDRAUL. CONDUCT. | M | B | M |
| DRAINAGE | B | G | B |
| MOIST. HOLD. CAP. | B | A | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | SD | U | SD |
| EXPANDING CLAYS | D | D | D |
| TEXTURE | C C | C C | C C |
| COARSE MATERIAL | B M | M M | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | M M | B B | M M |
| EXCHANGEABLE AL | M M | M M | M M |
| EXCHANGEABLE CA | M M | M M | M M |
| EXCHANGEABLE MG | B B | M M | M B |
| EXCHANGEABLE K | K K | K K | K K |
| EXCHANGEABLE NA | B B | B B | B B |
| TOTAL EXCH. BASES | M B | M M | M B |
| CATION EXCH. CAPAC. | M E | B E | M E |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | A B |
| PHOSPHORUS | M B | M M | M B |
| PHOSPHORUS FIXATION | I | D | I |
| MANGANESE | B | P | S |
| SULPHUR | U | U | U |
| ZINC | B | B | M |
| IRON | S | S | S |
| COPPER | S | S | S |
| BORON | B | B | B |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | CC | CC |
| MODIFIERS FACET 1 | HKI | | |
| FACET 2 | GHK | | |
| FACET 3 | HKI | | |

### LANDFORM DIAGRAM, LAND SYSTEM No. 403
Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)

= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Tropical semi-evergreen seasonal forest

= Campo cerrado (open savanna)

## Land System Ab404

CLIMATE 340 RIBERALTA
AREA 204200 HAS.
ALTITUDE 160 MTS.
PHYSIOGRAPHIC UNIT NO.256
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

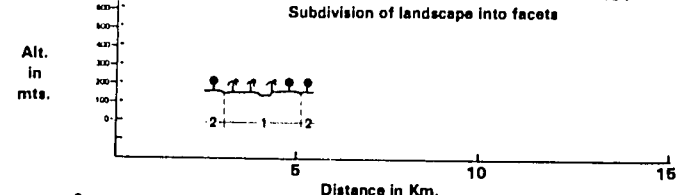
LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 80 | 20 | |
| < 8% | | 20 | 80 |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 160 | 155 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 20 | 80 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 80 | 20 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 5 | |
| CROPS | 0 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EFL | |
| GREAT GROUPS | EAQPS | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | S | P | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | M | A | |
| DRAINAGE | G | B | |
| MOIST. HOLD. CAP. | M | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S S | S S | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M M | M M | |
| EXCHANGEABLE MG | M M | M M | |
| EXCHANGEABLE K | M K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | M B | |
| CATION EXCH. CAPAC. | M M | M M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | M B | |
| PHOSPHORUS | M M | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | J | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | J | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | SS | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | K | | |
| FACET 3 | | | |

### LANDFORM DIAGRAM, LAND SYSTEM No. 404
Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

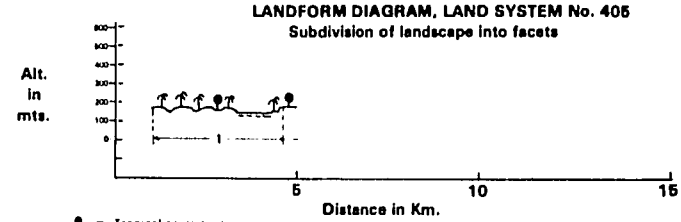
= Palm forest

## Land System Ab405

CLIMATE 343 RIBERALTA
AREA 706530 HAS.
ALTITUDE 160 MTS.
PHYSIOGRAPHIC UNIT NO.255
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 405**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 85 | 10 | |
| < 8% | 15 | 90 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 160 | 170 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 15 | 90 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 85 | 10 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 1 | |
| CROPS | 0 | 1 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EFL | EFL | |
| GREAT GROUPS | EFLTR | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | S | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B M | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M M | M M | |
| EXCHANGEABLE MG | M M | M M | |
| EXCHANGEABLE K | M K | K K | |
| EXCHANGEABLE NA | M B | M M | |
| TOTAL EXCH. BASES | M M | M M | |
| CATION EXCH. CAPAC. | M M | M M | |

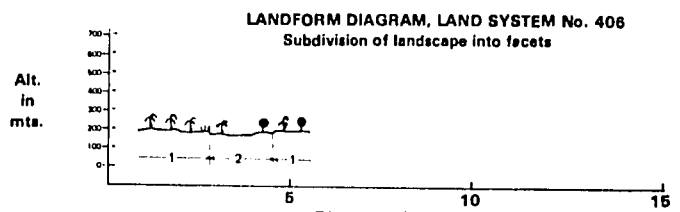
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | M B | |
| PHOSPHORUS | M B | B B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | J | B | |
| SULPHUR | U | B | |
| ZINC | J | B | |
| IRON | J | B | |
| COPPER | U | B | |
| BORON | U | B | |
| MOLYBDENUM | J | B | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | M | M | |
| X-RAY AMORPHOUS | M | M | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | J | |
| I | U | U | |
| SE | U | U | |
| CR | J | U | |
| NI | U | U | |
| OTHERS | J | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | K | | |
| FACET 3 | | | |

## Land System Mb406

CLIMATE 343 RIBERALTA
AREA 470000 HAS.
ALTITUDE 180 MTS.
PHYSIOGRAPHIC UNIT NO.253
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 406**
**Subdivision of landscape into facets**




= Campo limpo + campo sujo (grasslands on well drained lands with ocassional shrubs)

= Palm forest

= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 30 | |
| < 8% | 10 | 70 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 180 | 180 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 20 | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 20 | 80 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 60 | 20 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 1 | |
| CROPS | 0 | 2 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EFL | EFL | |
| GREAT GROUPS | EFLTR | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | B | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S S | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A M | A B | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A M | A B | |
| CATION EXCH. CAPAC. | A M | A E | |

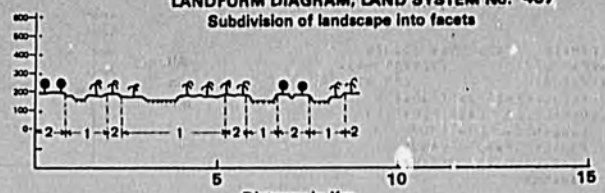
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | J | J | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | M | M | |
| X-RAY AMORPHOUS | M | M | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Mc407

CLIMATE 420 SAN JOQUIN
AREA 1270421 HAS.
ALTITUDE 180 MTS.
PHYSIOGRAPHIC UNIT NO.253
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 407**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 65 | 35 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 80 | 20 | |
| < 8% | 20 | 80 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 170 | 200 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 20 | 80 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 80 | 20 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 3 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | LAQ | EFL | |
| GREAT GROUPS | LAQTR | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | C C | |
| COARSE MATERIAL | B P | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M M | M M | |
| EXCHANGEABLE MG | M M | M M | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | M B | B B | |
| TOTAL EXCH. BASES | M M | M B | |
| CATION EXCH. CAPAC. | M M | M M | |

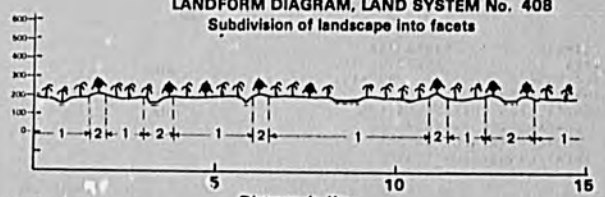
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | M M | M B | |
| PHOSPHORUS FIXATION | O | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | S | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | J | U | |
| SE | U | U | |
| CR | J | U | |
| NI | J | U | |
| OTHERS | J | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | CC | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Mb408

CLIMATE 3640 PUERTO MALDONADO
AREA 515180 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO.256
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 408**
**Subdivision of landscape into facets**




= Tropical rain forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 20 | |
| < 8% | 10 | 80 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 180 | 210 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 10 | 80 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 90 | 20 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | D | |
| SUBORDERS | AAQ | DDR | |
| GREAT GROUPS | AAQTR | DDRHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | S | P | |
| INIT. INFIL. RATE | B | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | B | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | C C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | H H | |
| AL SATURATION % | B B | M M | |
| EXCHANGEABLE AL | B B | M M | |
| EXCHANGEABLE CA | M M | M B | |
| EXCHANGEABLE MG | M M | M B | |
| EXCHANGEABLE K | M K | K K | |
| EXCHANGEABLE NA | M B | B B | |
| TOTAL EXCH. BASES | M M | M B | |
| CATION EXCH. CAPAC. | M M | M E | |

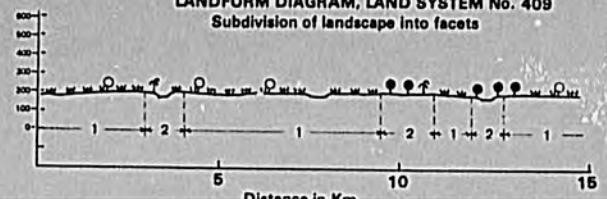
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | I | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | J | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | CC | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | HKI | | |
| FACET 3 | | | |

## Land System Mc409

CLIMATE 420 SAN JOQUIN
AREA 1325935 HAS.
ALTITUDE 220 MTS.
PHYSIOGRAPHIC UNIT NO.256
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 409
Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)
= Campo cerrado (open savanna)
= Tropical semi-evergreen seasonal forest
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 65 | 25 | |
| < 8% | 35 | 60 | |
| 8-30 % | | 15 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 220 | 220 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 65 | 25 | |
| CL + CS | | | |
| CC | 35 | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | 50 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 1 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | U | |
| SUBORDERS | UAO | UDR | |
| GREAT GROUPS | UAOTK | UDRHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | B | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | SU | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | C C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | M M | |
| EXCHANGEABLE AL | M A | M M | |
| EXCHANGEABLE CA | M B | M B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | B B | |
| CATION EXCH. CAPAC. | M E | E E | |

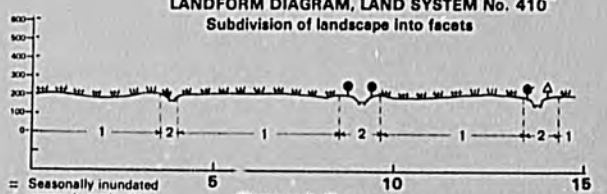
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | B B | B M | |
| PHOSPHORUS FIXATION | D | I | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | CC | |
| MODIFIERS FACET 1 | GHK | | |
| FACET 2 | HKEI | | |
| FACET 3 | | | |

## Land System Mb410

CLIMATE 370 SANTA ANA
AREA 5560700 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO.253
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 410
Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)
w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
= Tropical semi-evergreen seasonal forest
= Other

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | T | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 40 | |
| < 8% | 10 | 30 | |
| 8-30 % | | 30 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 200 | 200 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 90 | 10 | |
| CL + CS | 10 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | 50 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 40 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 2 | |
| CROPS | 0 | 2 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AAO | EFL | |
| GREAT GROUPS | AAOTR | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M A | B B | |
| EXCHANGEABLE AL | M A | B B | |
| EXCHANGEABLE CA | M M | A M | |
| EXCHANGEABLE MG | A A | A M | |
| EXCHANGEABLE K | A M | A M | |
| EXCHANGEABLE NA | A A | M B | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | A B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Mb411

CLIMATE 390 SAN BORJA
AREA 1372100 HAS.
ALTITUDE 230 MTS.
PHYSIOGRAPHIC UNIT NO.253
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 411

Subdivision of landscape into facets

= Seasonally inundated pampa (grasslands)

= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Tropical semi-deciduous

= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | P |
| PERCENTAGE OF L.S. | 70 | 15 | 15 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 80 | 99 | 20 |
| < 8% | 15 | | 75 |
| 8-30 % | 5 | | |
| > 30 % | | | 5 |
| ALTITUDE IN MTS | 230 | 220 | 230 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 70 | 100 | |
| CL + CS | 20 | | |
| CC | 0 | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 10 | | 50 |
| SDSF | | | 50 |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | 1 |
| CROPS | 0 | 0 | 5 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | A | U |
| SUBORDERS | UAO | AAQ | UUS |
| GREAT GROUPS | UAQTH | AAQTH | UUSTH |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | B |
| DEPTH | M | M | P |
| INIT. INFIL. RATE | A | M | A |
| HYDRAUL. CONDUCT. | B | B | M |
| DRAINAGE | G | G | B |
| MOIST. HOLD. CAP. | M | M | B |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | SD | U | SD |
| EXPANDING CLAYS | D | D | D |
| TEXTURE | S C | L C | S L |
| COARSE MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | M B | M B | B M |
| EXCHANGEABLE AL | A B | M B | M A |
| EXCHANGEABLE CA | M A | M M | M B |
| EXCHANGEABLE MG | A A | A A | A M |
| EXCHANGEABLE K | A M | A A | K K |
| EXCHANGEABLE NA | M M | A A | M M |
| TOTAL EXCH. BASES | M A | M A | M B |
| CATION EXCH. CAPAC. | M A | M A | M E |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | A B |
| PHOSPHORUS | A A | A M | M M |
| PHOSPHORUS FIXATION | D | D | D |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | M |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | D | D | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SC | LC | SL |
| MODIFIERS FACET 1 | GM | | |
| FACET 2 | GM | | |
| FACET 3 | N. | | |

## Land System Mb412

CLIMATE 390 SAN BORJA
AREA 473900 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO.253
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 412

Subdivision of landscape into facets

= Seasonally inundated pampa (grasslands)

= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | | |
| < 8% | 10 | 90 | |
| 8-30 % | | 5 | |
| > 30 % | | 5 | |
| ALTITUDE IN MTS | 200 | 210 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 80 | | |
| CL + CS | 10 | | |
| CC | 10 | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | 90 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 10 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UAO | EFL | |
| GREAT GROUPS | UAQTR | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | M B | M M | |
| EXCHANGEABLE MG | M B | M M | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | M B | M M | |
| CATION EXCH. CAPAC. | M E | M M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | GHK | | |
| FACET 2 | D | | |
| FACET 3 | | | |

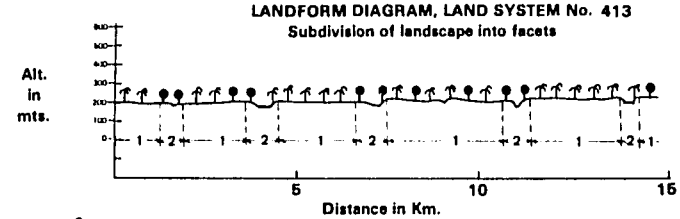
## Land System Ab413

CLIMATE 390 SAN BORJA
AREA 1279200 HAS.
ALTITUDE 220 MTS.
PHYSIOGRAPHIC UNIT NO.253
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 413

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | T | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 80 | 20 | |
| < 8% | | 20 | 80 |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 220 | 230 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 20 | 80 | |
| SOSF | | | |
| CAAT | | | |
| OTHER | 80 | 20 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | J | E | |
| SUBORDERS | UUD | EFL | |
| GREAT GROUPS | JUDTR | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | D | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | R | M | |
| DRAINAGE | D | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | J | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | M M | A M | |
| EXCHANGEABLE MG | A M | M M | |
| EXCHANGEABLE K | M K | M M | |
| EXCHANGEABLE NA | M M | M B | |
| TOTAL EXCH. BASES | M M | A M | |
| CATION EXCH. CAPAC. | M M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | J | J | |
| SULPHUR | J | J | |
| ZINC | U | U | |
| IRON | J | J | |
| COPPER | J | U | |
| BORON | U | U | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | J | |
| I | J | U | |
| SE | U | U | |
| CR | J | U | |
| NI | J | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

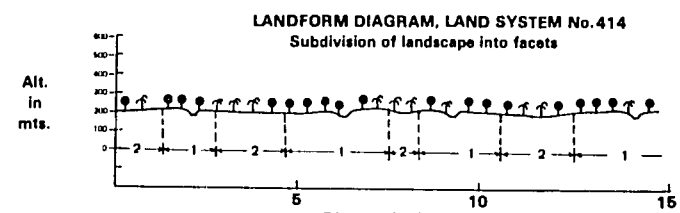
## Land System Ab414

CLIMATE 390 SAN BORJA
AREA 496200 HAS.
ALTITUDE 220 MTS.
PHYSIOGRAPHIC UNIT NO.253
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No.414

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | P | |
| PERCENTAGE OF L.S. | 55 | 45 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 30 | 90 | |
| < 8% | 70 | 10 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 225 | 215 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 70 | 10 | |
| SOSF | | | |
| CAAT | | | |
| OTHER | 30 | 90 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 0 | |
| CROPS | 15 | 0 | |

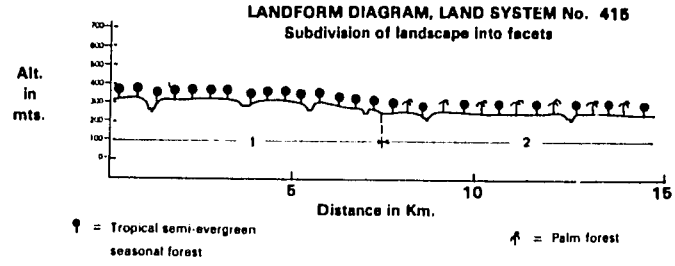
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | A | |
| SUBORDERS | EFL | AUS | |
| GREAT GROUPS | EFLTR | AUSRH | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A M | |
| EXCHANGEABLE MG | M M | M M | |
| EXCHANGEABLE K | A M | A M | |
| EXCHANGEABLE NA | A M | M M | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | A M | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | J | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | J | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LC | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Bf415

CLIMATE 3640 PUERTO MALDONADO
AREA 259000 HAS.
ALTITUDE 280 MTS.
PHYSIOGRAPHIC UNIT NO.252
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 500M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 55 | 45 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 50 | |
| < 8% | 90 | 50 | |
| 8-30 % | 10 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 310 | 260 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | 50 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 50 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | 0 | |
| CROPS | 2 | 0 | |

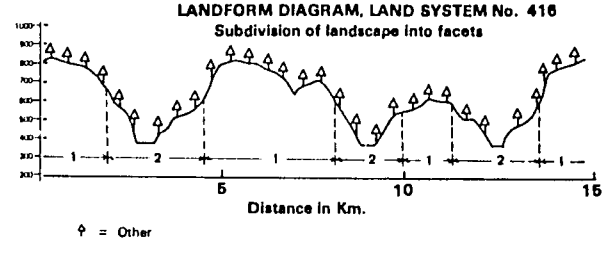
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | I | |
| SUBORDERS | ITR | ITR | |
| GREAT GROUPS | ITREU | ITREU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | B | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | M | A | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L S | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | M M | |
| EXCHANGEABLE AL | M B | A A | |
| EXCHANGEABLE CA | M M | A B | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | M M | A A | |
| EXCHANGEABLE NA | M M | A A | |
| TOTAL EXCH. BASES | M M | A A | |
| CATION EXCH. CAPAC. | M M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | M M | M M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LS | LC | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Fb416

CLIMATE 350 RURRENABAQUE
AREA 224300 HAS.
ALTITUDE 600 MTS.
PHYSIOGRAPHIC UNIT NO.251
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | V | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 20 | 20 | |
| 8-30 % | 20 | 30 | |
| > 30 % | 60 | 50 | |
| ALTITUDE IN MTS | 750 | 500 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EOR | EOR | |
| GREAT GROUPS | EORTR | EORTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | A | |
| DEPTH | L | S | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L R | L L | |
| COARSE MATERIAL | M A | M A | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M B | M B | |
| EXCHANGEABLE AL | M B | M B | |
| EXCHANGEABLE CA | M B | M M | |
| EXCHANGEABLE MG | M B | M M | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | M B | M B | |
| CATION EXCH. CAPAC. | M E | M E | |

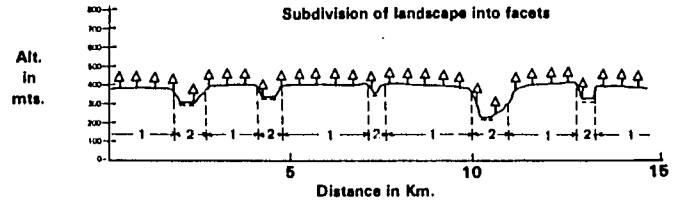
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LR | LR | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Fb417

CLIMATE 360 PURRENABAQUE
AREA 436400 HAS.
ALTITUDE 400 MTS.
PHYSIOGRAPHIC UNIT NO.252
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No. 417**
**Subdivision of landscape into facets**




♀ = Other

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 75 | 25 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 9 | 1 | |
| < 8% | 90 | 10 | |
| 8-30 % | 10 | 10 | |
| > 30 % | | 80 | |
| ALTITUDE IN MTS | 400 | 350 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | 0 | |
| CROPS | 2 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | I | |
| SUBORDERS | OOH | ITR | |
| GREAT GROUPS | OOPHA | ITRDY | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | P | A | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | M B | |
| EXCHANGEABLE AL | A A | M B | |
| EXCHANGEABLE CA | M M | M M | |
| EXCHANGEABLE MG | A A | M M | |
| EXCHANGEABLE K | M K | M M | |
| EXCHANGEABLE NA | M M | M B | |
| TOTAL EXCH. BASES | M M | M M | |
| CATION EXCH. CAPAC. | M M | M M | |

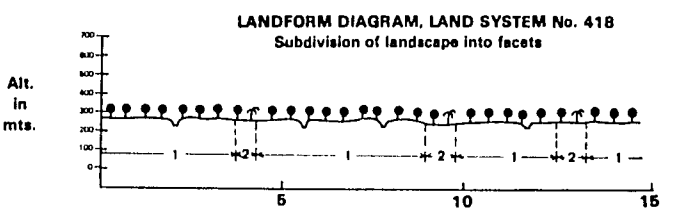
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | HA | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Fb418

CLIMATE 390 SAN BORJA
AREA 170300 HAS.
ALTITUDE 250 MTS.
PHYSIOGRAPHIC UNIT NO.252
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No. 418**
**Subdivision of landscape into facets**




♀ = Tropical semi-evergreen seasonal forest

♠ = Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 70 | |
| < 8% | 90 | 30 | |
| 8-30 % | 10 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 250 | 240 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 99 | 50 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 50 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | 0 | |
| CROPS | 2 | 0 | |

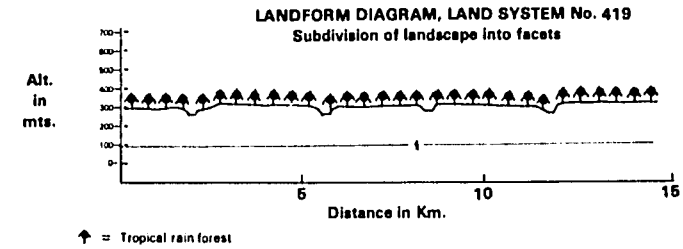
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | A | |
| SUBORDERS | AUD | AUD | |
| GREAT GROUPS | AUDTR | AUDTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | M B | |
| EXCHANGEABLE AL | M M | M M | |
| EXCHANGEABLE CA | M M | M M | |
| EXCHANGEABLE MG | A A | M M | |
| EXCHANGEABLE K | M M | M K | |
| EXCHANGEABLE NA | M M | M M | |
| TOTAL EXCH. BASES | M A | M M | |
| CATION EXCH. CAPAC. | M A | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | M M | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LC | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Fb419

CLIMATE 360 BURRENABAQUE
AREA 80600 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO.252
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 99 | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 300 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 99 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | | |
| CROPS | 2 | | |

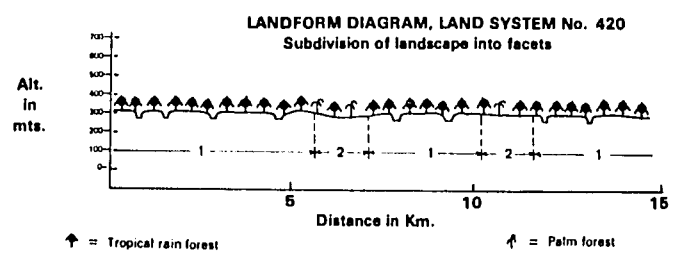
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | | |
| SUBORDERS | EPS | | |
| GREAT GROUPS | EPSTR | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | M | | |
| INIT. INFIL. RATE | A | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | B | | |
| MOIST. HOLD. CAP. | B | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | U | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | S | S | |
| COARSE MATERIAL | B | B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | |
| AL SATURATION % | B | B | |
| EXCHANGEABLE AL | B | B | |
| EXCHANGEABLE CA | A | M | |
| EXCHANGEABLE MG | A | M | |
| EXCHANGEABLE K | A | K | |
| EXCHANGEABLE NA | M | B | |
| TOTAL EXCH. BASES | A | M | |
| CATION EXCH. CAPAC. | A | M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONTI). | | | |
| ORGANIC MATTER % | M | B | |
| PHOSPHORUS | M | M | |
| PHOSPHORUS FIXATION | D | | |
| MANGANESE | J | | |
| SULPHUR | J | | |
| ZINC | U | | |
| IRON | J | | |
| COPPER | U | | |
| BORON | U | | |
| MOLYBDENUM | J | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | | |
| I | U | | |
| SE | J | | |
| CR | J | | |
| NI | U | | |
| OTHERS | J | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Fa420

CLIMATE 490 TODOS SANTOS
AREA 66800 HAS.
ALTITUDE 340 MTS.
PHYSIOGRAPHIC UNIT NO.252
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 80 | |
| < 8% | 90 | 20 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 340 | 320 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 100 | 50 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 50 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | U | |
| SUBORDERS | UUD | UUD | |
| GREAT GROUPS | UUDTR | UUDTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | M | A | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S L | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | M A | |
| EXCHANGEABLE AL | B B | A A | |
| EXCHANGEABLE CA | M B | M B | |
| EXCHANGEABLE MG | A M | A A | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | M B | M M | |
| CATION EXCH. CAPAC. | M E | M M | |

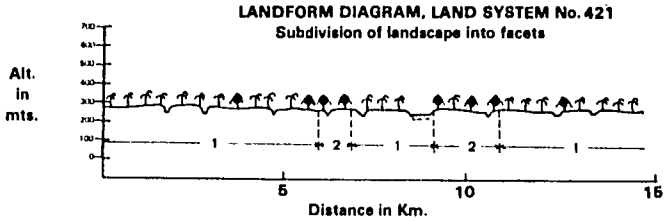
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONTI. | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | I | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | J | |
| I | J | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | J | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SL | LC | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | I | | |
| FACET 3 | | | |

## Land System Aa421

CLIMATE 490 TOOOS SANTOS
AREA 1109400 HAS.
ALTITUDE 280 MTS.
PHYSIOGRAPHIC UNIT NO.252
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

LANDFORM DIAGRAM, LAND SYSTEM No. 421
Subdivision of landscape into facets




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 10 | |
| < 8% | 10 | 90 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 270 | 295 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 10 | 90 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 90 | 10 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | U | |
| SUBORDERS | UAQ | UUD | |
| GREAT GROUPS | UAQTR | UUDTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | A | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | A A | |
| EXCHANGEABLE AL | A A | A M | |
| EXCHANGEABLE CA | M M | M B | |
| EXCHANGEABLE MG | M M | M M | |
| EXCHANGEABLE K | M M | M K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | M M | M M | |
| CATION EXCH. CAPAC. | M M | M M | |

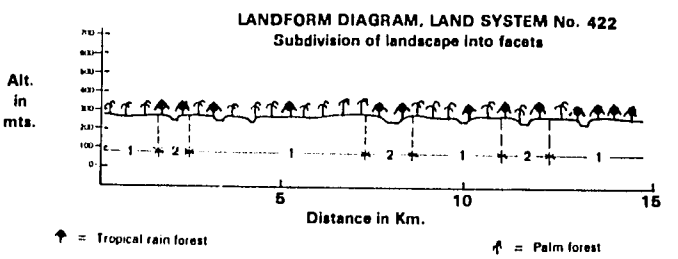
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A M | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | J | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | J | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | GHA | | |
| FACET 2 | HA | | |
| FACET 3 | | | |

## Land System Fb422

CLIMATE 360 RURRENABAQUE
AREA 454300 HAS.
ALTITUDE 280 MTS.
PHYSIOGRAPHIC UNIT NO.252
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

LANDFORM DIAGRAM, LAND SYSTEM No. 422
Subdivision of landscape into facets




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 80 | 20 | |
| < 8% | 20 | 80 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 260 | 280 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 20 | 80 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 80 | 20 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

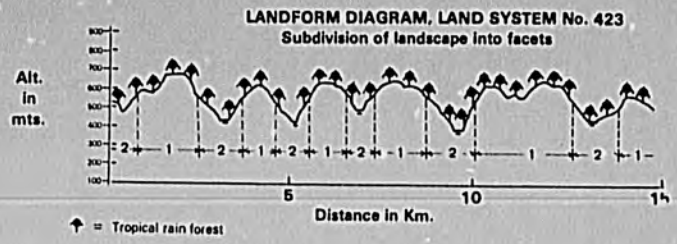
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | U | |
| SUBORDERS | UAQ | UUD | |
| GREAT GROUPS | UAQTR | UUDTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M H | M H | |
| AL SATURATION % | H H | H H | |
| EXCHANGEABLE AL | A A | A M | |
| EXCHANGEABLE CA | M M | M B | |
| EXCHANGEABLE MG | M M | M B | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | J | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | GKE | | |
| FACET 2 | E | | |
| FACET 3 | | | |

## Land System Fa423

CLIMATE 490 TOOOS SANTOS
AREA 118000 HAS.
ALTITUDE 600 MTS.
PHYSIOGRAPHIC UNIT NO.251
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | R | V | |
| PERCENTAGE OF L.S. | 55 | 45 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 20 | 20 | |
| 8-30 % | 30 | 30 | |
| > 30 % | 50 | 50 | |
| ALTITUDE IN MTS | 600 | 450 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 100 | 100 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

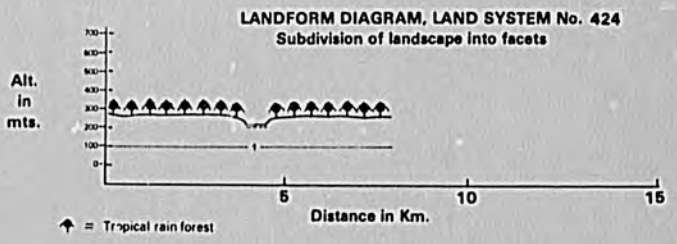
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | U | |
| SUBORDERS | UUD | UUD | |
| GREAT GROUPS | UUDTR | UUDTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | A | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B M | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | H H | |
| AL SATURATION % | A A | H H | |
| EXCHANGEABLE AL | A A | M A | |
| EXCHANGEABLE CA | B B | M B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | M B | |
| CATION EXCH. CAPAC. | E E | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | J | U | |
| ZINC | J | U | |
| IRON | U | U | |
| COPPER | J | U | |
| BORON | J | U | |
| MOLYBDENUM | J | J | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | J | U | |
| SE | U | U | |
| CR | U | U | |
| NI | J | J | |
| OTHERS | J | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | HAKE | | |
| FACET 2 | HK | | |
| FACET 3 | | | |

## Land System Aa424

CLIMATE 490 TOOOS SANTOS
AREA 77800 HAS.
ALTITUDE 280 MTS.
PHYSIOGRAPHIC UNIT NO.252
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 99 | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 280 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 100 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | | |
| CROPS | 0 | | |

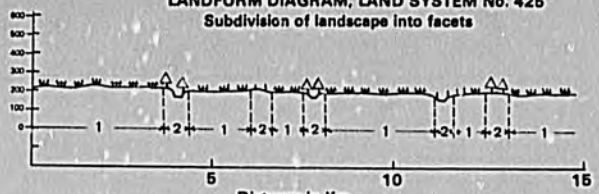
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | | |
| SUBORDERS | EFL | | |
| GREAT GROUPS | EFLTR | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | P | | |
| INIT. INFIL. RATE | M | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | B | | |
| MOIST. HOLD. CAP. | A | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | U | | |
| EXPANDING CLAYS | O | | |
| TEXTURE | L L | | |
| COARSE MATERIAL | B B | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | | |
| AL SATURATION % | B B | | |
| EXCHANGEABLE AL | B B | | |
| EXCHANGEABLE CA | A M | | |
| EXCHANGEABLE MG | A M | | |
| EXCHANGEABLE K | M K | | |
| EXCHANGEABLE NA | M B | | |
| TOTAL EXCH. BASES | A M | | |
| CATION EXCH. CAPAC. | E A | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | | |
| PHOSPHORUS | A M | | |
| PHOSPHORUS FIXATION | O | | |
| MANGANESE | U | | |
| SULPHUR | J | | |
| ZINC | U | | |
| IRON | U | | |
| COPPER | J | | |
| BORON | U | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | |
| I | U | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Aa425

CLIMATE 490 TODOS SANTOS
AREA 538000 HAS.
ALTITUDE 210 MTS.
PHYSIOGRAPHIC UNIT NO.252
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 99 | 50 | |
| < 8% | | 50 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 210 | 220 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 100 | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

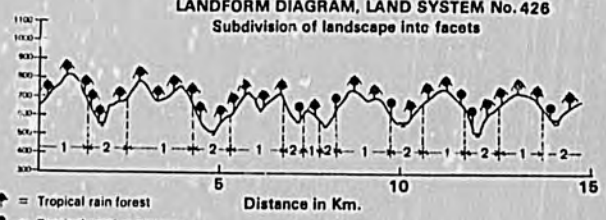
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AAQ | EFL | |
| GREAT GROUPS | AAQTR | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | H H | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M B | M M | |
| EXCHANGEABLE MG | M M | M M | |
| EXCHANGEABLE K | M M | M K | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | M M | A M | |
| CATION EXCH. CAPAC. | M E | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | I | D | |
| MANGANESE | J | J | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | J | U | |
| SE | U | U | |
| CR | J | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | GI | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Fa426

CLIMATE 490 TODOS SANTOS
AREA 34700 HAS.
ALTITUDE 700 MTS.
PHYSIOGRAPHIC UNIT NO.251
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | R | V | |
| PERCENTAGE OF L.S. | 55 | 45 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 20 | 20 | |
| 8-30 % | 20 | 20 | |
| > 30 % | 60 | 60 | |
| ALTITUDE IN MTS | 600 | 450 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 99 | 99 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

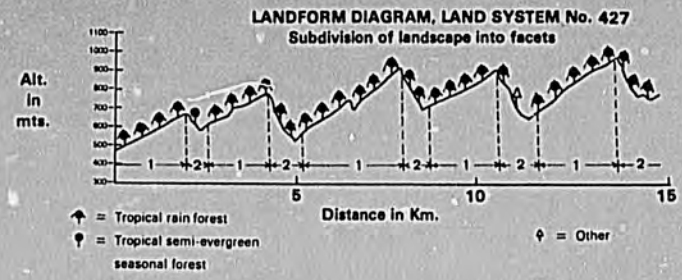
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | U | |
| SUBORDERS | EOR | UUD | |
| GREAT GROUPS | EORTR | UUDTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | A | |
| DEPTH | S | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L R | L L | |
| COARSE MATERIAL | B A | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | A A | |
| EXCHANGEABLE AL | A A | A A | |
| EXCHANGEABLE CA | M M | M B | |
| EXCHANGEABLE MG | M M | M M | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | M M | M B | |
| CATION EXCH. CAPAC. | M M | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A M | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | I | I | |
| MANGANESE | J | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | J | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | J | U | |
| SE | U | U | |
| CR | U | U | |
| NI | J | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LR | LL | |
| MODIFIERS FACET 1 | HAI | | |
| FACET 2 | HAI | | |
| FACET 3 | | | |

## Land System Fa427

CLIMATE 490 TODOS SANTOS
AREA 181900 HAS.
ALTITUDE 700 MTS.
PHYSIOGRAPHIC UNIT NO.251
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | E | V | |
| PERCENTAGE OF L.S. | 66 | 34 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 20 | 10 | |
| 8-30 % | 40 | 30 | |
| > 30 % | 40 | 60 | |
| ALTITUDE IN MTS | 600 | 450 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 99 | 90 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 10 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

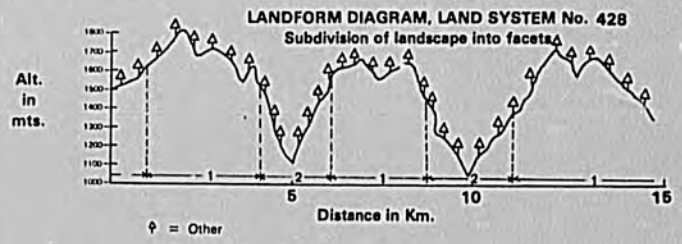
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | ITK | EOR | |
| GREAT GROUPS | ITROY | EORTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | A | |
| DEPTH | M | S | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | A | |
| DRAINAGE | D | B | |
| MOIST. HOLD. CAP. | A | B | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L | L L R | |
| COARSE MATERIAL | B | M M A | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | H M M | |
| AL SATURATION % | H | H M B | |
| EXCHANGEABLE AL | M | M M B | |
| EXCHANGEABLE CA | M | B M B | |
| EXCHANGEABLE MG | M | B M B | |
| EXCHANGEABLE K | M | K M K | |
| EXCHANGEABLE NA | B | B B B | |
| TOTAL EXCH. BASES | M | B M B | |
| CATION EXCH. CAPAC. | M | E M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A E | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LR | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Fa428

CLIMATE 490 TODOS SANTOS
AREA 192000 HAS.
ALTITUDE 1500 MTS.
PHYSIOGRAPHIC UNIT NO.251
GENERALIZED CLASSIFICATION
UPLANDS,ABOVE 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | V | |
| PERCENTAGE OF L.S. | 66 | 34 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 20 | 10 | |
| 8-30 % | 30 | 20 | |
| > 30 % | 50 | 70 | |
| ALTITUDE IN MTS | 1600 | 1300 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | I | |
| SUBORDERS | EOR | ITR | |
| GREAT GROUPS | EORTR | ITROY | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | A | |
| DEPTH | S | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | I | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L R | L L | |
| COARSE MATERIAL | M B | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M H | M H | |
| AL SATURATION % | M R | H H | |
| EXCHANGEABLE AL | M B | M M | |
| EXCHANGEABLE CA | M B | M B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | M B | |
| CATION EXCH. CAPAC. | M E | M E | |

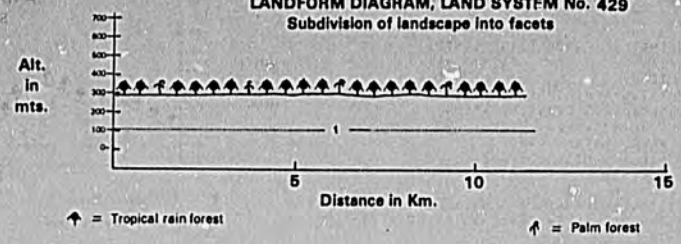
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | N | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LR | LL | |
| MODIFIERS FACET 1 | HK | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Aa429

CLIMATE 490 TODOS SANTOS
AREA 59500 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO.252
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 429**
**Subdivision of landscape into facets**




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 20 | | |
| < 8% | 80 | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 300 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 80 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 20 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | | |
| SUBORDERS | EFL | | |
| GREAT GROUPS | EFLTR | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | | |
| DEPTH | M | | |
| INIT. INFIL. RATE | M | | |
| HYDRAUL. CONDUCT. | B | | |
| DRAINAGE | D | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | U | | |
| EXPANDING CLAYS | | | |
| TEXTURE | C | L | |
| COARSE MATERIAL | B | B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | |
| AL SATURATION % | B | B | |
| EXCHANGEABLE AL | A | A | |
| EXCHANGEABLE CA | A | M | |
| EXCHANGEABLE MG | M | B | |
| EXCHANGEABLE K | M | M | |
| EXCHANGEABLE NA | M | B | |
| TOTAL EXCH. BASES | M | M | |
| CATION EXCH. CAPAC. | A | M | |

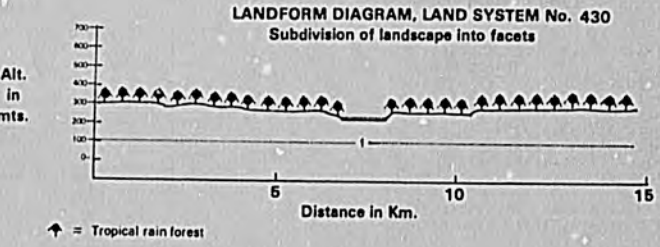
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A | B | |
| PHOSPHORUS | A | M | |
| PHOSPHORUS FIXATION | D | | |
| MANGANESE | U | | |
| SULPHUR | U | | |
| ZINC | U | | |
| IRON | U | | |
| COPPER | U | | |
| BORON | U | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | |
| I | U | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CL | | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Aa430

CLIMATE 490 TODOS SANTOS
AREA 106000 HAS.
ALTITUDE 310 MTS.
PHYSIOGRAPHIC UNIT NO.252
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 430**
**Subdivision of landscape into facets**




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | | |
| < 8% | 90 | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 310 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 100 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | | |
| CROPS | 25 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | | |
| SUBORDERS | EFL | | |
| GREAT GROUPS | EFLTR | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | P | | |
| INIT. INFIL. RATE | M | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | B | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | U | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | L | L | |
| COARSE MATERIAL | B | B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | |
| AL SATURATION % | B | B | |
| EXCHANGEABLE AL | B | B | |
| EXCHANGEABLE CA | A | M | |
| EXCHANGEABLE MG | A | M | |
| EXCHANGEABLE K | M | K | |
| EXCHANGEABLE NA | M | B | |
| TOTAL EXCH. BASES | A | M | |
| CATION EXCH. CAPAC. | A | M | |

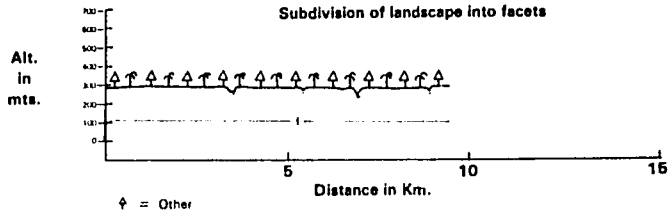
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A | B | |
| PHOSPHORUS | A | M | |
| PHOSPHORUS FIXATION | D | | |
| MANGANESE | U | | |
| SULPHUR | U | | |
| ZINC | U | | |
| IRON | U | | |
| COPPER | U | | |
| BORON | U | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | |
| I | U | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Aa431

CLIMATE 490 TODOS SANTOS
AREA 10500 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO.252
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
WELL DRAINED LANDS
FLAT LANDS.SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS.MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 431**
**Subdivision of landscape into facets**




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 60 | | |
| < 8% | 60 | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 300 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | | |
| CROPS | 5 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | F | | |
| SUBORDERS | EFL | | |
| GREAT GROUPS | EFLTR | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | M | | |
| INIT. INFIL. RATE | M | | |
| HYDRAUL. CONDUCT. | B | | |
| DRAINAGE | D | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | U | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | L | L | |
| COARSE MATERIAL | B | B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | |
| AL SATURATION % | B | B | |
| EXCHANGEABLE AL | B | B | |
| EXCHANGEABLE CA | A | M | |
| EXCHANGEABLE MG | A | M | |
| EXCHANGEABLE K | M | M | |
| EXCHANGEABLE NA | M | M | |
| TOTAL EXCH. BASES | A | M | |
| CATION EXCH. CAPAC. | A | M | |

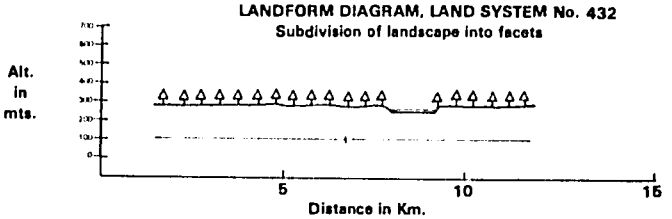
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A | B | |
| PHOSPHORUS | A | M | |
| PHOSPHORUS FIXATION | D | | |
| MANGANESE | J | | |
| SULPHUR | J | | |
| ZINC | U | | |
| IRON | J | | |
| COPPER | U | | |
| BORON | J | | |
| MOLYBDENUM | J | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | | |
| I | J | | |
| SE | U | | |
| CR | J | | |
| NI | J | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Aa432

CLIMATE 490 TODOS SANTOS
AREA 11100 HAS.
ALTITUDE 290 MTS.
PHYSIOGRAPHIC UNIT 40.252
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS.SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS.MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 432**
**Subdivision of landscape into facets**




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 99 | | |
| < 8% | | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 290 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | | | |

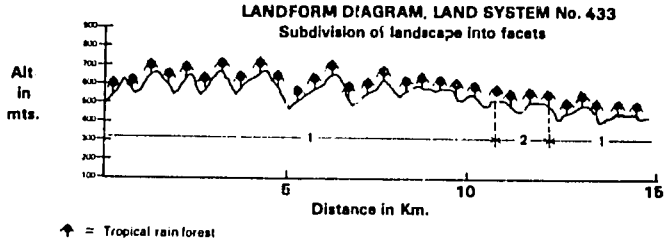
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | | |
| SUBORDERS | EFL | | |
| GREAT GROUPS | EFLTR | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | P | | |
| INIT. INFIL. RATE | M | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | G | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | U | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | L | L | |
| COARSE MATERIAL | B | B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | |
| AL SATURATION % | B | B | |
| EXCHANGEABLE AL | B | B | |
| EXCHANGEABLE CA | A | A | |
| EXCHANGEABLE MG | A | A | |
| EXCHANGEABLE K | A | M | |
| EXCHANGEABLE NA | A | M | |
| TOTAL EXCH. BASES | A | A | |
| CATION EXCH. CAPAC. | A | A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A | B | |
| PHOSPHORUS | A | A | |
| PHOSPHORUS FIXATION | O | | |
| MANGANESE | U | | |
| SULPHUR | U | | |
| ZINC | U | | |
| IRON | U | | |
| COPPER | U | | |
| BORON | U | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | |
| I | U | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Fa433

CLIMATE 490 TODOS SANTOS
AREA 40600 HAS.
ALTITUDE 600 MTS.
PHYSIOGRAPHIC UNIT NO.251
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | A | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 20 | |
| < 8% | 20 | 40 | |
| 8-30 % | 30 | 20 | |
| > 30 % | 50 | 20 | |
| ALTITUDE IN MTS | 650 | 500 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 99 | 99 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

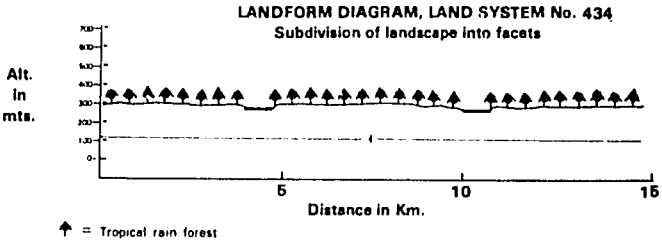
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | U | |
| SUBORDERS | OOR | UUO | |
| GREAT GROUPS | OORHA | UUOTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | B | A | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L C | |
| COARSE MATERIAL | M M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | A A | |
| EXCHANGEABLE AL | A A | A A | |
| EXCHANGEABLE CA | M M | M B | |
| EXCHANGEABLE MG | B M | B B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | M B | |
| CATION EXCH. CAPAC. | A E | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | A M | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | U | A | |
| SALINITY | B | B | |
| NATRIC | U | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CU | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LC | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | HAK | | |
| FACET 3 | | | |

## Land System Fa434

CLIMATE 490 TODOS SANTOS
AREA 66400 HAS.
ALTITUDE 310 MTS.
PHYSIOGRAPHIC UNIT NO.252
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 100 | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 310 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 99 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | | |
| CROPS | 1 | | |

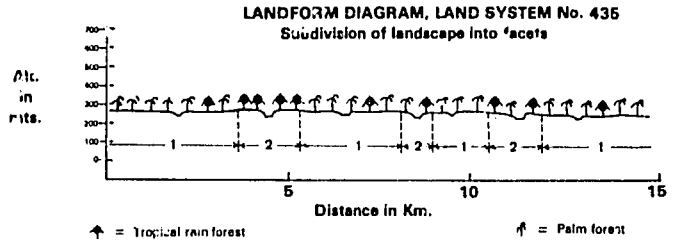
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | | |
| SUBORDERS | EFL | | |
| GREAT GROUPS | EFLTR | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | P | | |
| INIT. INFIL. RATE | M | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | B | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | U | | |
| EXPANDING CLAYS | O | | |
| TEXTURE | L L | | |
| COARSE MATERIAL | B B | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | | |
| AL SATURATION % | B B | | |
| EXCHANGEABLE AL | B B | | |
| EXCHANGEABLE CA | A M | | |
| EXCHANGEABLE MG | M M | | |
| EXCHANGEABLE K | M K | | |
| EXCHANGEABLE NA | B B | | |
| TOTAL EXCH. BASES | A M | | |
| CATION EXCH. CAPAC. | A M | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | | |
| PHOSPHORUS | A M | | |
| PHOSPHORUS FIXATION | O | | |
| MANGANESE | U | | |
| SULPHUR | U | | |
| ZINC | U | | |
| IRON | U | | |
| COPPER | U | | |
| BORON | U | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | |
| I | U | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Ea435

CLIMATE 490 TODOS SANTOS
AREA 1156300 HAS.
ALTITUDE 260 MTS.
PHYSIOGRAPHIC UNIT NO.252
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 10 | |
| < 8% | 10 | 90 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 260 | 270 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 10 | 90 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 90 | 10 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

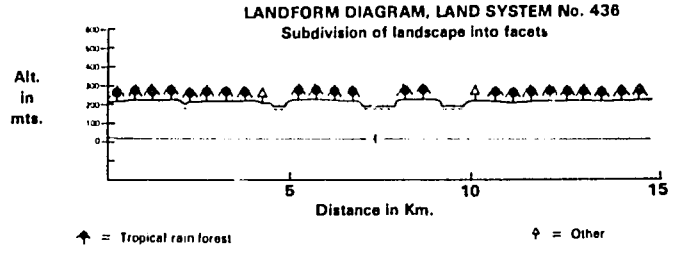
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AA. | EFL | |
| GREAT GROUPS | AAQTR | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | B | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | M | M | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | | |
| TEXTURE | S | S L | S |
| COARSE MATERIAL | B | B B | B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M M | M |
| AL SATURATION % | M | M B | B |
| EXCHANGEABLE AL | M | M B | B |
| EXCHANGEABLE CA | M | B A | M |
| EXCHANGEABLE MG | M | B A | M |
| EXCHANGEABLE K | M | K M | M |
| EXCHANGEABLE NA | B | B M | B |
| TOTAL EXCH. BASES | M | B A | M |
| CATION EXCH. CAPAC. | M | B A | A |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A | B A | B |
| PHOSPHORUS | M | B A | M |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | J | U | |
| SULPHUR | U | U | |
| ZINC | J | U | |
| IRON | J | | |
| COPPER | U | U | |
| BORON | J | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | S | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | J | U | |
| NI | U | U | |
| OTHERS | J | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LS | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Aa436

CLIMATE 490 TODOS SANTOS
AREA 117800 HAS.
ALTITUDE 230 MTS.
PHYSIOGRAPHIC UNIT NO.252
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 15 | | |
| < 8% | 85 | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 230 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 95 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 5 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | | |
| CROPS | 3 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | | |
| SUBORDERS | EFL | | |
| GREAT GROUPS | EFLTR | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | P | | |
| INIT. INFIL. RATE | M | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | B | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | U | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | L | L | |
| COARSE MATERIAL | B | B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | |
| AL SATURATION % | B | B | |
| EXCHANGEABLE AL | B | B | |
| EXCHANGEABLE CA | M | M | |
| EXCHANGEABLE MG | A | A | |
| EXCHANGEABLE K | M | K | |
| EXCHANGEABLE NA | M | M | |
| TOTAL EXCH. BASES | A | M | |
| CATION EXCH. CAPAC. | A | M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A | B | |
| PHOSPHORUS | A | B | |
| PHOSPHORUS FIXATION | D | | |
| MANGANESE | J | | |
| SULPHUR | U | | |
| ZINC | U | | |
| IRON | J | | |
| COPPER | U | | |
| BORON | U | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | | |
| I | U | | |
| SE | U | | |
| CR | J | | |
| NI | U | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

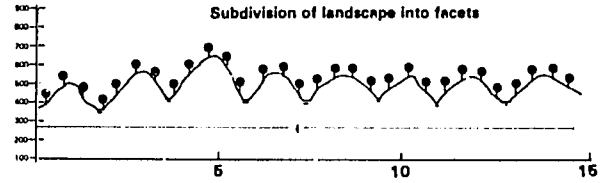
20V

## Land System Fa437

CLIMATE 490 TODOS SANTOS
AREA 88700 HAS.
ALTITUDE 500 MTS.
PHYSIOGRAPHIC UNIT NO.251
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 437**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 15 | | |
| 8-30 % | 35 | | |
| > 30 % | 50 | | |
| ALTITUDE IN MTS | 500 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | | |
| CROPS | 0 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | J | | |
| SUBORDERS | JOR | | |
| GREAT GROUPS | JORAC | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | | |
| DEPTH | M | | |
| INIT. INFIL. RATE | M | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | B | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | U | | |
| EXPANDING CLAYS | O | | |
| TEXTURE | L | L | |
| COARSE MATERIAL | B | M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H | H | |
| AL SATURATION % | A | A | |
| EXCHANGEABLE AL | A | A | |
| EXCHANGEABLE CA | B | B | |
| EXCHANGEABLE MG | M | M | |
| EXCHANGEABLE K | K | K | |
| EXCHANGEABLE NA | B | B | |
| TOTAL EXCH. BASES | M | B | |
| CATION EXCH. CAPAC. | E | E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A | B | |
| PHOSPHORUS | M | B | |
| PHOSPHORUS FIXATION | O | | |
| MANGANESE | J | | |
| SULPHUR | J | | |
| ZINC | J | | |
| IRON | J | | |
| COPPER | J | | |
| BORON | J | | |
| MOLYBDENUM | J | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | | |
| I | J | | |
| SE | U | | |
| CR | J | | |
| NI | J | | |
| OTHERS | J | | |

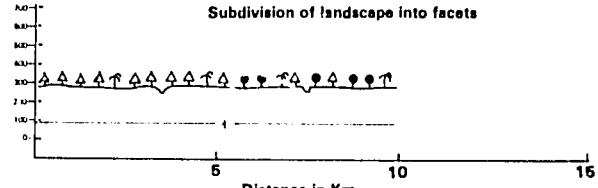
FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LL
MODIFIERS FACET 1 HAKE
FACET 2
FACET 3

## Land System Ea438

CLIMATE 490 TODOS SANTOS
AREA 26700 HAS.
ALTITUDE 240 MTS.
PHYSIOGRAPHIC UNIT NO.252
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 438**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest

= Other

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 80 | | |
| < 8% | 20 | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 240 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 20 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 80 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | | |
| CROPS | 0 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | | |
| SUBORDERS | ITR | | |
| GREAT GROUPS | ITROY | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | M | | |
| INIT. INFIL. RATE | M | | |
| HYDRAUL. CONDUCT. | B | | |
| DRAINAGE | O | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | U | | |
| EXPANDING CLAYS | O | | |
| TEXTURE | L | L | |
| COARSE MATERIAL | B | B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H | H | |
| AL SATURATION % | A | A | |
| EXCHANGEABLE AL | A | A | |
| EXCHANGEABLE CA | M | B | |
| EXCHANGEABLE MG | M | B | |
| EXCHANGEABLE K | K | K | |
| EXCHANGEABLE NA | B | B | |
| TOTAL EXCH. BASES | M | B | |
| CATION EXCH. CAPAC. | M | E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A | B | |
| PHOSPHORUS | A | M | |
| PHOSPHORUS FIXATION | O | | |
| MANGANESE | J | | |
| SULPHUR | U | | |
| ZINC | U | | |
| IRON | J | | |
| COPPER | U | | |
| BORON | J | | |
| MOLYBDENUM | J | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | | |
| I | U | | |
| SE | U | | |
| CR | J | | |
| NI | J | | |
| OTHERS | U | | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LL
MODIFIERS FACET 1 HAK
FACET 2
FACET 3

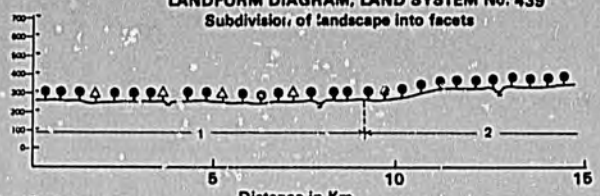
## Land System Eb439

CLIMATE 510 TRINIDAD
AREA 99700 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 439

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 30 | | |
| < 8% | 70 | 90 | |
| 8-30 % | | 10 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 280 | 350 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 70 | 100 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 30 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 10 | |
| CROPS | 10 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | U | |
| SUBORDERS | EPS | UUD | |
| GREAT GROUPS | EPSTR | UUDTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | R | G | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | D | B | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S S | S L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | M A | |
| EXCHANGEABLE AL | M M | P A | |
| EXCHANGEABLE CA | M B | M B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | M B | |
| CATION EXCH. CAPAC. | M E | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | A M | M M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | G | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | SL | |
| MODIFIERS FACET 1 | HK | | |
| FACET 2 | HAK | | |
| FACET 3 | | | |

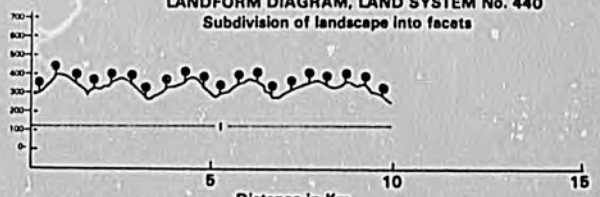
## Land System Fb440

CLIMATE 400 SANTA CRUZ
AREA 10000 HAS.
ALTITUDE 375 MTS.
PHYSIOGRAPHIC UNIT NO.251
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>3%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 440

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 20 | | |
| 8-30 % | 60 | | |
| > 30 % | 20 | | |
| ALTITUDE IN MTS | 375 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | | |
| CROPS | 0 | | |

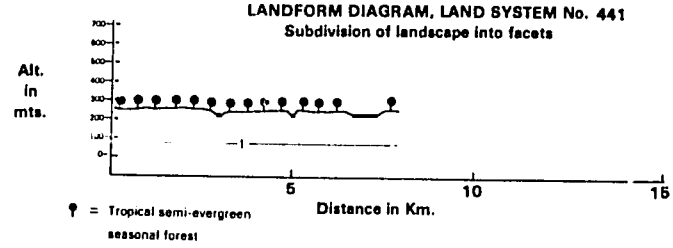
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | | |
| SUBORDERS | UUD | | |
| GREAT GROUPS | UUDTR | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | G | | |
| DEPTH | M | | |
| INIT. INFIL. RATE | A | | |
| HYDRAUL. CONDUCT. | A | | |
| DRAINAGE | B | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | U | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | L C | | |
| COARSE MATERIAL | B B | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | | |
| AL SATURATION % | M A | | |
| EXCHANGEABLE AL | M A | | |
| EXCHANGEABLE CA | M B | | |
| EXCHANGEABLE MG | M B | | |
| EXCHANGEABLE K | K K | | |
| EXCHANGEABLE NA | M B | | |
| TOTAL EXCH. BASES | M B | | |
| CATION EXCH. CAPAC. | M E | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | | |
| PHOSPHORUS | M M | | |
| PHOSPHORUS FIXATION | D | | |
| MANGANESE | U | | |
| SULPHUR | U | | |
| ZINC | U | | |
| IRON | U | | |
| COPPER | U | | |
| BORON | U | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | |
| I | U | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Eb441

CLIMATE 510 TRINIDAD
AREA 50600 HAS.
ALTITUDE 260 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | | |
| < 8% | 90 | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 260 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | | |
| SUBORDERS | EFL | | |
| GREAT GROUPS | EFLTR | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | P | | |
| INIT. INFIL. RATE | M | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | P | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | H | | |
| MOIST. REGIME | SD | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | L | L | |
| COARSE MATERIAL | B | B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | |
| AL SATURATION % | B | M | |
| EXCHANGEABLE AL | B | B | |
| EXCHANGEABLE CA | A | A | |
| EXCHANGEABLE MG | A | A | |
| EXCHANGEABLE K | A | M | |
| EXCHANGEABLE NA | A | M | |
| TOTAL EXCH. BASES | A | M | |
| CATION EXCH. CAPAC. | A | M | |

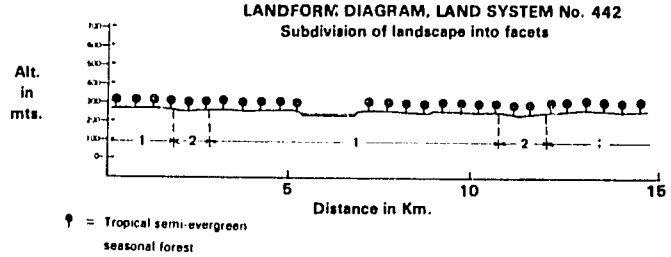
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A | B | |
| PHOSPHORUS | A | A | |
| PHOSPHORUS FIXATION | D | | |
| MANGANESE | D | | |
| SULPHUR | D | | |
| ZINC | D | | |
| IRON | U | | |
| COPPER | D | | |
| BORON | D | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | E | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | D | | |
| I | D | | |
| SE | D | | |
| CR | D | | |
| NI | D | | |
| OTHERS | D | | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LL
MODIFIERS FACET 1 S
FACET 2
FACET 3

## Land System Eb442

CLIMATE 400 SANTA CRUZ
AREA 118600 HAS.
ALTITUDE 270 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 90 | |
| < 8% | 90 | 10 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 270 | 265 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | 100 | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 10 | |
| CROPS | 10 | 15 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EFL | EFL | |
| GREAT GROUPS | EFLTR | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | P | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | H | H | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L | S | L L |
| COARSE MATERIAL | B | B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | M M |
| AL SATURATION % | M | M | M M |
| EXCHANGEABLE AL | A | M | A M |
| EXCHANGEABLE CA | M | M | M M |
| EXCHANGEABLE MG | M | M | M M |
| EXCHANGEABLE K | K | K | M K |
| EXCHANGEABLE NA | M | M | M M |
| TOTAL EXCH. BASES | M | M | A M |
| CATION EXCH. CAPAC. | A | M | A M |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A | B | A B |
| PHOSPHORUS | A | M | A B |
| PHOSPHORUS FIXATION | D | | D |
| MANGANESE | U | | U |
| SULPHUR | U | | U |
| ZINC | U | | U |
| IRON | U | | U |
| COPPER | U | | U |
| BORON | U | | U |
| MOLYBDENUM | U | | U |
| FREE CARBONATES | A | | A |
| SALINITY | B | | B |
| NATRIC | B | | B |
| CAT CLAY | N | | N |
| X-RAY AMORPHOUS | N | | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | U |
| I | U | | U |
| SE | U | | U |
| CR | U | | U |
| NI | U | | U |
| OTHERS | U | | U |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LS LL
MODIFIERS FACET 1 DHK
FACET 2
FACET 3

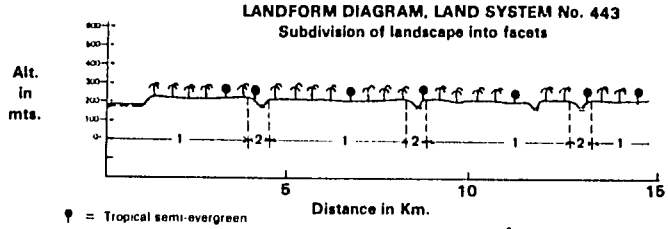
## Land System Eb443

CLIMATE 510 TRINIDAD
AREA 192500 HAS.
ALTITUDE 230 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS.SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS.MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 443

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 10 | |
| < 8% | 10 | 90 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 230 | 235 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 10 | 90 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 90 | 10 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | IAQ | EFL | |
| GREAT GROUPS | IAQTR | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | B | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | H | H | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | A M | M M | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A A | A M | |
| EXCHANGEABLE K | A M | M K | |
| EXCHANGEABLE NA | A A | M M | |
| TOTAL EXCH. BASES | A A | A M | |
| CATION EXCH. CAPAC. | A A | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONTI. | | | |
| ORGANIC MATTER % | A M | A B | |
| PHOSPHORUS | B D | B P | |
| PHOSPHORUS FIXATION | I | D | |
| MANGANESE | J | U | |
| SULPHUR | U | U | |
| ZINC | J | U | |
| IRON | J | U | |
| COPPER | U | U | |
| BORON | J | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | J | U | |
| SE | J | U | |
| CR | J | U | |
| NI | U | U | |
| OTHERS | J | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | SI | | |
| FACET 2 | | | |
| FACET 3 | | | |

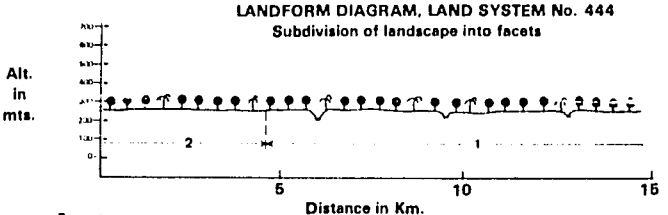
## Land System Eb444

CLIMATE 400 SANTA CRUZ
AREA 68700 HAS.
ALTITUDE 260 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
WELL DRAINED LANDS
FLAT LANDS.SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS.MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 444

Subdivision of landscape into facets




= Tropical semi evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 10 | |
| < 8% | 90 | 90 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 260 | 265 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 90 | 90 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 10 | 10 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 2 | |
| CROPS | 2 | 2 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | ITR | EFL | |
| GREAT GROUPS | ITREU | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | H | H | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | M M | M M | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

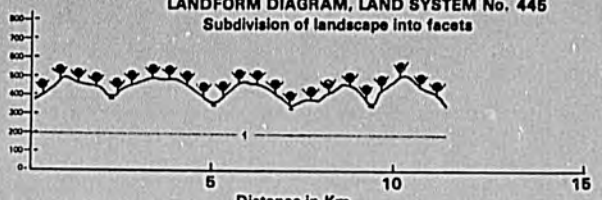
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONTI. | | | |
| ORGANIC MATTER % | A B | A P | |
| PHOSPHORUS | M M | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | J | U | |
| SULPHUR | U | U | |
| ZINC | J | U | |
| IRON | J | J | |
| COPPER | U | U | |
| BORON | J | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | J | |
| I | U | U | |
| SE | J | U | |
| CR | J | U | |
| NI | U | U | |
| OTHERS | J | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | D | | |
| FACET 3 | | | |

## Land System Eb445

CLIMATE 400 SANTA CRUZ
AREA 39200 HAS.
ALTITUDE 450 MTS.
PHYSIOGRAPHIC UNIT NO.251
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

LANDFORM DIAGRAM, LAND SYSTEM No. 445
Subdivision of landscape into facets




= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 20 | | |
| 8-30 % | 60 | | |
| > 30 % | 20 | | |
| ALTITUDE IN MTS | 450 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 100 | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | | |
| CROPS | 0 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | | |
| SUBORDERS | UUS | | |
| GREAT GROUPS | UUSHA | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | | |
| DEPTH | M | | |
| INIT. INFIL. RATE | A | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | B | | |
| MOIST. HOLD. CAP. | B | | |
| TEMP. REGIME | H | | |
| MOIST. REGIME | SD | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | S | C | |
| COARSE MATERIAL | B | B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | H | |
| AL SATURATION % | B | A | |
| EXCHANGEABLE AL | M | A | |
| EXCHANGEABLE CA | M | B | |
| EXCHANGEABLE MG | A | M | |
| EXCHANGEABLE K | M | K | |
| EXCHANGEABLE NA | B | B | |
| TOTAL EXCH. BASES | M | B | |
| CATION EXCH. CAPAC. | M | M | |

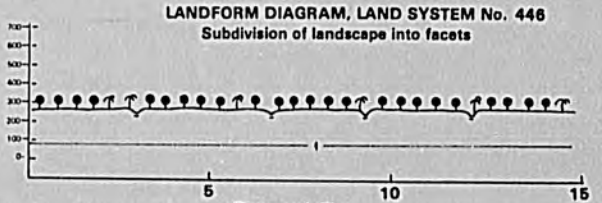
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A | B | |
| PHOSPHORUS | A | M | |
| PHOSPHORUS FIXATION | D | | |
| MANGANESE | J | | |
| SULPHUR | U | | |
| ZINC | U | | |
| IRON | U | | |
| COPPER | U | | |
| BORON | J | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | | |
| I | U | | |
| SE | U | | |
| CR | J | | |
| NI | U | | |
| OTHERS | J | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SC | | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Eb446

CLIMATE 400 SANTA CRUZ
AREA 69100 HAS.
ALTITUDE 280 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

LANDFORM DIAGRAM, LAND SYSTEM No. 446
Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 20 | | |
| < 8% | 80 | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 280 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 80 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 20 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 3 | | |
| CROPS | 2 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | | |
| SUBORDERS | ITR | | |
| GREAT GROUPS | ITREU | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | M | | |
| INIT. INFIL. RATE | B | | |
| HYDRAUL. CONDUCT. | B | | |
| DRAINAGE | D | | |
| MOIST. HOLD. CAP. | A | | |
| TEMP. REGIME | H | | |
| MOIST. REGIME | U | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | C | L | |
| COARSE MATERIAL | B | B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | |
| AL SATURATION % | B | B | |
| EXCHANGEABLE AL | B | A | |
| EXCHANGEABLE CA | A | A | |
| EXCHANGEABLE MG | A | A | |
| EXCHANGEABLE K | A | A | |
| EXCHANGEABLE NA | M | M | |
| TOTAL EXCH. BASES | A | A | |
| CATION EXCH. CAPAC. | A | A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A | M | |
| PHOSPHORUS | A | M | |
| PHOSPHORUS FIXATION | D | | |
| MANGANESE | U | | |
| SULPHUR | U | | |
| ZINC | U | | |
| IRON | U | | |
| COPPER | U | | |
| BORON | U | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | | |
| I | U | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | J | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CL | | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

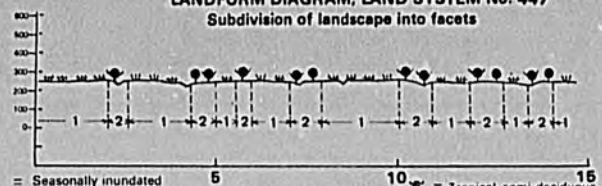
## Land System Eb447

CLIMATE 400 SANTA CRUZ
AREA 58900 HAS.
ALTITUDE 260 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 447

Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)

w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Tropical semi-deciduous seasonal forest

= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 66 | 34 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 70 | 30 | |
| < 8% | 30 | 70 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 260 | 265 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 70 | | |
| CL + CS | 30 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | 30 | |
| SDSF | | 70 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 90 | 40 | |
| CROPS | 10 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EPS | EPS | |
| GREAT GROUPS | EPSTR | EPSTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | D | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | H | H | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S L | L L | |
| COARSE MATERIAL | R R | B R | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | M A | M M | |
| EXCHANGEABLE NA | M A | M M | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | D | D | |
| SULPHUR | D | D | |
| ZINC | D | D | |
| IRON | D | D | |
| COPPER | D | D | |
| BORON | D | D | |
| MOLYBDENUM | D | D | |
| FREE CARBONATES | D | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | D | D | |
| I | D | D | |
| SE | D | D | |
| CR | D | D | |
| NI | D | D | |
| OTHERS | D | D | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SL | SL | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | D | | |
| FACET 3 | | | |

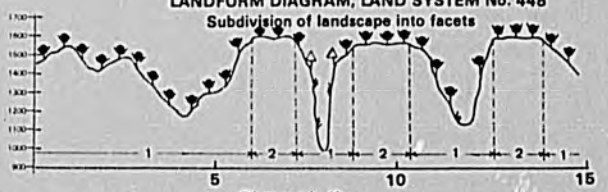
## Land System Fb448

CLIMATE 400 SANTA CRUZ
AREA 173500 HAS.
ALTITUDE 1500 MTS.
PHYSIOGRAPHIC UNIT NO.251
GENERALIZED CLASSIFICATION
UPLANDS,ABOVE 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 448

Subdivision of landscape into facets




= Tropical semi-deciduous seasonal forest

= Other

w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | V | |
| PERCENTAGE OF L.S. | 75 | 25 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 10 | 50 | |
| 8-30 % | 20 | 40 | |
| > 30 % | 70 | 10 | |
| ALTITUDE IN MTS | 1500 | 1600 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | 10 | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 90 | 90 | |
| CAAT | | | |
| OTHER | 10 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 30 | |
| CROPS | 2 | 0 | |

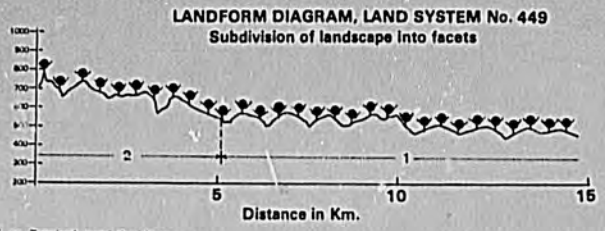
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | A | |
| SUBORDERS | EOR | AUS | |
| GREAT GROUPS | EORTR | AUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | M | |
| DEPTH | S | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | A | B | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | T | T | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L R | L C | |
| COARSE MATERIAL | M A | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M H | B B | |
| EXCHANGEABLE AL | M M | M A | |
| EXCHANGEABLE CA | M P | A M | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | M B | A M | |
| CATION EXCH. CAPAC. | M M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A M | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | D | D | |
| SULPHUR | D | D | |
| ZINC | D | D | |
| IRON | D | D | |
| COPPER | D | D | |
| BORON | D | D | |
| MOLYBDENUM | D | D | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | D | D | |
| I | D | D | |
| SE | D | D | |
| CR | D | D | |
| NI | D | D | |
| OTHERS | D | D | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LR | LC | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | D | | |
| FACET 3 | | | |

## Land System Fb449

CLIMATE 400 SANTA CRUZ
AREA 168000 HAS.
ALTITUDE 500 MTS.
PHYSIOGRAPHIC UNIT NO.251
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | M | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 30 | 20 | |
| 8-30 % | 30 | 30 | |
| > 30 % | 40 | 50 | |
| ALTITUDE IN MTS | 500 | 650 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 100 | 100 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 5 | |
| CROPS | 5 | 2 | |

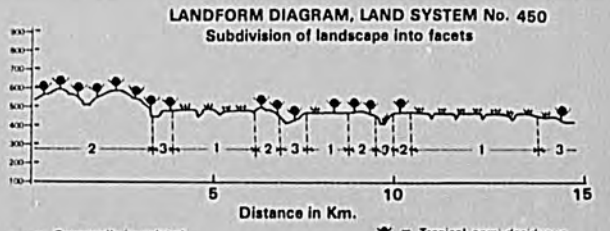
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | U | |
| SUBORDERS | UUS | UUS | |
| GREAT GROUPS | UUSHA | UUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | M | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | H | H | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S L | C C | |
| COARSE MATERIAL | B M | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | H H | H A | |
| EXCHANGEABLE AL | B A | M A | |
| EXCHANGEABLE CA | A M | M B | |
| EXCHANGEABLE MG | A M | M B | |
| EXCHANGEABLE K | A K | M M | |
| EXCHANGEABLE NA | A B | M B | |
| TOTAL EXCH. BASES | A M | M B | |
| CATION EXCH. CAPAC. | M M | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | O | I | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | N | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SL | CC | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | DAI | | |
| FACET 3 | | | |

## Land System Eb450

CLIMATE 400 SANTA CRUZ
AREA 103500 HAS.
ALTITUDE 500 MTS.
PHYSIOGRAPHIC UNIT NO.251
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




= Seasonally inundated pampa (grasslands)

= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | C | T |
| PERCENTAGE OF L.S. | 45 | 40 | 15 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | | 30 |
| < 8% | 10 | 30 | 70 |
| 8-30 % | | 40 | |
| > 30 % | | 30 | |
| ALTITUDE IN MTS | 450 | 500 | 400 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 90 | | 30 |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 10 | 100 | 70 |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 30 | 20 | 20 |
| CROPS | 0 | 30 | 30 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | U | E |
| SUBORDERS | AAQ | UUS | EPS |
| GREAT GROUPS | AAQNA | UUSHA | EPSOU |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | B |
| DEPTH | M | M | P |
| INIT. INFIL. RATE | A | A | A |
| HYDRAUL. CONDUCT. | B | M | A |
| DRAINAGE | G | B | B |
| MOIST. HOLD. CAP. | M | M | B |
| TEMP. REGIME | H | H | H |
| MOIST. REGIME | SD | SD | SD |
| EXPANDING CLAYS | D | D | D |
| TEXTURE | S C | L C | S S |
| COARSE MATERIAL | B B | B M | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | B B | M H | B B |
| EXCHANGEABLE AL | B A | M A | B B |
| EXCHANGEABLE CA | A M | A M | A M |
| EXCHANGEABLE MG | M M | A M | A M |
| EXCHANGEABLE K | A M | K K | K K |
| EXCHANGEABLE NA | A M | M M | B B |
| TOTAL EXCH. BASES | A M | A M | A M |
| CATION EXCH. CAPAC. | A M | A M | A M |

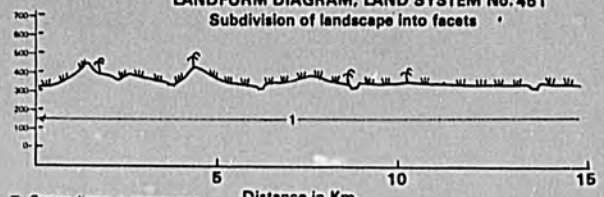
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | A B |
| PHOSPHORUS | M B | M M | A B |
| PHOSPHORUS FIXATION | O | O | O |
| MANGANESE | B | U | U |
| SULPHUR | B | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | S | B | B |
| NATRIC | N | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | O | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SC | LC | SS |
| MODIFIERS FACET 1 | GDSN | | |
| FACET 2 | DK | | |
| FACET 3 | DK | | |

## Land System Eb451

CLIMATE 400 SANTA CRUZ
AREA 19500 HAS.
ALTITUDE 325 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No. 451**
**Subdivision of landscape into facets**




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 20 | | |
| 8-30 % | 50 | | |
| > 30 % | 30 | | |
| ALTITUDE IN MTS | 325 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 70 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 30 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 70 | | |
| CROPS | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | | |
| SUBORDERS | EPS | | |
| GREAT GROUPS | EPSQU | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | W | | |
| DEPTH | P | | |
| INIT. INFIL. RATE | A | | |
| HYDRAUL. CONDUCT. | A | | |
| DRAINAGE | B | | |
| MOIST. HOLD. CAP. | B | | |
| TEMP. REGIME | H | | |
| MOIST. REGIME | SD | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | S | S | |
| COARSE MATERIAL | B | B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | |
| AL SATURATION % | B | B | |
| EXCHANGEABLE AL | B | B | |
| EXCHANGEABLE CA | M | B | |
| EXCHANGEABLE MG | B | B | |
| EXCHANGEABLE K | K | K | |
| EXCHANGEABLE NA | B | B | |
| TOTAL EXCH. BASES | B | B | |
| CATION EXCH. CAPAC. | E | E | |

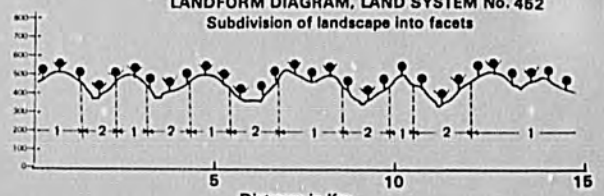
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B | B | |
| PHOSPHORUS | M | B | |
| PHOSPHORUS FIXATION | D | | |
| MANGANESE | B | | |
| SULPHUR | S | | |
| ZINC | B | | |
| IRON | U | | |
| COPPER | U | | |
| BORON | B | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | | |
| I | B | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | | |
| MODIFIERS FACET 1 | DKE | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Eb452

CLIMATE 400 SANTA CRUZ
AREA 34100 HAS.
ALTITUDE 475 MTS.
PHYSIOGRAPHIC UNIT NO.251
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No. 452**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest

= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | V | |
| PERCENTAGE OF L.S. | 55 | 45 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 20 | 30 | |
| 8-30 % | 30 | 50 | |
| > 30 % | 50 | 20 | |
| ALTITUDE IN MTS | 475 | 425 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 50 | 60 | |
| SDSF | 50 | 40 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 10 | |
| CROPS | 0 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | A | |
| SUBORDERS | EOR | AUS | |
| GREAT GROUPS | EORUS | AUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | M | |
| DEPTH | S | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | B | |
| TEMP. REGIME | S | H | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L | P L | C |
| COARSE MATERIAL | B | A B | M |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M A | M |
| AL SATURATION % | B | B B | B |
| EXCHANGEABLE AL | B | B B | B |
| EXCHANGEABLE CA | A | M A | A |
| EXCHANGEABLE MG | A | M A | A |
| EXCHANGEABLE K | A | A A | A |
| EXCHANGEABLE NA | M | B A | A |
| TOTAL EXCH. BASES | A | B A | A |
| CATION EXCH. CAPAC. | A | M A | A |

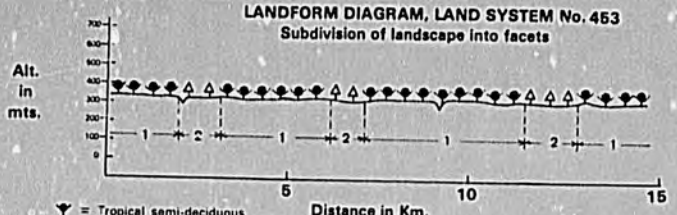
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | A M | A A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LR | LC | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | D | | |
| FACET 3 | | | |

## Land System Eb453

CLIMATE 400 SANTA CRUZ
AREA 32200 HAS.
ALTITUDE 325 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No. 453**
**Subdivision of landscape into facets**




= Tropical semi-deciduous seasonal forest

= Other

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 99 | |
| < 8% | 99 | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 330 | 320 | |

ORIGINAL VEGETATION CLASS. (%)

| | | |
|---|---|---|
| SEAS.IN.P. | | |
| CL + CS | | |
| CC | | |
| C | | |
| CD | | |
| TRF | | |
| SESF | | |
| SDSF | 100 | |
| CAAT | | |
| OTHER | | 100 |

INDUCED VEGETATION (%)

| | | |
|---|---|---|
| PASTURE | 20 | 10 |
| CROPS | 10 | 0 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | I | |
| SUBORDERS | EPS | IAQ | |
| GREAT GROUPS | EPSUS | IAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | B | |
| HYDRAUL. CONDUCT. | A | B | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | B | A | |
| TEMP. REGIME | I | H | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S S | C C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | A M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B E | B E | |
| EXCHANGEABLE CA | M M | A A | |
| EXCHANGEABLE MG | M M | A A | |
| EXCHANGEABLE K | K K | A M | |
| EXCHANGEABLE NA | M B | A M | |
| TOTAL EXCH. BASES | M B | A A | |
| CATION EXCH. CAPAC. | M M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A M | |
| PHOSPHORUS | M B | A A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | D | D | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | D | U | |
| I | D | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

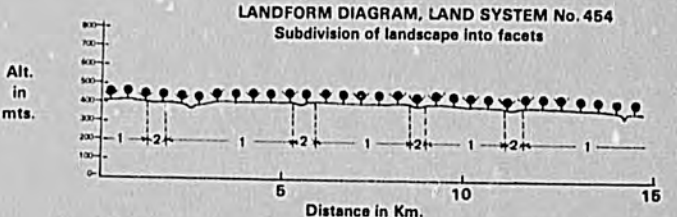
FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES SS CC
MODIFIERS FACET 1 DK
FACET 2 DG
FACET 3

## Land System Eb454

CLIMATE 400 SANTA CRUZ
AREA 115900 HAS.
ALTITUDE 400 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No. 454**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest

= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 60 | |
| < 8% | 90 | 40 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 400 | 395 | |

ORIGINAL VEGETATION CLASS. (%)

| | | |
|---|---|---|
| SEAS.IN.P. | | |
| CL + CS | | |
| CC | | |
| C | | |
| CD | | |
| TRF | | |
| SESF | 40 | 50 |
| SDSF | 60 | 50 |
| CAAT | | |
| OTHER | | |

INDUCED VEGETATION (%)

| | | |
|---|---|---|
| PASTURE | 70 | 70 |
| CROPS | 20 | 20 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | I | |
| SUBORDERS | EPS | ITR | |
| GREAT GROUPS | EPSUS | ITRUS | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | B | |
| HYDRAUL. CONDUCT. | A | B | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | H | I | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S S | C C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M M | A A | |
| EXCHANGEABLE MG | M M | A M | |
| EXCHANGEABLE K | K K | A M | |
| EXCHANGEABLE NA | M B | A M | |
| TOTAL EXCH. B.SES | M B | A M | |
| CATION EXCH. CAPAC. | M E | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | B | U | |
| ZINC | B | U | |
| IRON | B | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | B | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | D | U | |
| I | D | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | D | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES SS CC
MODIFIERS FACET 1 DK
FACET 2 DB
FACET 3

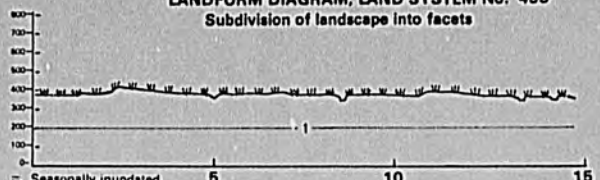
## Land System Eb455

CLIMATE 403 SANTA CRUZ
AREA 8400 HAS.
ALTITUDE 370 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPESCAR
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 455

Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)

= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 20 | | |
| < 8% | | 80 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 370 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 20 | | |
| CL + CS | 80 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | | |
| CROPS | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | | |
| SUBORDERS | EPS | | |
| GREAT GROUPS | EPSOU | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | 1 | | |
| DEPTH | P | | |
| INIT. INFIL. RATE | A | | |
| HYDRAUL. CONDUCT. | B | | |
| DRAINAGE | A | | |
| MOIST. HOLD. CAP. | A | | |
| TEMP. REGIME | H | | |
| MOIST. REGIME | SD | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | S S | | |
| COARSE MATERIAL | A B | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | | |
| AL SATURATION % | B E | | |
| EXCHANGEABLE AL | A B | | |
| EXCHANGEABLE CA | M B | | |
| EXCHANGEABLE MG | M M | | |
| EXCHANGEABLE K | K K | | |
| EXCHANGEABLE NA | A B | | |
| TOTAL EXCH. BASES | M M | | |
| CATION EXCH. CAPAC. | E E | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | | |
| PHOSPHORUS | S S | | |
| PHOSPHORUS FIXATION | D | | |
| MANGANESE | B | | |
| SULPHUR | B | | |
| ZINC | B | | |
| IRON | J | | |
| COPPER | B | | |
| BORON | B | | |
| MOLYBDENUM | B | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | | |
| I | B | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | | |
| MODIFIERS FACET 1 | DKE | | |
| FACET 2 | | | |
| FACET 3 | | | |

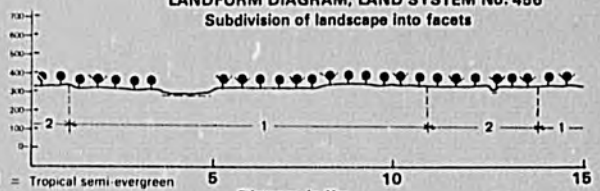
## Land System Eb456

CLIMATE 403 SANTA CRUZ
AREA 131300 HAS.
ALTITUDE 350 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPESCAR
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 456

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | P | |
| PERCENTAGE OF L.S. | 75 | 25 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 10 | |
| < 8% | | 90 | 90 |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 350 | 340 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 50 | 60 | |
| SDSF | 40 | 40 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 50 | 20 | |
| CROPS | 20 | 50 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | I | |
| SUBORDERS | EPS | ITR | |
| GREAT GROUPS | EPSUS | ITRUS | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | H | H | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S S | L L | |
| COARSE MATERIAL | A B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M M | A A | |
| EXCHANGEABLE MG | M M | A A | |
| EXCHANGEABLE K | K K | A A | |
| EXCHANGEABLE NA | B B | M M | |
| TOTAL EXCH. BASES | M B | A A | |
| CATION EXCH. CAPAC. | E E | A A | |

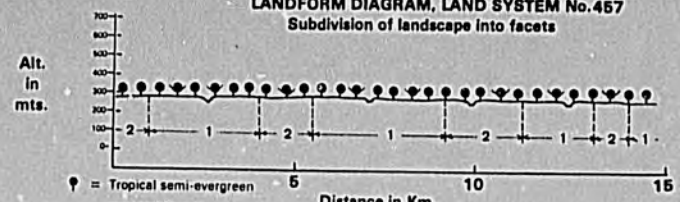
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | S | B | |
| SULPHUR | S | B | |
| ZINC | B | S | |
| IRON | B | S | |
| COPPER | S | S | |
| BORON | S | S | |
| MOLYBDENUM | S | S | |
| FREE CARBONATES | A | B | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | B | S | |
| SE | U | U | |
| CR | J | U | |
| NI | U | U | |
| OTHERS | J | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | LL | |
| MODIFIERS FACET 1 | DKE | | |
| FACET 2 | DN | | |
| FACET 3 | | | |

## Land System Eb457

CLIMATE 400 SANTA CRUZ
AREA 155300 HAS.
ALTITUDE 280 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No.457
Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 65 | 35 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 30 | |
| < 8% | 90 | 70 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 250 | 270 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 70 | 90 | |
| SDSF | 30 | 10 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 30 | 30 | |
| CROPS | 20 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | I | |
| SUBORDERS | EPS | ITR | |
| GREAT GROUPS | EPSJS | ITRUS | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | B | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | M | A | |
| TEMP. REGIME | H | H | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L S | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B M | |
| EXCHANGEABLE CA | M M | A A | |
| EXCHANGEABLE MG | M M | A A | |
| EXCHANGEABLE K | M K | A A | |
| EXCHANGEABLE NA | B B | A M | |
| TOTAL EXCH. BASES | M B | A A | |
| CATION EXCH. CAPAC. | M E | A A | |

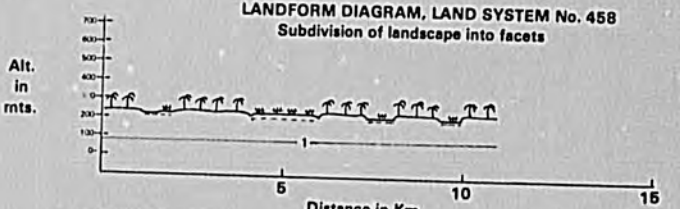
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | A B | A A | |
| PHOSPHORUS FIXATION | J | J | |
| MANGANESE | J | P | |
| SULPHUR | B | B | |
| ZINC | B | B | |
| IRON | B | J | |
| COPPER | S | U | |
| BORON | S | J | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | B | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | J | |
| I | U | U | |
| SE | U | U | |
| CR | J | J | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LS | CC | |
| MODIFIERS FACET 1 | U | | |
| FACET 2 | DR | | |
| FACET 3 | | | |

## Land System Eb458

CLIMATE 400 SANTA CRUZ
AREA 31400 HAS.
ALTITUDE 230 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 458
Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | | |
| < 8% | 10 | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 230 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 35 | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 65 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | | |
| CROPS | 0 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | | |
| SUBORDERS | EAQ | | |
| GREAT GROUPS | EAQTR | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | M | | |
| INIT. INFIL. RATE | B | | |
| HYDRAUL. CONDUCT. | B | | |
| DRAINAGE | G | | |
| MOIST. HOLD. CAP. | B | | |
| TEMP. REGIME | H | | |
| MOIST. REGIME | U | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | C C | | |
| COARSE MATERIAL | B B | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | | |
| AL SATURATION % | B B | | |
| EXCHANGEABLE AL | B B | | |
| EXCHANGEABLE CA | A A | | |
| EXCHANGEABLE MG | A A | | |
| EXCHANGEABLE K | A M | | |
| EXCHANGEABLE NA | A M | | |
| TOTAL EXCH. BASES | A A | | |
| CATION EXCH. CAPAC. | A A | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | | |
| PHOSPHORUS | A A | | |
| PHOSPHORUS FIXATION | J | | |
| MANGANESE | J | | |
| SULPHUR | U | | |
| ZINC | U | | |
| IRON | J | | |
| COPPER | U | | |
| BORON | U | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | | |
| I | U | | |
| SE | U | | |
| CR | J | | |
| NI | U | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | | |
| MODIFIERS FACET 1 | S | | |
| FACET 2 | | | |
| FACET 3 | | | |

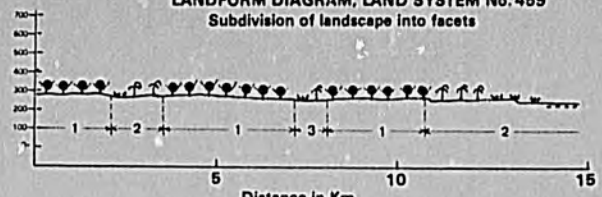
## Land System Ee459

CLIMATE 430 SAN JOSE
AREA 215430 HAS.
ALTITUDE 270 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 459

Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)
= Palm forest
= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | T | P |
| PERCENTAGE OF L.S. | 50 | 35 | 15 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 90 | 90 |
| < 8% | 90 | 10 | 10 |
| 8-30 % | 10 | | |
| > 30 % | 90 | | |
| ALTITUDE IN MTS | 275 | 270 | 267 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | 90 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 5 | 5 |
| CROPS | 5 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | I |
| SUBORDERS | EFL | EFL | IAQ |
| GREAT GROUPS | EFLXE | EFLXE | IAQHA |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | D |
| DEPTH | P | P | M |
| INIT. INFIL. RATE | M | A | B |
| HYDRAUL. CONDUCT. | M | M | P |
| DRAINAGE | B | B | G |
| MOIST. HOLD. CAP. | M | B | B |
| TEMP. REGIME | H | H | H |
| MOIST. REGIME | XD | XD | SD |
| EXPANDING CLAYS | O | O | O |
| TEXTURE | L L | L L | C C |
| COARSE MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | B B | B B | B B |
| EXCHANGEABLE AL | B B | B B | B B |
| EXCHANGEABLE CA | A A | A A | A A |
| EXCHANGEABLE MG | A A | A A | A A |
| EXCHANGEABLE K | A A | A A | A A |
| EXCHANGEABLE NA | A A | A M | A M |
| TOTAL EXCH. BASES | A A | A A | A A |
| CATION EXCH. CAPAC. | A A | A A | A A |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | A B |
| PHOSPHORUS | A A | A A | A A |
| PHOSPHORUS FIXATION | D | D | D |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | B | B | B |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | CC |
| MODIFIERS FACET 1 | DB | | |
| FACET 2 | DB | | |
| FACET 3 | DB | | |

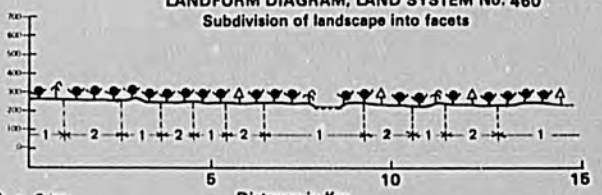
## Land System Ee460

CLIMATE 400 SANTA CRUZ
AREA 147384 HAS.
ALTITUDE 270 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 460

Subdivision of landscape into facets




= Other
= Palm forest
= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | P | |
| PERCENTAGE OF L.S. | 50 | 40 | 10 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 90 | |
| < 8% | 90 | 10 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 270 | 280 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | 40 | |
| CAAT | | | |
| OTHER | 100 | 60 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 25 | 25 | |
| CROPS | 25 | 25 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EFL | EFL | |
| GREAT GROUPS | EFLUS | EFLUS | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | M | B | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | A | |
| TEMP. REGIME | H | H | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | C C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | A A | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | A A | A A | |
| EXCHANGEABLE NA | A M | M M | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | A A | A A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | B | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | CC | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | D | | |
| FACET 3 | | | |

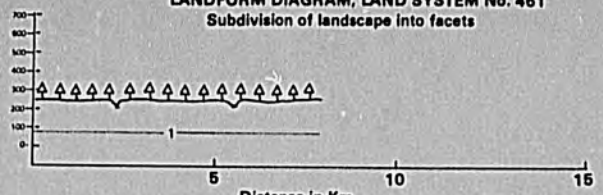
214

## Land System Eb461

CLIMATE 400 SANTA CRUZ
AREA 50300 HAS.
ALTITUDE 255 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 461**
**Subdivision of landscape into facets**




φ = Other

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 99 | | |
| < 9% | | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 255 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | | |
| CROPS | 0 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | | |
| SUBORDERS | IAU | | |
| GREAT GROUPS | IAUHA | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | 7 | | |
| DEPTH | 4 | | |
| INIT. INFIL. RATE | 4 | | |
| HYDRAUL. CONDUCT. | 6 | | |
| DRAINAGE | 3 | | |
| MOIST. HOLD. CAP. | A | | |
| TEMP. REGIME | 4 | | |
| MOIST. REGIME | U | | |
| EXPANDING CLAYS | 3 | | |
| TEXTURE | C | C | |
| COARSE MATERIAL | A | A | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | A | |
| AL SATURATION % | A | A | |
| EXCHANGEABLE AL | B | B | |
| EXCHANGEABLE CA | A | A | |
| EXCHANGEABLE MG | A | A | |
| EXCHANGEABLE K | A | A | |
| EXCHANGEABLE NA | A | A | |
| TOTAL EXCH. BASES | A | A | |
| CATION EXCH. CAPAC. | A | A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A | B | |
| PHOSPHORUS | A | A | |
| PHOSPHORUS FIXATION | J | | |
| MANGANESE | J | | |
| SULPHUR | J | | |
| ZINC | J | | |
| IRON | J | | |
| COPPER | J | | |
| BORON | J | | |
| MOLYBDENUM | J | | |
| FREE CARBONATES | A | | |
| SALINITY | S | | |
| NATRIC | A | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | | |
| I | J | | |
| SE | J | | |
| CR | J | | |
| NI | J | | |
| OTHERS | J | | |

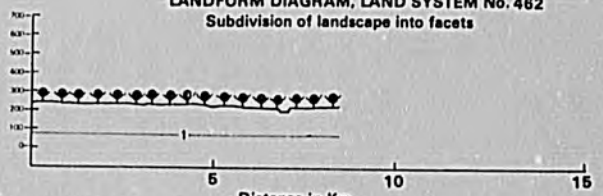
FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CC
MODIFIERS FACET 1 SS
FACET 2
FACET 3

## Land System Eb462

CLIMATE 400 SANTA CRUZ
AREA 25300 HAS.
ALTITUDE 245 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 462**
**Subdivision of landscape into facets**




= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 20 | | |
| < 9% | HO | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 245 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 100 | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | | |
| CROPS | 20 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | | |
| SUBORDERS | EFL | | |
| GREAT GROUPS | EFLUS | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | | |
| DEPTH | P | | |
| INIT. INFIL. RATE | M | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | 3 | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | H | | |
| MOIST. REGIME | SD | | |
| EXPANDING CLAYS | 3 | | |
| TEXTURE | L | L | |
| COARSE MATERIAL | A | A | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | |
| AL SATURATION % | B | B | |
| EXCHANGEABLE AL | B | B | |
| EXCHANGEABLE CA | A | A | |
| EXCHANGEABLE MG | A | A | |
| EXCHANGEABLE K | A | A | |
| EXCHANGEABLE NA | A | A | |
| TOTAL EXCH. BASES | A | A | |
| CATION EXCH. CAPAC. | A | A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A | B | |
| PHOSPHORUS | A | B | |
| PHOSPHORUS FIXATION | J | | |
| MANGANESE | J | | |
| SULPHUR | J | | |
| ZINC | J | | |
| IRON | J | | |
| COPPER | J | | |
| BORON | J | | |
| MOLYBDENUM | J | | |
| FREE CARBONATES | A | | |
| SALINITY | A | | |
| NATRIC | A | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | | |
| I | J | | |
| SE | J | | |
| CR | J | | |
| NI | J | | |
| OTHERS | J | | |

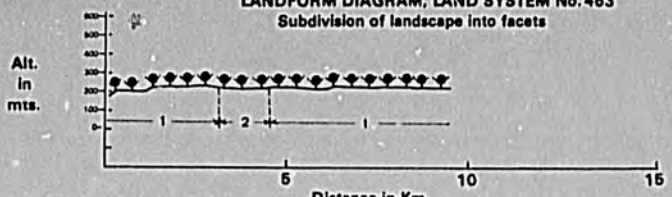
FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LL
MODIFIERS FACET 1 D
FACET 2
FACET 3

## Land System Eb463

CLIMATE 400 SANTA CRUZ
AREA 166500 HAS.
ALTITUDE 230 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 463**
**Subdivision of landscape into facets**




= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 95 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 90 | |
| < 8% | 90 | 10 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 230 | 220 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 100 | 100 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 10 | |
| CROPS | 15 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EFL | EFL | |
| GREAT GROUPS | EFLUS | EFLUS | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | H | H | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | A A | A A | |
| EXCHANGEABLE NA | M M | A M | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

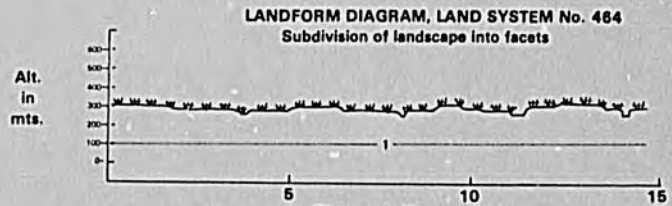
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | A A | A A | |
| PHOSPHORUS FIXATION | - | D | |
| MANGANESE | U | U | |
| SULPHUR | S | S | |
| ZINC | S | S | |
| IRON | S | S | |
| COPPER | J | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | J | J | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | J | J | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | D | | |
| FACET 3 | | | |

## Land System Eb464

CLIMATE 400 SANTA CRUZ
AREA 231600 HAS.
ALTITUDE 220 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 464**
**Subdivision of landscape into facets**




= Seasonally inundated pampa (grasslands)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 80 | | |
| < 8% | 20 | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 220 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 100 | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | | |
| CROPS | 0 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | | |
| SUBORDERS | EFL | | |
| GREAT GROUPS | EFLUS | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | P | | |
| INIT. INFIL. RATE | A | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | G | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | H | | |
| MOIST. REGIME | SD | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | L L | | |
| COARSE MATERIAL | B B | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | | |
| AL SATURATION % | B B | | |
| EXCHANGEABLE AL | B B | | |
| EXCHANGEABLE CA | A A | | |
| EXCHANGEABLE MG | A A | | |
| EXCHANGEABLE K | A A | | |
| EXCHANGEABLE NA | A A | | |
| TOTAL EXCH. BASES | A A | | |
| CATION EXCH. CAPAC. | A A | | |

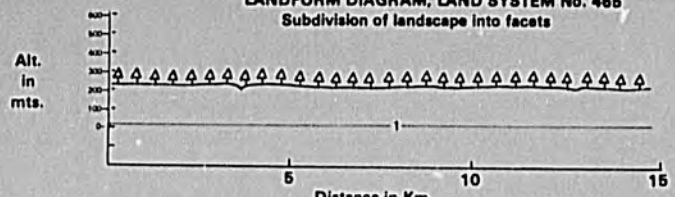
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | | |
| PHOSPHORUS | A M | | |
| PHOSPHORUS FIXATION | D | | |
| MANGANESE | J | | |
| SULPHUR | U | | |
| ZINC | U | | |
| IRON | J | | |
| COPPER | U | | |
| BORON | J | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | | |
| I | J | | |
| SE | J | | |
| CR | J | | |
| NI | J | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Ec465

CLIMATE 400 SANTA CRUZ
AREA 130000 HAS.
ALTITUDE 240 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 465**
**Subdivision of landscape into facets**




♀ = Other

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 15 | | |
| < 8% | 85 | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 240 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | | |
| CROPS | 1 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | | |
| SUBORDERS | ITR | | |
| GREAT GROUPS | ITRUS | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | 3 | | |
| DEPTH | P | | |
| INIT. INFIL. RATE | M | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | B | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | H | | |
| MOIST. REGIME | SD | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | L | L | |
| COARSE MATERIAL | B | B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | A | |
| AL SATURATION % | B | B | |
| EXCHANGEABLE AL | B | B | |
| EXCHANGEABLE CA | A | A | |
| EXCHANGEABLE MG | A | A | |
| EXCHANGEABLE K | A | A | |
| EXCHANGEABLE NA | A | A | |
| TOTAL EXCH. BASES | A | A | |
| CATION EXCH. CAPAC. | A | A | |

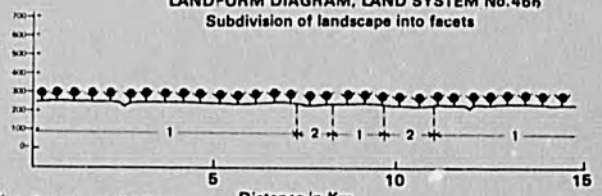
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A | M | |
| PHOSPHORUS | A | A | |
| PHOSPHORUS FIXATION | D | | |
| MANGANESE | J | | |
| SULPHUR | J | | |
| ZINC | U | | |
| IRON | J | | |
| COPPER | U | | |
| BORON | J | | |
| MOLYBDENUM | J | | |
| FREE CARBONATES | B | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | | |
| I | J | | |
| SE | U | | |
| CR | J | | |
| NI | J | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | | |
| MODIFIERS FACET 1 | OR | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Eb466

CLIMATE 400 SANTA CRUZ
AREA 187900 HAS.
ALTITUDE 230 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No.466**
**Subdivision of landscape into facets**




♀ = Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 90 | |
| < 8% | 90 | 10 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 230 | 220 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 100 | 100 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | I | |
| SUBORDERS | ITR | ITR | |
| GREAT GROUPS | ITRUS | ITRUS | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | M | B | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | A | A | |
| TEMP. REGIME | H | H | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L | L | C C |
| COARSE MATERIAL | B | B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | M M |
| AL SATURATION % | B | B | B B |
| EXCHANGEABLE AL | B | M | B M |
| EXCHANGEABLE CA | A | M | A M |
| EXCHANGEABLE MG | A | A | A A |
| EXCHANGEABLE K | A | M | A M |
| EXCHANGEABLE NA | A | A | A M |
| TOTAL EXCH. BASES | A | M | A B |
| CATION EXCH. CAPAC. | A | M | A M |

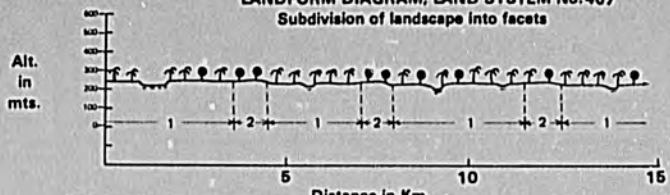
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A | B | |
| PHOSPHORUS | A | A | A M |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | J | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | J | J | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | CC | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | GD | | |
| FACET 3 | | | |

## Land System Eb467

CLIMATE 110 CONCEPCION
AREA 157400 HAS.
ALTITUDE 220 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No.467**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 80 | 20 | |
| < 8% | | 20 | 80 |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 220 | 215 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 20 | 80 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 80 | 20 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | I | |
| SUBORDERS | IAU | ITR | |
| GREAT GROUPS | IAUTR | ITREU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | H | H | |
| MOIST. REGIME | U | J | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | M M | B M | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | A M | A M | |
| EXCHANGEABLE NA | A M | M B | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A A | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | A A | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

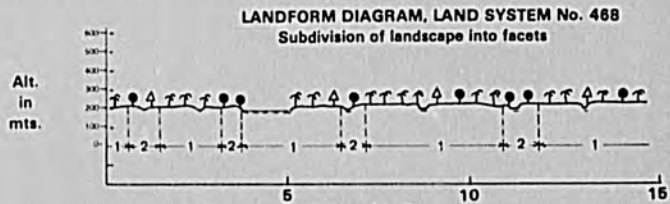
FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CC LL
MODIFIERS FACET 1 G
FACET 2
FACET 3

## Land System Eb468

CLIMATE 110 CONCEPCION
AREA 744175 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 468**
**Subdivision of landscape into facets**




= Other

= Palm forest

= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 10 | |
| < 8% | 10 | 90 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 220 | 230 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 10 | 90 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 90 | 10 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | I | |
| SUBORDERS | AAQ | ITR | |
| GREAT GROUPS | AAQTR | ITREU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | B | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | J | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B M | B M | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | A M | M M | |
| EXCHANGEABLE NA | M M | M M | |
| TOTAL EXCH. BASES | A M | A B | |
| CATION EXCH. CAPAC. | A A | A M | |

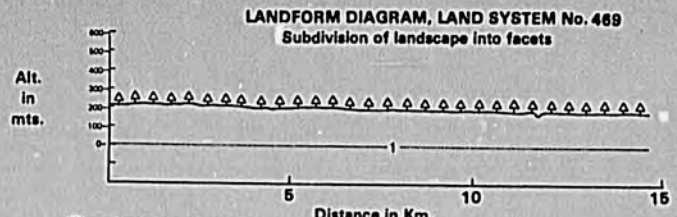
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | A M | A B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CC LL
MODIFIERS FACET 1 G
FACET 2
FACET 3

## Land System Ee469

CLIMATE 430 SAN JOSE
AREA 1205700 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO.260
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M




Y = Tropical semi-deciduos seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 10 | | |
| < 8% | 90 | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 200 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | | |
| CROPS | 0 | | |

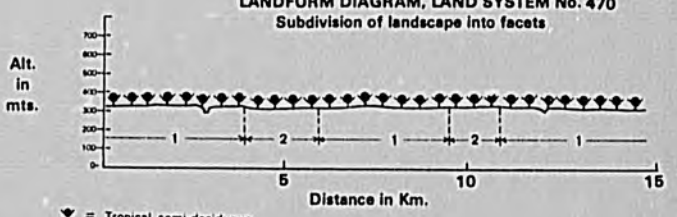
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | D | | |
| SUBORDERS | DOR | | |
| GREAT GROUPS | DORCM | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | | |
| DEPTH | P | | |
| INIT. INFIL. RATE | M | | |
| HYDRAUL. CONDUCT. | M | | |
| DRAINAGE | B | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | H | | |
| MOIST. REGIME | XD | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | L | L | |
| COARSE MATERIAL | B | B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | |
| AL SATURATION % | B | B | |
| EXCHANGEABLE AL | B | B | |
| EXCHANGEABLE CA | A | A | |
| EXCHANGEABLE MG | A | A | |
| EXCHANGEABLE K | A | A | |
| EXCHANGEABLE NA | A | A | |
| TOTAL EXCH. BASES | A | A | |
| CATION EXCH. CAPAC. | A | A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT).. | | | |
| ORGANIC MATTER % | A | B | |
| PHOSPHORUS | A | A | |
| PHOSPHORUS FIXATION | D | | |
| MANGANESE | U | | |
| SULPHUR | U | | |
| ZINC | U | | |
| IRON | U | | |
| COPPER | U | | |
| BORON | U | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | B | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | |
| I | U | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Eeb470

CLIMATE 110 CONCEPCION
AREA 47400 HAS.
ALTITUDE 230 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




Y = Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 75 | 25 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 10 | 90 | |
| < 8% | 90 | 10 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 230 | 225 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 100 | 100 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 5 | |
| CROPS | 15 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EFL | EFL | |
| GREAT GROUPS | EFLUS | EFLUS | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | M | B | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | M | B | |
| TEMP. REGIME | H | H | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L | C | C C |
| COARSE MATERIAL | B | B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M | M | M M |
| AL SATURATION % | B | B | B B |
| EXCHANGEABLE AL | B | B | B B |
| EXCHANGEABLE CA | A | M | A M |
| EXCHANGEABLE MG | A | A | A A |
| EXCHANGEABLE K | A | K | M K |
| EXCHANGEABLE NA | M | B | M B |
| TOTAL EXCH. BASES | A | A | A B |
| CATION EXCH. CAPAC. | A | A | A M |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A | B | A B |
| PHOSPHORUS | A | A | A M |
| PHOSPHORUS FIXATION | D | | D |
| MANGANESE | U | | U |
| SULPHUR | U | | U |
| ZINC | U | | U |
| IRON | U | | U |
| COPPER | U | | U |
| BORON | U | | U |
| MOLYBDENUM | B | | B |
| FREE CARBONATES | A | | A |
| SALINITY | B | | B |
| NATRIC | B | | B |
| CAT CLAY | N | | N |
| X-RAY AMORPHOUS | N | | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | U |
| I | U | | J |
| SE | U | | U |
| CR | U | | U |
| NI | U | | U |
| OTHERS | U | | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | | CC |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | D | | |
| FACET 3 | | | |

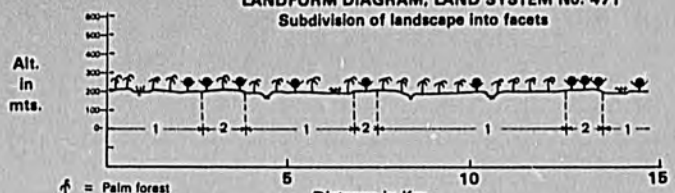
## Land System Eb471

CLIMATE 110 CONCEPCION
AREA 67400 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 471

Subdivision of landscape into facets




= Palm forest
= Tropical semi-deciduous seasonal forest
= Seasonally inundated pampa (grasslands)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 75 | 25 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 10 | |
| < 8% | 10 | 70 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 200 | 210 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 20 | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 10 | 90 | |
| CAAT | | | |
| OTHER | 70 | 10 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0- | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EFL | |
| GREAT GROUPS | EAQTR | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | A | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | H | H | |
| MOIST. REGIME | U | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A A | |
| EXCHANGEABLE MG | A M | A A | |
| EXCHANGEABLE K | M K | A M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A M | A A | |
| CATION EXCH. CAPAC. | A M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | A M | A A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | J | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | D | | |
| FACET 3 | | | |

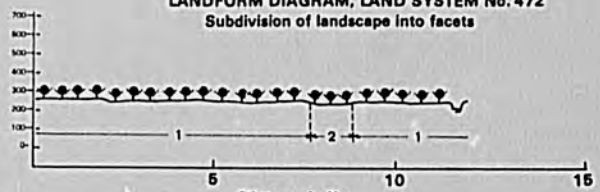
## Land System Eb472

CLIMATE 110 CONCEPCION
AREA 54400 HAS.
ALTITUDE 240 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 472

Subdivision of landscape into facets




= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 99 | |
| < 8% | 99 | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 240 | 235 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 100 | 100 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 5 | |
| CROPS | 15 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EFL | EPS | |
| GREAT GROUPS | EFLUS | EPSUS | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | H | H | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | A A | A A | |
| EXCHANGEABLE NA | A A | A A | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

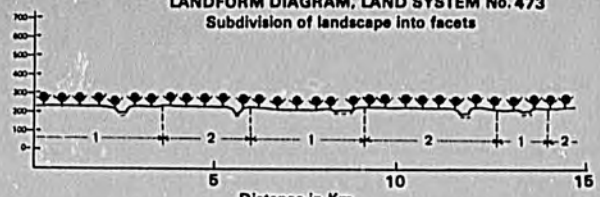
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | A A | A A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | S | S | |
| SULPHUR | S | S | |
| ZINC | S | S | |
| IRON | S | S | |
| COPPER | S | S | |
| BORON | S | S | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | S | S | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | D | | |
| FACET 3 | | | |

## Land System Eb473

CLIMATE 110 CONCEPCION
AREA 188000 HAS.
ALTITUDE 235 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 473
Subdivision of landscape into facets




= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 55 | 45 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 99 | | |
| < 8% | | 99 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 235 | 230 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 100 | 100 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EFL | |
| GREAT GROUPS | EAQFL | EFLUS | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | H | H | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B M | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | A M | A M | |
| EXCHANGEABLE NA | A M | A M | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

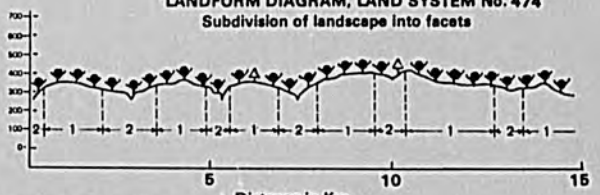
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | A A | A A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | S | S | |
| SULPHUR | S | S | |
| ZINC | S | S | |
| IRON | S | S | |
| COPPER | U | U | |
| BORON | U | S | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | S | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | GD | | |
| FACET 2 | D | | |
| FACET 3 | | | |

## Land System Bc474

CLIMATE 110 CONCEPCION
AREA 1461100 HAS.
ALTITUDE 350 MTS.
PHYSIOGRAPHIC UNIT NO.254
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 474
Subdivision of landscape into facets




= Tropical semi-deciduous seasonal forest

= Other

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 20 | 20 | |
| 8-30 % | 50 | 20 | |
| > 30 % | 30 | 60 | |
| ALTITUDE IN MTS | 400 | 300 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 95 | 95 | |
| CAAT | | | |
| OTHER | 5 | 5 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | 5 | |
| CROPS | 0 | 1 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | D | D | |
| SUBORDERS | DUS | DUS | |
| GREAT GROUPS | DUSHA | DUSHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | C C | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B M | |
| EXCHANGEABLE AL | B M | B M | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | I | I | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | D | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | CC | |
| MODIFIERS FACET 1 | DI | | |
| FACET 2 | DI | | |
| FACET 3 | | | |

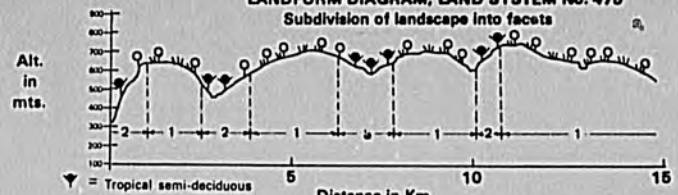
## Land System Bc475

CLIMATE 410 SAN IGNACIO
AREA 541900 HAS.
ALTITUDE 700 MTS.
PHYSIOGRAPHIC UNIT NO.254
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 475

Subdivision of landscape into facets




= Tropical semi-deciduous seasonal forest
= Campo cerrado (open savanna)
= Cerrado (savanna)
w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | E | C |
| PERCENTAGE OF L.S. | 70 | 20 | 10 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 30 | | 30 |
| 8-30 % | 50 | 30 | 50 |
| > 30 % | 20 | 70 | 20 |
| ALTITUDE IN MTS | 700 | 450 | 600 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 20 | | |
| CC | 80 | | |
| C | | 20 | 20 |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | 80 | 90 |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 0 | 30 |
| CROPS | 1 | 0 | 5 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | D |
| SUBORDERS | UUS | EOR | DUS |
| GREAT GROUPS | UUSHA | EORUS | DUSEU |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | W | A | M |
| DEPTH | W | S | P |
| INIT. INFIL. RATE | A | A | M |
| HYDRAUL. CONDUCT. | W | A | B |
| DRAINAGE | B | B | B |
| MOIST. HOLD. CAP. | W | B | M |
| TEMP. REGIME | H | H | H |
| MOIST. REGIME | SD | SD | SD |
| EXPANDING CLAYS | D | D | D |
| TEXTURE | L C | L R | C C |
| COARSE MATERIAL | B M | M A | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | B M | B B | B B |
| EXCHANGEABLE AL | B A | B B | B B |
| EXCHANGEABLE CA | M M | A M | A M |
| EXCHANGEABLE MG | M M | A M | A A |
| EXCHANGEABLE K | M K | A M | A A |
| EXCHANGEABLE NA | M B | M B | M M |
| TOTAL EXCH. BASES | M B | A A | A A |
| CATION EXCH. CAPAC. | E E | A M | A A |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | A M |
| PHOSPHORUS | B B | A M | M M |
| PHOSPHORUS FIXATION | I | O | I |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | D | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LR | CC |
| MODIFIERS FACET 1 | DEI | | |
| FACET 2 | D | | |
| FACET 3 | DI | | |

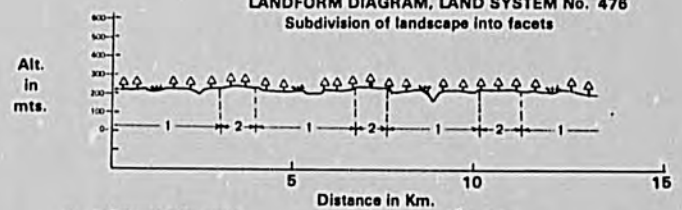
## Land System Ec476

CLIMATE 410 SAN IGNACIO
AREA 98800 HAS.
ALTITUDE 230 MTS.
PHYSIOGRAPHIC UNIT NO.257
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 476

Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)
= Other

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 99 | | |
| < 8% | | 99 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 230 | 235 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 20 | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 80 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 10 | |
| CROPS | 0 | 1 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EFL | |
| GREAT GROUPS | EAQFL | EFLUS | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | A | |
| HYDRAUL. CONDUCT. | B | A | |
| DRAINAGE | G | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | H | H | |
| MOIST. REGIME | SD | SD | |
| EXPANDING CLAYS | D | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | A A | A A | |
| EXCHANGEABLE NA | A M | A A | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | A B | |
| PHOSPHORUS | A A | A A | |
| PHOSPHORUS FIXATION | D | O | |
| MANGANESE | U | S | |
| SULPHUR | U | S | |
| ZINC | U | S | |
| IRON | U | S | |
| COPPER | U | U | |
| BORON | U | S | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | GD | | |
| FACET 2 | D | | |
| FACET 3 | | | |

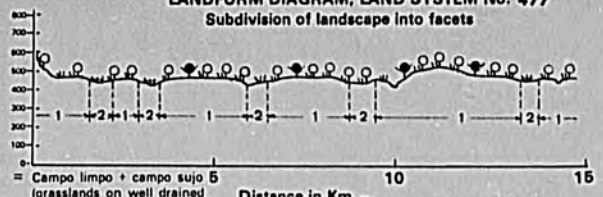
## Land System Bc477

CLIMATE 410 SAN IGNACIO
AREA 2312242 HAS.
ALTITUDE 450 MTS.
PHYSIOGRAPHIC UNIT NO.254
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 477

Subdivision of landscape into facets




= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Seasonally inundated pampa (grasslands)

= Tropical semi-deciduous seasonal forest

= Campo cerrado (open savanna)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 75 | 25 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 70 | |
| < 8% | 70 | 20 | |
| 8-30 % | 25 | 10 | |
| > 30 % | 5 | | |
| ALTITUDE IN MTS | 450 | 430 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 70 | |
| CL + CS | 10 | 20 | |
| CC | 70 | 10 | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 20 | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 0 | |
| CROPS | 1 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | D | U | |
| SUBORDERS | DUS | UAQ | |
| GREAT GROUPS | DUSHA | UAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | A | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | H | H | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B M | B M | |
| EXCHANGEABLE AL | B M | B M | |
| EXCHANGEABLE CA | M M | M M | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | M K | K K | |
| EXCHANGEABLE NA | M B | M M | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | B B | B B | |
| PHOSPHORUS FIXATION | I | I | |
| MANGANESE | J | U | |
| SULPHUR | J | J | |
| ZINC | U | U | |
| IRON | J | U | |
| COPPER | J | U | |
| BORON | U | U | |
| MOLYBDENUM | J | J | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | J | J | |
| SE | U | U | |
| CR | U | U | |
| NI | J | J | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LC | |
| MODIFIERS FACET 1 | GEI | | |
| FACET 2 | GKEI | | |
| FACET 3 | | | |

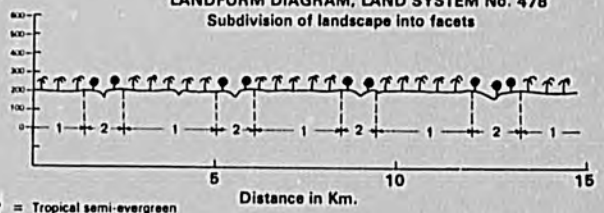
## Land System Bc478

CLIMATE 410 SAN IGNACIO
AREA 1605200 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO.258
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 478

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 99 | 99 | |
| < 8% | | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 200 | 210 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | I | |
| SUBORDERS | AAQ | ITR | |
| GREAT GROUPS | AAQTR | ITREU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B M | |
| EXCHANGEABLE AL | B M | B M | |
| EXCHANGEABLE CA | A A | A M | |
| EXCHANGEABLE MG | A A | A M | |
| EXCHANGEABLE K | A M | M K | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

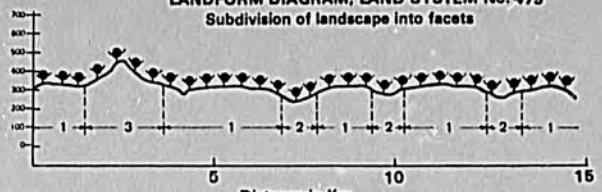
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | J | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Bc479

CLIMATE 410 SAN IGNACIO
AREA 2965544 HAS.
ALTITUDE 400 MTS.
PHYSIOGRAPHIC UNIT NO.254
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No. 479**
**Subdivision of landscape into facets**




= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | M |
| PERCENTAGE OF L.S. | 55 | 30 | 15 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 35 | 15 | 15 |
| 8-30 % | 45 | 30 | 30 |
| > 30 % | 20 | 55 | 55 |
| ALTITUDE IN MTS | 400 | 350 | 500 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 100 | 100 | 100 |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | 0 | 1 |
| CROPS | 1 | 0 | 1 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | I | E |
| SUBORDERS | AUS | ITR | EOR |
| GREAT GROUPS | AUSHA | ITRUS | EORTR |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | R | A | A |
| DEPTH | P | M | S |
| INIT. INFIL. RATE | A | A | A |
| HYDRAUL. CONDUCT. | M | M | A |
| DRAINAGE | B | B | B |
| MOIST. HOLD. CAP. | M | M | B |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | SD | SD | SD |
| EXPANDING CLAYS | D | D | D |
| TEXTURE | L C | L L | L R |
| COARSE MATERIAL | R B | B M | B A |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | B B | B B | B B |
| EXCHANGEABLE AL | B B | B B | B B |
| EXCHANGEABLE CA | A M | A M | A M |
| EXCHANGEABLE MG | A M | A M | A M |
| EXCHANGEABLE K | M K | M M | M M |
| EXCHANGEABLE NA | M B | M B | B B |
| TOTAL EXCH. BASES | A M | A M | A M |
| CATION EXCH. CAPAC. | A M | A M | A M |

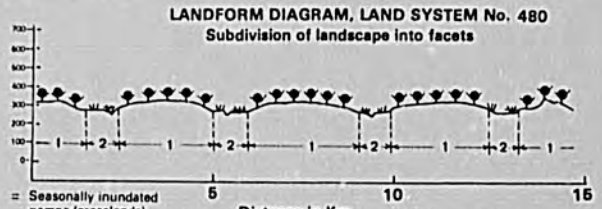
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | A B |
| PHOSPHORUS | M B | M M | M B |
| PHOSPHORUS FIXATION | D | O | O |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | LR |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | D | | |
| FACET 3 | U | | |

## Land System Bc480

CLIMATE 110 CONCEPCION
AREA 2373600 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO.258
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No. 480**
**Subdivision of landscape into facets**




= Seasonally inundated pampa (grasslands)

= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | D | |
| PERCENTAGE OF L.S. | 75 | 25 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 60 | |
| < 8% | 30 | 40 | |
| 8-30 % | 60 | | |
| > 30 % | 10 | | |
| ALTITUDE IN MTS | 300 | 290 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 50 | |
| CL + CS | | 50 | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 100 | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

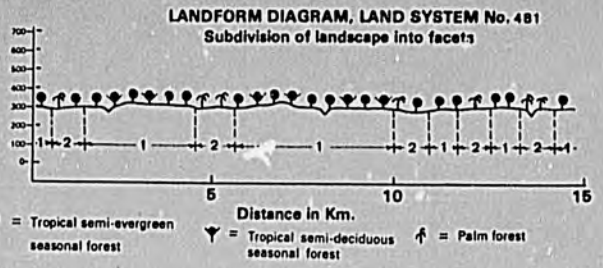
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | U | |
| SUBORDERS | OUS | UAQ | |
| GREAT GROUPS | OUSHA | UAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | R | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | A | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | H | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B M | B M | |
| EXCHANGEABLE AL | B M | B M | |
| EXCHANGEABLE CA | A M | M M | |
| EXCHANGEABLE MG | A M | M B | |
| EXCHANGEABLE K | M M | K K | |
| EXCHANGEABLE NA | M B | M M | |
| TOTAL EXCH. BASES | A M | B B | |
| CATION EXCH. CAPAC. | A M | E E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | M B | B B | |
| PHOSPHORUS FIXATION | I | I | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | I | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LC | |
| MODIFIERS FACET 1 | DI | | |
| FACET 2 | GKEI | | |
| FACET 3 | | | |

## Land System Ac481

CLIMATE 110 CONCEPCION
AREA 3338794 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO.258
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 65 | 35 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 90 | |
| < 5% | 90 | 10 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 300 | 290 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 60 | 10 | |
| SDSF | 40 | | |
| CAAT | | | |
| OTHER | | 90 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | 0 | |
| CROPS | 0 | 0 | |

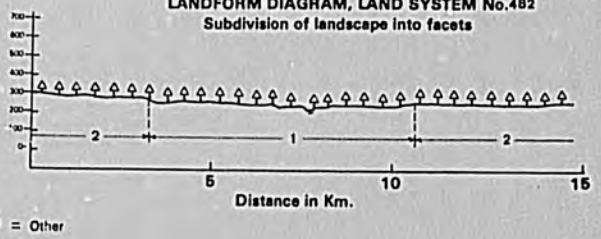
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | U | |
| SUBORDERS | UUS | UAQ | |
| GREAT GROUPS | UUSHA | UAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | A | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M A | B M | |
| EXCHANGEABLE AL | B A | B A | |
| EXCHANGEABLE CA | M B | M B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | M B | M B | |
| CATION EXCH. CAPAC. | M E | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A B | |
| PHOSPHORUS | M B | M P | |
| PHOSPHORUS FIXATION | I | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LC | |
| MODIFIERS FACET 1 | AI | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Be482

CLIMATE 430 SAN JOSE
AREA 914466 HAS.
ALTITUDE 275 MTS.
PHYSIOGRAPHIC UNIT NO.259
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | P | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 30 | 10 | |
| < 5% | 70 | 90 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 250 | 280 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | 99 | 99 | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | 0 | |
| CROPS | 0 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | A | |
| SUBORDERS | EFL | AXE | |
| GREAT GROUPS | EFLXE | AXEHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | XD | XD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | A A | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | A A | A A | |
| EXCHANGEABLE NA | A A | A A | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

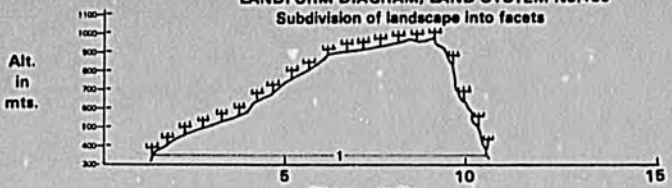
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | A B | |
| PHOSPHORUS | A A | A A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LC | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | D | | |
| FACET 3 | | | |

## Land System Be483

CLIMATE 430 SAN JOSE
AREA 683860 HAS.
ALTITUDE 850 MTS.
PHYSIOGRAPHIC UNIT NO.259
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

**LANDFORM DIAGRAM, LAND SYSTEM No.483**
**Subdivision of landscape into facets**




Ψ = Caatinga (shrubby woodland)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 10 | | |
| 8-30 % | 30 | | |
| > 30 % | 60 | | |
| ALTITUDE IN MTS | 850 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | 100 | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 0 | | |
| CROPS | 0 | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | | |
| SUBORDERS | EOR | | |
| GREAT GROUPS | EORUS | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | | |
| DEPTH | S | | |
| INIT. INFIL. RATE | A | | |
| HYDRAUL. CONDUCT. | A | | |
| DRAINAGE | H | | |
| MOIST. HOLD. CAP. | B | | |
| TEMP. REGIME | H | | |
| MOIST. REGIME | XD | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | L R | | |
| COARSE MATERIAL | R A | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | | |
| AL SATURATION % | B B | | |
| EXCHANGEABLE AL | B B | | |
| EXCHANGEABLE CA | M B | | |
| EXCHANGEABLE MG | M B | | |
| EXCHANGEABLE K | M K | | |
| EXCHANGEABLE NA | B B | | |
| TOTAL EXCH. BASES | M B | | |
| CATION EXCH. CAPAC. | M E | | |

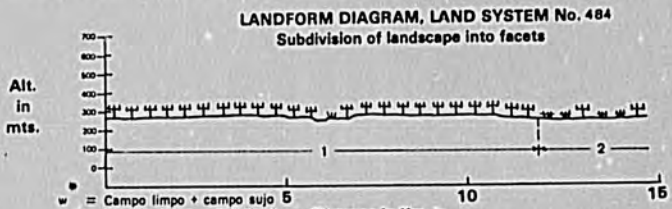
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | | |
| PHOSPHORUS | M B | | |
| PHOSPHORUS FIXATION | U | | |
| MANGANESE | U | | |
| SULPHUR | U | | |
| ZINC | U | | |
| IRON | U | | |
| COPPER | U | | |
| BORON | U | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | |
| I | U | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LR | | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Be484

CLIMATE 430 SAN JOSE
AREA 190544 HAS.
ALTITUDE 275 MTS.
PHYSIOGRAPHIC UNIT NO.259
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No. 484**
**Subdivision of landscape into facets**




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

Ψ = Caatinga (shrubby woodland)

= Seasonally inundated pampa (grasslands)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 20 | 90 | |
| < 8% | 80 | 10 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 275 | 270 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 90 | |
| CL + CS | 10 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | 90 | 10 | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 0 | |
| CROPS | 5 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | A | |
| SUBORDERS | AXE | AAQ | |
| GREAT GROUPS | AXEHA | AAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | B | |
| DRAINAGE | D | G | |
| MOIST. HOLD. CAP. | A | B | |
| TEMP. REGIME | H | H | |
| MOIST. REGIME | XD | XD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B H | B M | |
| EXCHANGEABLE AL | B A | B M | |
| EXCHANGEABLE CA | M M | A M | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | M K | M M | |
| EXCHANGEABLE NA | A A | M M | |
| TOTAL EXCH. BASES | M B | M M | |
| CATION EXCH. CAPAC. | M M | M M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LC | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | GD | | |
| FACET 3 | | | |

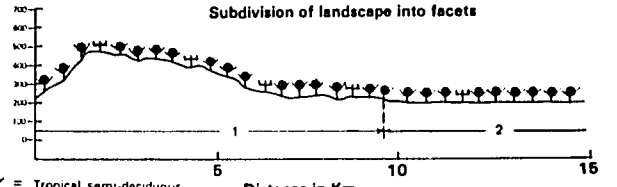
## Land System Be485

CLIMATE 430 SAN JOSE
AREA 591536 HAS.
ALTITUDE 350 MTS.
PHYSIOGRAPHIC UNIT NO.259
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 485

Subdivision of landscape into facets




Y = Tropical semi-deciduous seasonal forest

Ψ = Caatinga (shrubby woodland)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | P | |
| PERCENTAGE OF L.S. | 66 | 34 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 80 | |
| < 8% | 20 | 20 | |
| 8-30 % | 40 | | |
| > 30 % | 40 | | |
| ALTITUDE IN MTS | 400 | 200 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 70 | 90 | |
| CAAT | 30 | 10 | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 0 | |
| CROPS | 1 | 0 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | A | |
| SUBORDERS | AUS | AAC | |
| GREAT GROUPS | AUSHA | AACTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | B | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | D | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | C C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B M | B B | |
| EXCHANGEABLE AL | B M | B B | |
| EXCHANGEABLE CA | M B | M M | |
| EXCHANGEABLE MG | M B | M M | |
| EXCHANGEABLE K | K K | M M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | M M | |
| CATION EXCH. CAPAC. | M E | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | CC | |
| MODIFIERS FACET 1 | DK | | |
| FACET 2 | S | | |
| FACET 3 | | | |

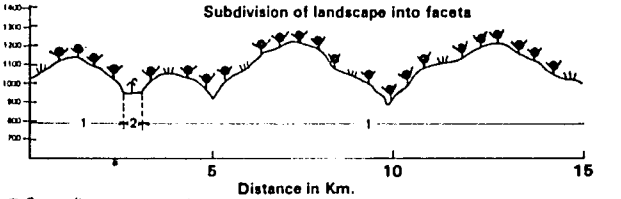
## Land System Fo601

CLIMATE 9670 BARINTAS
AREA 1042300 HAS.
ALTITUDE 1000 MTS.
PHYSIOGRAPHIC UNIT NO.201
GENERALIZED CLASSIFICATION
UPLANDS,ABOVE 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 601

Subdivision of landscape into facets




ψ = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

Palm forest

Y = Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | 10 | 20 | |
| 8-30 % | 40 | 5 | |
| > 30 % | 50 | | |
| ALTITUDE IN MTS | 1000 | 975 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 20 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 80 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | | |
| CROPS | 15 | 50 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | ITR | EFL | |
| GREAT GROUPS | ITREU | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | I | I | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A M | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | A A | A M | |
| CATION EXCH. CAPAC. | A A | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

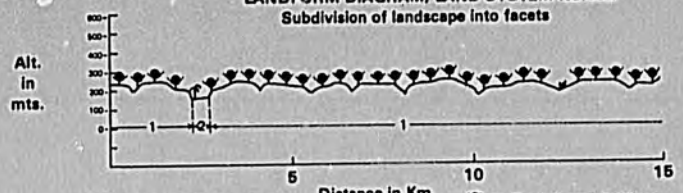
## Land System Oc602

CLIMATE 9660 BARINAS
AREA 882500 HAS.
ALTITUDE 240 MTS.
PHYSIOGRAPHIC UNIT NO.203
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No.602

Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Tropical semi-deciduous seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 75 | |
| < 8% | 90 | 20 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 250 | 170 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 5 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 95 | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | | |
| CROPS | 10 | 30 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AUS | EFL | |
| GREAT GROUPS | AUSPA | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | B | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M M | A M | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | A M | M M | |
| EXCHANGEABLE NA | M M | M B | |
| TOTAL EXCH. BASES | M B | A M | |
| CATION EXCH. CAPAC. | M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | G | | |
| FACET 3 | | | |

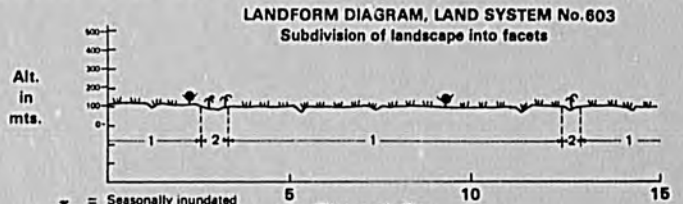
## Land System Oc603

CLIMATE 7250 ARAUCA
AREA 3059400 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO.204
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No.603

Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)

w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Palm forest

= Tropical semi-deciduous seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 75 | |
| < 8% | 10 | 20 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 95 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 90 | | |
| CL + CS | 2 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 8 | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 25 | | |
| CROPS | 10 | 40 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UAQ | EAQ | |
| GREAT GROUPS | UAQTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | A M | M M | |
| EXCHANGEABLE MG | M M | M M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | M M | M B | |
| TOTAL EXCH. BASES | A M | M B | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | GH | | |
| FACET 2 | G | | |
| FACET 3 | | | |

228

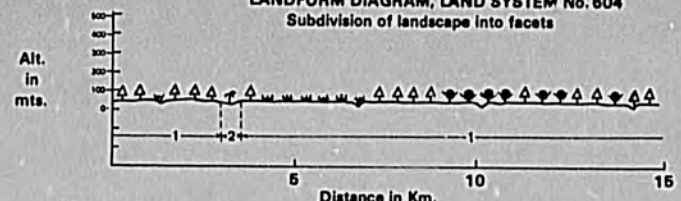
## Land Systnm Oc604

CLIMATE 9780 BRUZUAL VILLA
AREA 1185500 HAS.
ALTITUDE 80 MTS.
PHYSIOGRAPHIC UNIT NO.204
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 604

Subdivision of landscape into facets




= Tropical semi-deciduous seasonal forest
= Seasonally inundated pampa (grasslands)
= Other
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 95 | 75 | |
| < 8% | | 5 | 20 |
| 8-30 % | | | 5 |
| > 30 % | | | |
| ALTITUDE IN MTS | 80 | 75 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 25 | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 25 | | |
| CAAT | | | |
| OTHER | 50 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | | |
| CROPS | 5 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | J | I | |
| SUBORDERS | UAQ | IAQ | |
| GREAT GROUPS | UAQTR | IAQHU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | S | |
| INIT. INFIL. RATE | M | B | |
| HYDRAUL. CONDUCT. | P | B | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | A | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | J | |
| TEXTURE | L C | C C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | M M | |
| EXCHANGEABLE AL | M M | A M | |
| EXCHANGEABLE CA | A M | M B | |
| EXCHANGEABLE MG | M M | M B | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | M M | B B | |
| TOTAL EXCH. BASES | A M | B B | |
| CATION EXCH. CAPAC. | A M | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LC CC
MODIFIERS FACET 1 GH
FACET 2 G
FACET 3

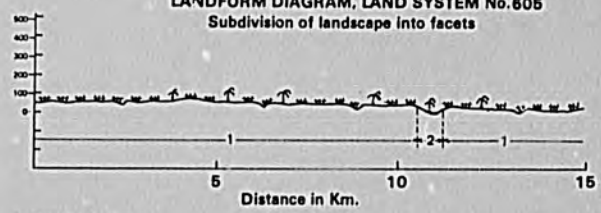
## Land System Oe605

CLIMATE 9700 BAJL (EL)
AREA 86900 HAS.
ALTITUDE 80 MTS.
PHYSIOGRAPHIC UNIT NO.204
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 605

Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 95 | 75 | |
| < 8% | | 5 | 20 |
| 8-30 % | | | 5 |
| > 30 % | | | |
| ALTITUDE IN MTS | 80 | 75 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 75 | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 25 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | | |
| CROPS | 10 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | I | |
| SUBORDERS | UAG | IAQ | |
| GREAT GROUPS | UAQTR | IAQHU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | B | |
| HYDRAUL. CONDUCT. | B | B | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | A | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | C C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | M M | |
| EXCHANGEABLE AL | M M | A M | |
| EXCHANGEABLE CA | A M | M B | |
| EXCHANGEABLE MG | M M | M B | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | M M | B B | |
| TOTAL EXCH. BASES | A M | M B | |
| CATION EXCH. CAPAC. | M M | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

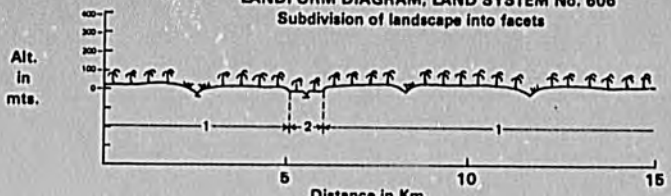
FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LC CC
MODIFIERS FACET 1 G
FACET 2 G
FACET 3

## Land System Oe606

CLIMATE 9700 BAUL (EL)
AREA 390400 HAS.
ALTITUDE 90 MTS.
PHYSIOGRAPHIC UNIT NO.203
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No. 606**
**Subdivision of landscape into facets**




= Seasonally inundated pampa (grasslands)
w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 15 | 75 | |
| < 8% | 85 | 20 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 90 | 95 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 25 | | |
| CL + CS | 5 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 70 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | | |
| CROPS | 5 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | I | |
| SUBORDERS | UUD | IAQ | |
| GREAT GROUPS | UUDTR | IAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | M M | |
| EXCHANGEABLE AL | M M | M M | |
| EXCHANGEABLE CA | A M | M B | |
| EXCHANGEABLE MG | A M | M B | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | M B | B B | |
| TOTAL EXCH. BASES | A M | B B | |
| CATION EXCH. CAPAC. | A M | M E | |

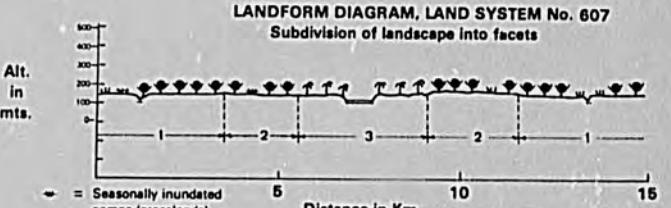
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LC | |
| MODIFIERS FACET 1 | L | M | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Oc607

CLIMATE 9660 BARINAS
AREA 1260000 HAS.
ALTITUDE 150 MTS.
PHYSIOGRAPHIC UNIT NO.203
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No. 607**
**Subdivision of landscape into facets**




= Seasonally inundated pampa (grasslands)
w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
= Palm forest
= Tropical semi-deciduos seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | D | D | D |
| PERCENTAGE OF L.S. | 50 | 25 | 25 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 40 | 20 | 20 |
| < 8% | 55 | 75 | 75 |
| 8-30 % | 5 | 5 | 5 |
| > 30 % | | | |
| ALTITUDE IN MTS | 150 | 150 | 150 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 5 | 5 | |
| CL + CS | 15 | 15 | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 80 | 80 | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 10 | 20 |
| CROPS | 15 | 10 | 30 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | M | E |
| SUBORDERS | AUS | MUS | EFL |
| GREAT GROUPS | AUSHA | MUSHA | EFLUS |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | B |
| DEPTH | P | M | P |
| INIT. INFIL. RATE | B | M | M |
| HYDRAUL. CONDUCT. | M | M | M |
| DRAINAGE | D | D | D |
| MOIST. HOLD. CAP. | M | M | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | SD | SD | SD |
| EXPANDING CLAYS | D | D | D |
| TEXTURE | L C | L L | L L |
| COARSE MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | B B | B B | B B |
| EXCHANGEABLE AL | B B | B B | B B |
| EXCHANGEABLE CA | A A | A A | A A |
| EXCHANGEABLE MG | A A | A A | A A |
| EXCHANGEABLE K | M M | M M | M M |
| EXCHANGEABLE NA | A A | A A | A A |
| TOTAL EXCH. BASES | A A | A A | A A |
| CATION EXCH. CAPAC. | A A | A A | A A |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A A | A M |
| PHOSPHORUS | M B | A M | A M |
| PHOSPHORUS FIXATION | D | D | D |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | LL |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | D | | |
| FACET 3 | D | | |

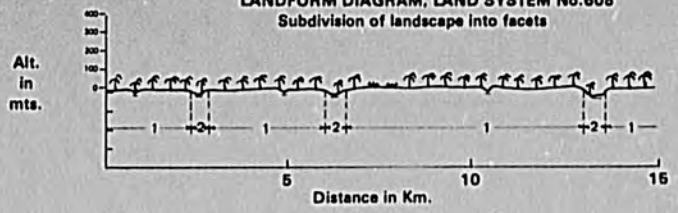
## Land System Oc608

CLIMATE 9700 BAJL (EL)
AREA 1091900 HAS.
ALTITUDE 80 MTS.
PHYSIOGRAPHIC UNIT NO.203
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No.608

Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | | D |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 75 | |
| < 8% | 10 | 20 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 80 | 75 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 10 | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 90 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | | |
| CROPS | 5 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | I | |
| SUBORDERS | AAQ | IAQ | |
| GREAT GROUPS | AAQTR | IAQHU | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | S | |
| INIT. INFIL. RATE | M | B | |
| HYDRAUL. CONDUCT. | B | B | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | A | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | C C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | M M | |
| EXCHANGEABLE AL | B B | A M | |
| EXCHANGEABLE CA | M M | M B | |
| EXCHANGEABLE MG | M M | M B | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | M M | B B | |
| TOTAL EXCH. BASES | M M | B B | |
| CATION EXCH. CAPAC. | M E | M E | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | M B | M M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | J | U | |
| SULPHUR | J | J | |
| ZINC | U | U | |
| IRON | J | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | J | U | |
| SE | U | U | |
| CR | U | U | |
| NI | J | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | CC | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | G | | |
| FACET 3 | | | |

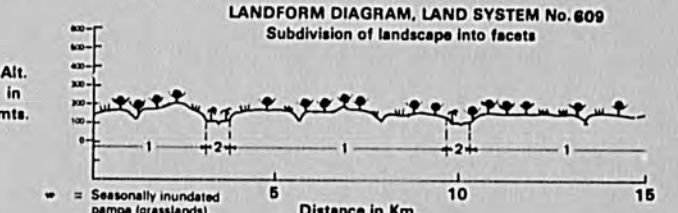
## Land System Oe609

CLIMATE 9700 BAJL (EL)
AREA 891200 HAS.
ALTITUDE 150 MTS.
PHYSIOGRAPHIC UNIT NO.205
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No.609

Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)

= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Tropical semi-deciduos seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 75 | |
| < 8% | 95 | 20 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 150 | 145 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 10 | | |
| CL + CS | 30 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 60 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | | |
| CROPS | 5 | 40 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUS | EFL | |
| GREAT GROUPS | UUSPA | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | M A | B B | |
| EXCHANGEABLE CA | M B | A M | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | B M | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | P | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | J | J | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | DHAE | | |
| FACET 2 | G | | |
| FACET 3 | | | |

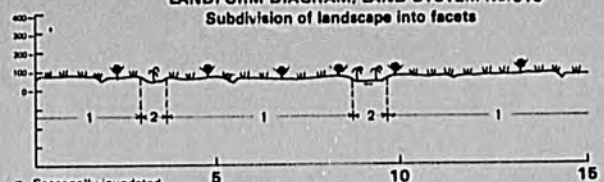
## Land System Oe610

CLIMATE 9820 CALABOZO
AREA 189600 HAS.
ALTITUDE 80 MTS.
PHYSIOGRAPHIC UNIT NO.205
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No.610

Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)

= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Tropical semi-deciduos seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 15 | 75 | |
| < 8% | 85 | 20 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 80 | 75 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 5 | | |
| CL + CS | 70 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 25 | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 30 | | |
| CROPS | 20 | 50 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | ITR | EAQ | |
| GREAT GROUPS | ITREU | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | b | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M M | A M | |
| EXCHANGEABLE MG | M M | A M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | M B | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | G | | |
| FACET 3 | | | |

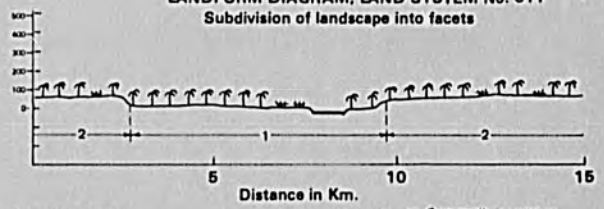
## Land System Oe611

CLIMATE 9820 CALABOZO
AREA 56800 HAS.
ALTITUDE 90 MTS.
PHYSIOGRAPHIC UNIT NO.209
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 611

Subdivision of landscape into facets




= Palm forest

= Seasonally inundated pampa (grasslands)

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 10 | |
| < 8% | 10 | 90 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 80 | 75 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 5 | 20 | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 95 | 80 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | | |
| CROPS | 10 | 15 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EFL | |
| GREAT GROUPS | EAQFL | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | A M | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | D | | |
| FACET 3 | | | |

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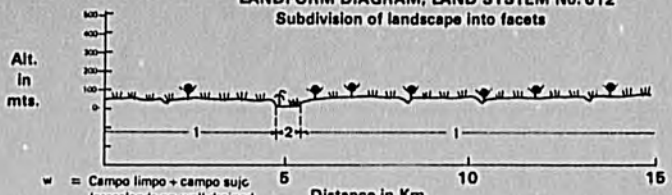
## Land System Oe612

CLIMATE 11060 SAN FERNANDO
AREA 611900 HAS.
ALTITUDE 60 MTS.
PHYSIOGRAPHIC UNIT NO.205
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 612

Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with ocassional shrubs)

w = Seasonally inundated pampa (grasslands)

= Tropical semi-deciduos seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 80 | |
| < 8% | 99 | 20 | |
| 8-30 % | 1 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 60 | 55 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 20 | |
| CL + CS | 60 | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 40 | 80 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | | |
| CROPS | 3 | 30 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EPS | EFL | |
| GREAT GROUPS | EPSUS | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S S | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | M M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | E E | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | LL | |
| MODIFIERS FACET 1 | DKE | | |
| FACET 2 | G | | |
| FACET 3 | | | |

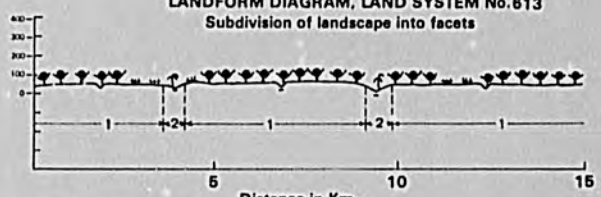
## Land System Oe613

CLIMATE 11060 SAN FERNANDO
AREA 203300 HAS.
ALTITUDE 60 MTS.
PHYSIOGRAPHIC UNIT NO.204
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 613

Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)

= Tropical semi-deciduos seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 99 | 75 | |
| < 8% | 1 | 25 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 60 | 55 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 20 | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 80 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | | |
| CROPS | 5 | 35 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UAQ | EAQ | |
| GREAT GROUPS | UAQTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M B | B B | |
| EXCHANGEABLE AL | M B | B B | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A M | M M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | M M | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | GH | | |
| FACET 2 | G | | |
| FACET 3 | | | |

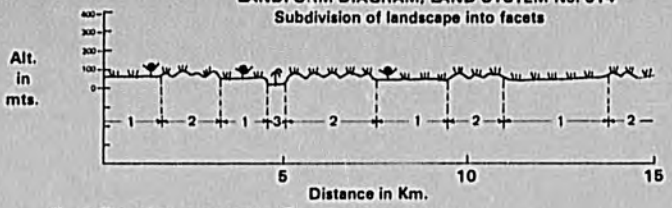
## Land System Oe614

CLIMATE 11060 SAN FERNANDO
AREA 347400 HAS.
ALTITUDE 80 MTS.
PHYSIOGRAPHIC UNIT NO.205
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 614

Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Tropical semi-deciduos seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | D |
| PERCENTAGE OF L.S. | 60 | 35 | 5 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | 80 |
| < 8% | 99 | 20 | 15 |
| 8-30 % | | 50 | 5 |
| > 30 % | | 30 | |
| ALTITUDE IN MTS | 80 | 95 | 75 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 85 | 100 | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 15 | | 100 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 10 | |
| CROPS | 2 | 2 | 10 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | E |
| SUBORDERS | EPS | EPS | EFL |
| GREAT GROUPS | EPSUS | EPSUS | EFLTR |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | M | B |
| DEPTH | P | P | P |
| INIT. INFIL. RATE | A | A | M |
| HYDRAUL. CONDUCT. | A | A | M |
| DRAINAGE | B | B | G |
| MOIST. HOLD. CAP. | B | B | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | SD | SD | U |
| EXPANDING CLAYS | D | D | D |
| TEXTURE | S S | S S | L L |
| COARSE MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | B B | B B | B B |
| EXCHANGEABLE AL | B B | B B | B B |
| EXCHANGEABLE CA | B B | B B | A M |
| EXCHANGEABLE MG | B B | B B | A M |
| EXCHANGEABLE K | K K | K K | M M |
| EXCHANGEABLE NA | B B | B B | M B |
| TOTAL EXCH. BASES | B B | B B | A A |
| CATION EXCH. CAPAC. | E E | E E | A M |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | M B |
| PHOSPHORUS | M B | M B | A M |
| PHOSPHORUS FIXATION | D | D | D |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | SS | LL |
| MODIFIERS FACET 1 | DKE | | |
| FACET 2 | DKE | | |
| FACET 3 | G | | |

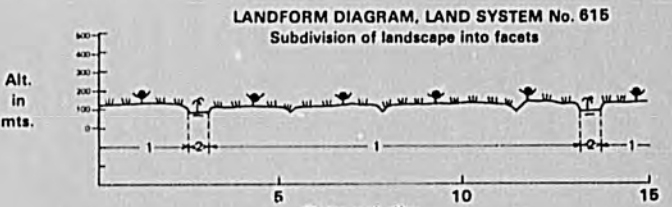
## Land System Oe615

CLIMATE 11060 SAN FERNANDO
AREA 1212000 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO.205
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 615

Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Tropical semi-deciduos seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 75 | |
| < 8% | 10 | 20 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 95 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 80 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 20 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | | |
| CROPS | 5 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EPS | EFL | |
| GREAT GROUPS | EPSUS | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S S | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | M M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | E E | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | LL | |
| MODIFIERS FACET 1 | DKE | | |
| FACET 2 | | | |
| FACET 3 | | | |

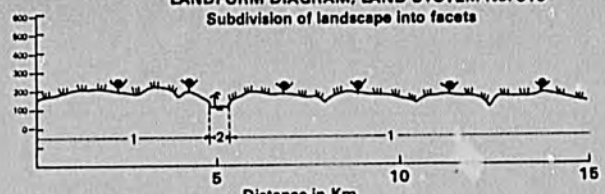
## Land System Oe616

CLIMATE 11390 VALLE DE LA PASCUA
AREA 245400 HAS.
ALTITUDE 160 MTS.
PHYSIOGRAPHIC UNIT NO.205
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 616

Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Tropical semi-deciduos seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 50 | |
| < 8% | 25 | 45 | |
| 8-30 % | 75 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 160 | 155 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 80 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 20 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | | |
| CROPS | 10 | 30 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AUS | EFL | |
| GREAT GROUPS | AUSHA | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | E | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | M B | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | | | |
| FACET 3 | | | |

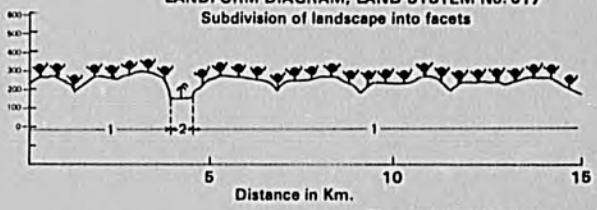
## Land System Oc617

CLIMATE 11390 VALLE DE LA PASCUA
AREA 3192800 HAS.
ALTITUDE 250 MTS.
PHYSIOGRAPHIC UNIT NO.205
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 617

Subdivision of landscape into facets




= Tropical semi-deciduos seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 50 | |
| < 8% | 25 | 50 | |
| 8-30 % | 70 | | |
| > 30 % | 5 | | |
| ALTITUDE IN MTS | 250 | 245 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | | |
| CROPS | 5 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AUS | EFL | |
| GREAT GROUPS | AUSHA | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M M | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | A A | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | E M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M B | |
| PHOSPHORUS | A M | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | E | | |
| FACET 2 | | | |
| FACET 3 | | | |

235

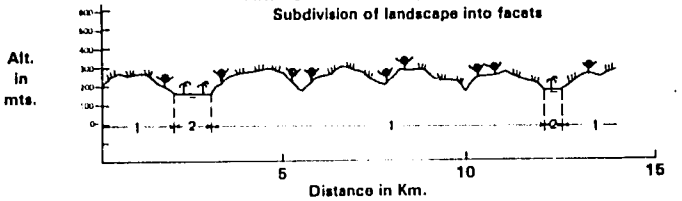
## Land System Oe618

CLIMATE 9820 CALABOZO
AREA 261900 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO.205
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 618

Subdivision of landscape into facets




= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Tropical semi-deciduos seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | V | |
| PERCENTAGE OF L.S. | 75 | 25 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 75 | |
| < 8% | 5 | 20 | |
| 8-30 % | 25 | 5 | |
| > 30 % | 70 | | |
| ALTITUDE IN MTS | 200 | 180 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 60 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 40 | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | | |
| CROPS | 5 | 40 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AUS | EFL | |
| GREAT GROUPS | AUSHA | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | R | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | J | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | M B | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | O | | |
| FACET 2 | | | |
| FACET 3 | | | |

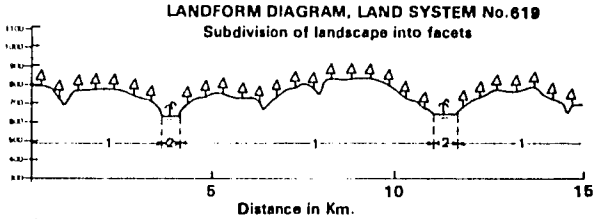
## Land System Ob619

CLIMATE 10600 MIRANDA
AREA 1309700 HAS.
ALTITUDE 800 MTS.
PHYSIOGRAPHIC UNIT NO.203
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No.619

Subdivision of landscape into facets




= Other

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 10 | |
| < 8% | 20 | 85 | |
| 8-30 % | 50 | 5 | |
| > 30 % | 30 | | |
| ALTITUDE IN MTS | 800 | 750 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 25 | | |
| CROPS | 10 | 30 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AUS | EFL | |
| GREAT GROUPS | AUSHA | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | R | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | J | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B A | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | A M | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | M B | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | O | | |
| FACET 2 | | | |
| FACET 3 | | | |

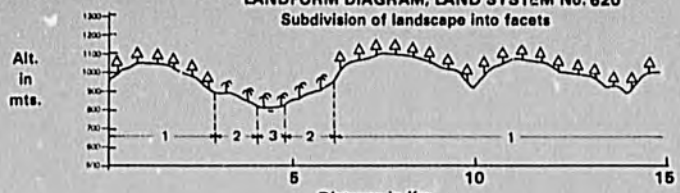
## Land System Fe620

CLIMATE 10540 MARACAY
AREA 946800 HAS.
ALTITUDE 1000 MTS.
PHYSIOGRAPHIC UNIT NO.202
GENERALIZED CLASSIFICATION
UPLANDS,ABOVE 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 620

Subdivision of landscape into facets




= Other
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | T | T |
| PERCENTAGE OF L.S. | 75 | 17 | 8 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 15 | 40 |
| < 8% | 20 | 80 | 55 |
| 8-30 % | 45 | 5 | 5 |
| > 30 % | 35 | | |
| ALTITUDE IN MTS | 1000 | 750 | 700 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 100 | 99 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 50 | 50 | 60 |
| CROPS | 25 | 35 | 40 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | A | I |
| SUBORDERS | ITR | AUS | ITR |
| GREAT GROUPS | ITREU | AUSHA | ITREU |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | M | B |
| DEPTH | M | P | P |
| INIT. INFIL. RATE | M | M | M |
| HYDRAUL. CONDUCT. | M | M | M |
| DRAINAGE | B | B | B |
| MOIST. HOLD. CAP. | M | M | M |
| TEMP. REGIME | I | I | S |
| MOIST. REGIME | SD | SD | SD |
| EXPANDING CLAYS | D | D | D |
| TEXTURE | L C | L L | L L |
| COARSE MATERIAL | B A | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M H | M M |
| AL SATURATION % | B B | B B | B B |
| EXCHANGEABLE AL | B B | B B | B B |
| EXCHANGEABLE CA | A M | M B | A A |
| EXCHANGEABLE MG | A M | M B | M M |
| EXCHANGEABLE K | M M | A M | K K |
| EXCHANGEABLE NA | M B | M M | A A |
| TOTAL EXCH. BASES | M B | M M | A A |
| CATIO. EXCH. CAPAC. | A M | A M | A A |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT.) | | | |
| ORGANIC MATTER % | M B | B B | B B |
| PHOSPHORUS | M B | A A | A A |
| PHOSPHORUS FIXATION | D | D | D |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | LL |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | D | | |
| FACET 3 | DK | | |

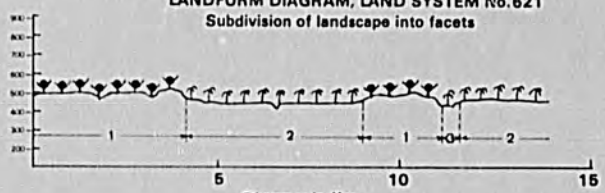
## Land System Fe621

CLIMATE 10540 MARACAY
AREA 74400 HAS.
ALTITUDE 480 MTS.
PHYSIOGRAPHIC UNIT NO.202
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 621

Subdivision of landscape into facets




= Palm forest
= Tropical semi-deciduos seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | B |
| PERCENTAGE OF L.S. | 50 | 45 | 5 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 65 | 70 |
| < 8% | 85 | 30 | 25 |
| 8-30 % | 5 | 5 | 5 |
| > 30 % | 5 | | |
| ALTITUDE IN MTS | 350 | 300 | 300 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 100 | 99 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 50 | 60 | 20 |
| CROPS | 15 | 20 | 60 |

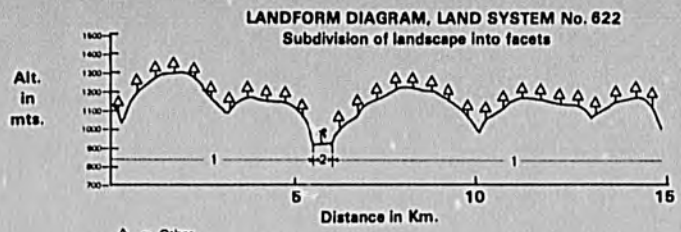
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | M | I | M |
| SUBORDERS | MUS | ITR | MAQ |
| GREAT GROUPS | MUSHA | ITREU | MAQHA |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | B |
| DEPTH | P | M | M |
| INIT. INFIL. RATE | M | M | M |
| HYDRAUL. CONDUCT. | M | M | B |
| DRAINAGE | B | G | G |
| MOIST. HOLD. CAP. | M | M | A |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | SD | U | U |
| EXPANDING CLAYS | D | D | D |
| TEXTURE | L L | L L | C C |
| COARSE MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | A A | A A | M M |
| AL SATURATION % | B B | B B | B B |
| EXCHANGEABLE AL | B B | B B | B B |
| EXCHANGEABLE CA | A A | A A | A A |
| EXCHANGEABLE MG | A M | A A | A A |
| EXCHANGEABLE K | A A | A A | A A |
| EXCHANGEABLE NA | M B | A A | A A |
| TOTAL EXCH. BASES | M B | A A | A A |
| CATION EXCH. CAPAC. | A M | A A | A A |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT.) | | | |
| ORGANIC MATTER % | M B | M B | M B |
| PHOSPHORUS | M B | M A | A A |
| PHOSPHORUS FIXATION | D | D | D |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | B | A |
| SALINITY | B | S | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LS | CC |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | DBS | | |
| FACET 3 | | | |

## Land System Fe622

CLIMATE 10080 COLONIA TOVAR
AREA 481000 HAS.
ALTITUDE 2000 MTS.
PHYSIOGRAPHIC UNIT NO.202
GENERALIZED CLASSIFICATION
UPLANDS,ABOVE 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 5 | |
| < 8% | | 5 | 45 |
| 8-30 % | | 50 | 50 |
| > 30 % | | 45 | |
| ALTITUDE IN MTS | 2000 | 1900 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | 5 | |
| CROPS | | 5 | 20 |

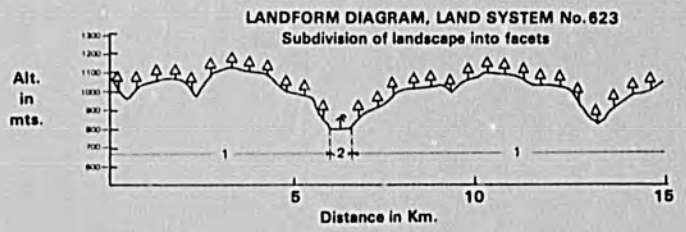
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | ITR | EFL | |
| GREAT GROUPS | ITREU | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | I | I | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B A | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | M B | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Fc623

CLIMATE 9890 CARACAS-CASIGAL
AREA 445000 HAS.
ALTITUDE 1000 MTS.
PHYSIOGRAPHIC UNIT NO.202
GENERALIZED CLASSIFICATION
UPLANDS,ABOVE 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 10 | |
| < 8% | | 5 | 50 |
| 8-30 % | | 50 | 40 |
| > 30 % | | 45 | |
| ALTITUDE IN MTS | 1000 | 950 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | 5 | |
| CROPS | | 15 | 25 |

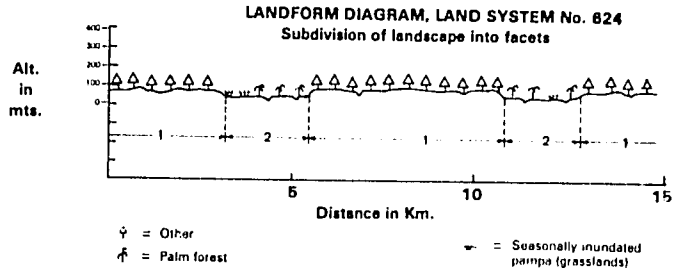
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | ITR | EFL | |
| GREAT GROUPS | ITREU | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | I | I | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B A | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | M B | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Fc624

CLIMATE 9893 CARACAS-CASIGAL
AREA 204000 HAS.
ALTITUDE 50 MTS.
PHYSIOGRAPHIC UNIT NO.202
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 75 | 25 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 90 | |
| < 8% | 95 | 10 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 50 | 45 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 40 | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 60 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 20 | |
| CROPS | 5 | 20 | |

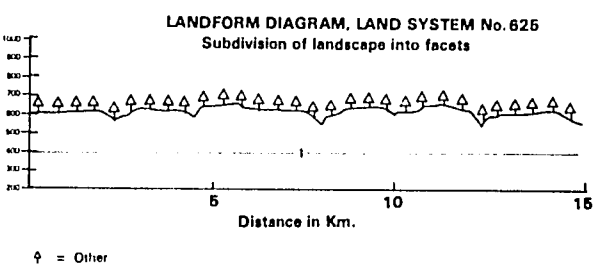
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | ITR | EAQ | |
| GREAT GROUPS | ITRUS | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | R | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | J | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L S | |
| COARSE MATERIAL | B A | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M M | M B | |
| EXCHANGEABLE MG | M B | M B | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | M B | |
| CATION EXCH. CAPAC. | M E | M M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONTI. | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | J | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | J | U | |
| COPPER | J | U | |
| BORON | U | U | |
| MOLYBDENUM | J | J | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | J | J | |
| SE | U | U | |
| CR | U | U | |
| NI | J | U | |
| OTHERS | J | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LS | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | S | | |
| FACET 3 | | | |

## Land System Fc625

CLIMATE 9890 CARACAS-CASIGAL
AREA 70000 HAS.
ALTITUDE 600 MTS.
PHYSIOGRAPHIC UNIT NO.202
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | | |
| PERCENTAGE OF L.S. | 100 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | 75 | | |
| 8-30 % | 20 | | |
| > 30 % | 5 | | |
| ALTITUDE IN MTS | 600 | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | | |
| CROPS | 10 | | |

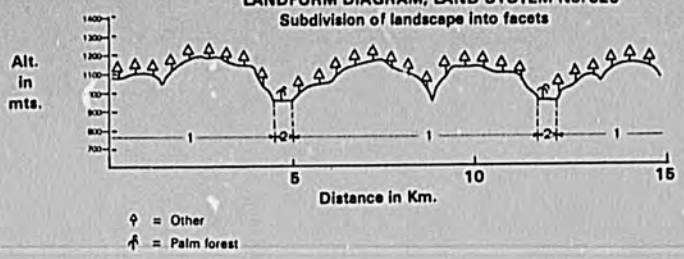
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | | |
| SUBORDERS | AUS | | |
| GREAT GROUPS | AUSHA | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | | |
| DEPTH | M | | |
| INIT. INFIL. RATE | M | | |
| HYDRAUL. CONDUCT. | B | | |
| DRAINAGE | B | | |
| MOIST. HOLD. CAP. | M | | |
| TEMP. REGIME | S | | |
| MOIST. REGIME | SD | | |
| EXPANDING CLAYS | D | | |
| TEXTURE | L C | | |
| COARSE MATERIAL | B A | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | | |
| AL SATURATION % | B B | | |
| EXCHANGEABLE AL | B B | | |
| EXCHANGEABLE CA | A M | | |
| EXCHANGEABLE MG | A M | | |
| EXCHANGEABLE K | M M | | |
| EXCHANGEABLE NA | M B | | |
| TOTAL EXCH. BASES | M B | | |
| CATION EXCH. CAPAC. | A M | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONTI. | | | |
| ORGANIC MATTER % | M B | | |
| PHOSPHORUS | M B | | |
| PHOSPHORUS FIXATION | D | | |
| MANGANESE | U | | |
| SULPHUR | J | | |
| ZINC | J | | |
| IRON | U | | |
| COPPER | U | | |
| BORON | U | | |
| MOLYBDENUM | U | | |
| FREE CARBONATES | A | | |
| SALINITY | B | | |
| NATRIC | B | | |
| CAT CLAY | N | | |
| X-RAY AMORPHOUS | N | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | | |
| I | U | | |
| SE | U | | |
| CR | U | | |
| NI | U | | |
| OTHERS | U | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Oc626

CLIMATE 9920 CARIPE
AREA 1099800 HAS.
ALTITUDE 1000 MTS.
PHYSIOGRAPHIC UNIT NO.202
GENERALIZED CLASSIFICATION
UPLANDS,ABOVE 700M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 5 | |
| < 9% | 20 | 65 | |
| 8-30 % | 20 | 30 | |
| > 30 % | 60 | | |
| ALTITUDE IN MTS | 1000 | 950 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | | |
| CROPS | 10 | 40 | |

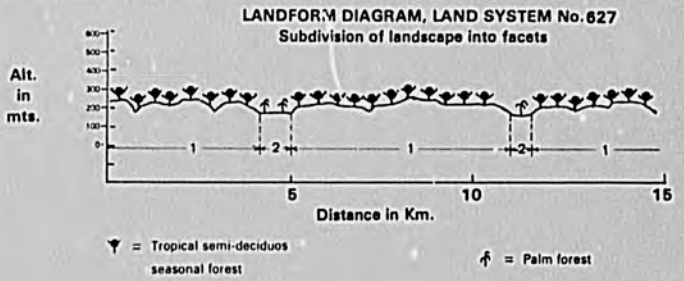
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | ITR | EFL | |
| GREAT GROUPS | ITREU | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | I | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | D | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Oe627

CLIMATE 10500 JUSEPIN
AREA 279300 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO.206
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 60 | |
| < 8% | 95 | 35 | |
| 8-30 % | 5 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 200 | 195 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | | |
| CROPS | 5 | 40 | |

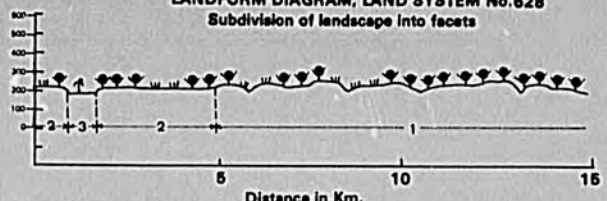
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OUS | EAQ | |
| GREAT GROUPS | OUSHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A M | B B | |
| EXCHANGEABLE AL | A M | B B | |
| EXCHANGEABLE CA | M B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | M K | M M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | M B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | I | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | DHAI | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ob628

CLIMATE 10560 MATURIN
AREA 915500 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO.206
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Tropical semi-deciduous seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | P | V |
| PERCENTAGE OF L.S. | 75 | 20 | 5 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | 50 |
| < 8% | 90 | 99 | 40 |
| 8-30 % | 10 | | 10 |
| > 30 % | | | |
| ALTITUDE IN MTS | 200 | 200 | 190 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 30 | 30 | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 70 | 70 | |
| CAAT | | | |
| OTHER | | | 100 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 90 | 80 | |
| CROPS | 10 | 5 | 25 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | E |
| SUBORDERS | UUS | EPS | EFL |
| GREAT GROUPS | UUSHA | EPSUS | EFLTR |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | B |
| DEPTH | P | P | M |
| INIT. INFIL. RATE | M | A | M |
| HYDRAUL. CONDUCT. | B | A | M |
| DRAINAGE | B | B | G |
| MOIST. HOLD. CAP. | M | B | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | SD | SD | U |
| EXPANDING CLAYS | D | D | D |
| TEXTURE | L C | S S | L L |
| COARSE MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | M A | M M | B B |
| EXCHANGEABLE AL | A A | M M | B B |
| EXCHANGEABLE CA | M M | B B | A M |
| EXCHANGEABLE MG | M M | B B | A M |
| EXCHANGEABLE K | K K | M A | M M |
| EXCHANGEABLE NA | B B | B B | M B |
| TOTAL EXCH. BASES | M B | B B | A M |
| CATION EXCH. CAPAC. | E E | E E | A M |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | M B |
| PHOSPHORUS | B B | M B | A M |
| PHOSPHORUS FIXATION | D | D | D |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |

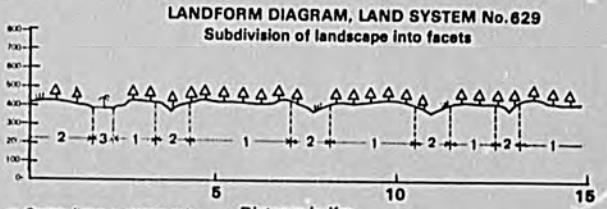
FERTILITY CAPABILITY CLASSIFICATION

| | | | |
|---|---|---|---|
| TYPE AND SUBSTRATA TYPES | LC | SS | LL |
| MODIFIERS FACET 1 | DHAKE | | |
| FACET 2 | DHE | | |
| FACET 3 | G | | |

## Land System Oc629

CLIMATE 11150 SAN TOME
AREA 440700 HAS.
ALTITUDE 400 MTS.
PHYSIOGRAPHIC UNIT NO.206
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Other

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | V |
| PERCENTAGE OF L.S. | 75 | 20 | 5 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 5 | 60 |
| < 8% | 75 | 5 | 30 |
| 8-30 % | 20 | 80 | 10 |
| > 30 % | 5 | 10 | |
| ALTITUDE IN MTS | 400 | 390 | 385 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 10 | 10 | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 90 | 90 | 100 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 70 | 70 | |
| CROPS | 10 | 10 | 40 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | E |
| SUBORDERS | UUS | EPS | EFL |
| GREAT GROUPS | UUSHA | EPSQU | EFLTR |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | B |
| DEPTH | P | P | P |
| INIT. INFIL. RATE | A | A | M |
| HYDRAUL. CONDUCT. | A | A | M |
| DRAINAGE | B | B | D |
| MOIST. HOLD. CAP. | B | B | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | SD | SD | U |
| EXPANDING CLAYS | D | D | D |
| TEXTURE | S S | S S | L L |
| COARSE MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | M M | M M | B B |
| EXCHANGEABLE AL | M M | M M | B B |
| EXCHANGEABLE CA | B B | B B | A M |
| EXCHANGEABLE MG | B B | B B | A M |
| EXCHANGEABLE K | M K | K K | M M |
| EXCHANGEABLE NA | B B | B B | M B |
| TOTAL EXCH. BASES | B B | B B | A M |
| CATION EXCH. CAPAC. | E E | E E | A M |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | B B | M B |
| PHOSPHORUS | B B | B B | A M |
| PHOSPHORUS FIXATION | D | D | D |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |

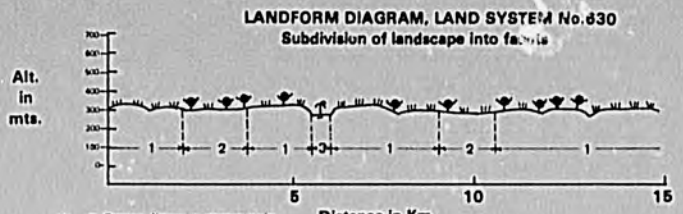
FERTILITY CAPABILITY CLASSIFICATION

| | | | |
|---|---|---|---|
| TYPE AND SUBSTRATA TYPES | LL | SS | LL |
| MODIFIERS FACET 1 | DHE | | |
| FACET 2 | DKE | | |
| FACET 3 | | | |

## Land System Oc630

CLIMATE 11150 SAN TOME
AREA 535200 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO.206
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Tropical semi-deciduos seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | B |
| PERCENTAGE OF L.S. | 65 | 32 | 3 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | 60 |
| < 8% | 90 | 75 | 35 |
| 8-30 % | 10 | 25 | 5 |
| > 30 % | | | |
| ALTITUDE IN MTS | 290 | 300 | 295 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 70 | 70 | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 30 | 30 | 100 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 65 | 65 | |
| CROPS | 20 | 20 | 40 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | D | E | E |
| SUBORDERS | DUS | EPS | EFL |
| GREAT GROUPS | DUSHA | EPSUS | EFLTR |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | B |
| DEPTH | P | P | P |
| INIT. INFIL. RATE | A | A | M |
| HYDRAUL. CONDUCT. | A | A | M |
| DRAINAGE | B | B | D |
| MOIST. HOLD. CAP. | B | B | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | SD | SD | U |
| EXPANDING CLAYS | D | D | D |
| TEXTURE | S S | S S | L L |
| COARSE MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | M M | M M | B B |
| EXCHANGEABLE AL | B B | M B | B B |
| EXCHANGEABLE CA | B B | B B | A M |
| EXCHANGEABLE MG | B B | B B | A M |
| EXCHANGEABLE K | K K | K K | M M |
| EXCHANGEABLE NA | B B | B B | M B |
| TOTAL EXCH. BASES | B B | B B | A M |
| CATION EXCH. CAPAC. | E E | E E | A M |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | B B | M B |
| PHOSPHORUS | M B | B B | A M |
| PHOSPHORUS FIXATION | D | D | D |
| MANGANESE | J | U | J |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | J | J | J |
| COPPER | U | U | U |
| BORON | U | U | J |
| MOLYBDENUM | J | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | J |
| I | U | U | U |
| SE | U | U | U |
| CR | J | J | J |
| NI | J | U | J |
| OTHERS | U | U | U |

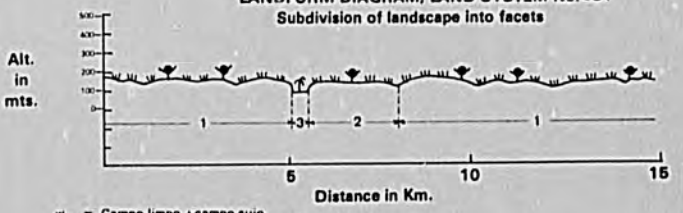
FERTILITY CAPABILITY CLASSIFICATION

| | | | |
|---|---|---|---|
| TYPE AND SUBSTRATA TYPES | | SL | SS | LL |
| MODIFIERS FACET 1 | DKE | | | |
| FACET 2 | DKE | | | |
| FACET 3 | | | | |

## Land System Oc631

CLIMATE 11150 SAN TOME
AREA 2028700 HAS.
ALTITUDE 120 MTS.
PHYSIOGRAPHIC UNIT NO.206
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




w = Campo limpo +campo sujo (grasslands on well drained lands with ocassional shrubs)

= Tropical semi-deciduos seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | P | V |
| PERCENTAGE OF L.S. | 75 | 20 | 5 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | 60 |
| < 8% | 80 | 95 | 35 |
| 8-30 % | 20 | 5 | 5 |
| > 30 % | | | |
| ALTITUDE IN MTS | 120 | 110 | 105 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 80 | 90 | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 20 | 10 | 100 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 50 | 40 | |
| CROPS | 20 | 5 | 20 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | D | E | E |
| SUBORDERS | DUS | EPS | EFL |
| GREAT GROUPS | DUSHA | EPSUS | EFLTR |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | B |
| DEPTH | P | P | P |
| INIT. INFIL. RATE | A | A | M |
| HYDRAUL. CONDUCT. | A | A | M |
| DRAINAGE | B | B | D |
| MOIST. HOLD. CAP. | B | B | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | SD | SD | U |
| EXPANDING CLAYS | D | D | D |
| TEXTURE | S S | S S | L L |
| COARSE MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | M M | B B | B B |
| EXCHANGEABLE AL | B B | B B | B B |
| EXCHANGEABLE CA | M B | B B | A M |
| EXCHANGEABLE MG | M B | B B | A M |
| EXCHANGEABLE K | K K | K K | A M |
| EXCHANGEABLE NA | B B | B B | M B |
| TOTAL EXCH. BASES | B B | B B | A M |
| CATION EXCH. CAPAC. | E E | E E | A M |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M B | M B |
| PHOSPHORUS | M B | M B | M B |
| PHOSPHORUS FIXATION | D | D | D |
| MANGANESE | J | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | J | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | J | U | U |
| NI | J | U | J |
| OTHERS | U | U | U |

FERTILITY CAPABILITY CLASSIFICATION

| | | | |
|---|---|---|---|
| TYPE AND SUBSTRATA TYPES | | LL | SS | LL |
| MODIFIERS FACET 1 | DHKE | | | |
| FACET 2 | DKE | | | |
| FACET 3 | | | | |

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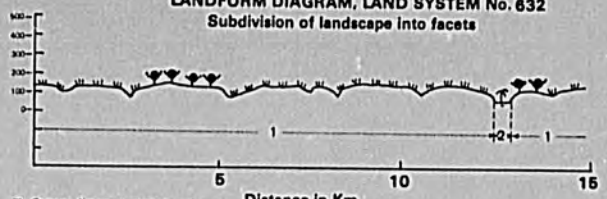
## Land System Oc632

CLIMATE 10740 PARIAGUAN
AREA 385100 HAS.
ALTITUDE 120 MTS.
PHYSIOGRAPHIC UNIT NO.206
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
= Tropical semi-deciduos seasonal forest
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 65 | |
| < 8% | 90 | 30 | |
| 8-30 % | 10 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 120 | 115 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 80 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 20 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 70 | | |
| CROPS | 10 | 20 | |

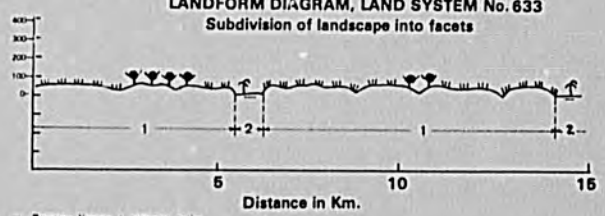
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EPS | EFL | |
| GREAT GROUPS | EPSUS | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | S S | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | A M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | E E | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | U | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | LL | |
| MODIFIERS FACET 1 | DKE | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Oc633

CLIMATE 10740 PARIAGUAN
AREA 796600 HAS.
ALTITUDE 50 MTS.
PHYSIOGRAPHIC UNIT NO.206
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
= Tropical semi-deciduos seasonal forest
= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | V | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 65 | |
| < 8% | 95 | 30 | |
| 8-30 % | 5 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 55 | 55 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 80 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 20 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | 30 | 30 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EPS | EFL | |
| GREAT GROUPS | EPSUS | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | SD | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | S S | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | M M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | E E | A M | |

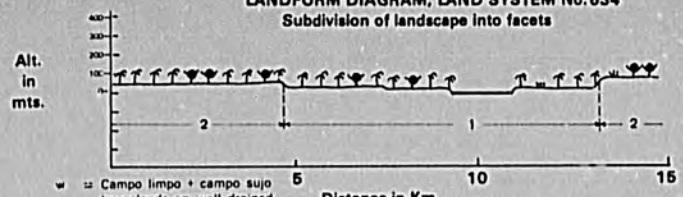
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | LL | |
| MODIFIERS FACET 1 | DKE | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Oe634

CLIMATE 10030 CIUDAD BOLIVAR
AREA 710900 HAS.
ALTITUDE 40 MTS.
PHYSIOGRAPHIC UNIT NO.209
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 634
Subdivision of landscape into facets




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

w = Seasonally inundated pampa (grasslands)

= Tropical semi-deciduos seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 20 | |
| < 8% | 10 | 80 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 40 | 45 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 5 | | |
| CL + CS | | 5 | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 95 | 95 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | 3 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EFL | |
| GREAT GROUPS | EAQFL | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | SD | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A M | |
| EXCHANGEABLE MG | A A | A M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

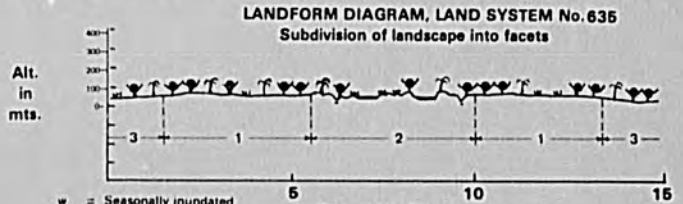
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | J | J | |
| ZINC | J | U | |
| IRON | U | U | |
| COPPER | J | U | |
| BORON | U | U | |
| MOLYBDENUM | J | J | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | J | U | |
| SE | U | U | |
| CR | U | U | |
| NI | J | J | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | D | | |
| FACET 3 | | | |

## Land System Oe635

CLIMATE 11060 SAN FERNANDO
AREA 1053400 HAS.
ALTITUDE 40 MTS.
PHYSIOGRAPHIC UNIT NO.209
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 635
Subdivision of landscape into facets




w = Seasonally inundated pampa (grasslands)

w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Palm forest

= Tropical semi-deciduos seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | D | T | D |
| PERCENTAGE OF L.S. | 50 | 30 | 20 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 60 | 10 | 90 |
| < 8% | 40 | 90 | 10 |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 40 | 40 | 40 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 10 | 10 |
| CL + CS | 5 | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 95 | 90 | 90 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | | 10 |
| CROPS | 20 | 10 | 2 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | I |
| SUBORDERS | EAQ | EFL | IAQ |
| GREAT GROUPS | EAQFL | EFLTR | IAQTR |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | B |
| DEPTH | P | P | M |
| INIT. INFIL. RATE | M | M | B |
| HYDRAUL. CONDUCT. | B | M | B |
| DRAINAGE | G | B | G |
| MOIST. HOLD. CAP. | M | M | A |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | U | SD | U |
| EXPANDING CLAYS | D | D | D |
| TEXTURE | C C | L L | C C |
| COARSE MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | H H |
| AL SATURATION % | B B | B B | B B |
| EXCHANGEABLE AL | B B | B B | M M |
| EXCHANGEABLE CA | A A | A M | A A |
| EXCHANGEABLE MG | A A | A M | A A |
| EXCHANGEABLE K | A M | M M | A A |
| EXCHANGEABLE NA | A A | M B | A A |
| TOTAL EXCH. BASES | A A | A M | A A |
| CATION EXCH. CAPAC. | A A | A M | A A |

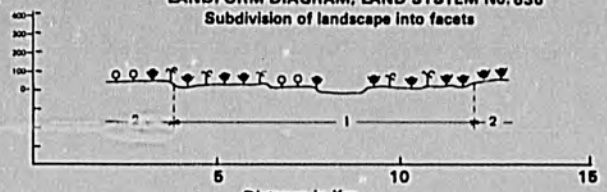
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | M |
| PHOSPHORUS | M B | M B | B |
| PHOSPHORUS FIXATION | D | D | D |
| MANGANESE | U | U | U |
| SULPHUR | J | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | J | U | U |
| BORON | J | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | 1 |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | CC |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | D | | |
| FACET 3 | GM | | |

## Land System Oe636

CLIMATE 11060 SAN FERNANDO
AREA 257900 HAS.
ALTITUDE 50 MTS.
PHYSIOGRAPHIC UNIT NO.209
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 636**
**Subdivision of landscape into facets**




= Tropical semi-deciduos seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 20 | |
| < 8% | 10 | 80 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 50 | 55 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | 5 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EFL | |
| GREAT GROUPS | EAQFL | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | S | B | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | SD | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A M | |
| EXCHANGEABLE MG | A A | A M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

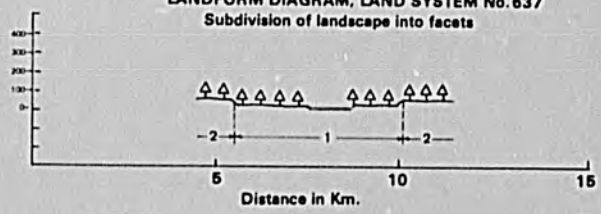
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | D | | |
| FACET 3 | | | |

## Land System Oe637

CLIMATE 11060 SAN FERNANDO
AREA 138100 HAS.
ALTITUDE 50 MTS.
PHYSIOGRAPHIC UNIT NO.209
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 637**
**Subdivision of landscape into facets**




= Other

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | | | |
| PERCENTAGE OF L.S. | 0 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | | | |
| SUBORDERS | | | |
| GREAT GROUPS | | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | | | |
| DEPTH | | | |
| INIT. INFIL. RATE | | | |
| HYDRAUL. CONDUCT. | | | |
| DRAINAGE | | | |
| MOIST. HOLD. CAP. | | | |
| TEMP. REGIME | | | |
| MOIST. REGIME | | | |
| EXPANDING CLAYS | | | |
| TEXTURE | | | |
| COARSE MATERIAL | | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | | | |
| AL SATURATION % | | | |
| EXCHANGEABLE AL | | | |
| EXCHANGEABLE CA | | | |
| EXCHANGEABLE MG | | | |
| EXCHANGEABLE K | | | |
| EXCHANGEABLE NA | | | |
| TOTAL EXCH. BASES | | | |
| CATION EXCH. CAPAC. | | | |

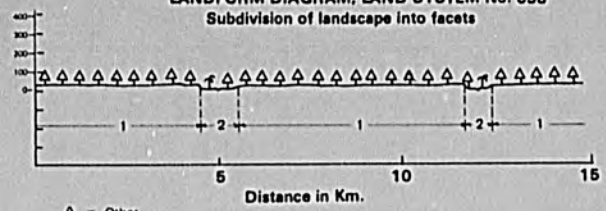
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | | | |
| PHOSPHORUS | | | |
| PHOSPHORUS FIXATION | | | |
| MANGANESE | | | |
| SULPHUR | | | |
| ZINC | | | |
| IRON | | | |
| COPPER | | | |
| BORON | | | |
| MOLYBDENUM | | | |
| FREE CARBONATES | | | |
| SALINITY | | | |
| NATRIC | | | |
| CAT CLAY | | | |
| X-RAY AMORPHOUS | | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | | | |
| I | | | |
| SE | | | |
| CR | | | |
| NI | | | |
| OTHERS | | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | | | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Oe638

CLIMATE 11300 TUCUPITA
AREA 1663900 HAS.
ALTITUDE 20 MTS.
PHYSIOGRAPHIC UNIT NO.207
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 638**
**Subdivision of landscape into facets**




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. | (&) | | |
| FLAT POOR DRAIN. | 80 | 80 | |
| < 8% | 20 | 15 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 20 | 15 | |
| ORIGINAL VEGETATION CLASS. (&) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 100 | |
| INDUCED VEGETATION (&) | | | |
| PASTURE | 5 | | |
| CROPS | 5 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | IAQ | EAQ | |
| GREAT GROUPS | IAQSU | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | B | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | A A | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | B A | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A A | M B | |
| PHOSPHORUS | M B | M M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | C | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

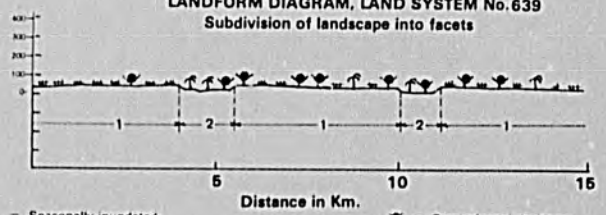
FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CC LL
MODIFIERS FACET 1 HC
FACET 2 G
FACET 3

## Land System Ob639

CLIMATE 11300 TUCUPITA
AREA 1668700 HAS.
ALTITUDE 20 MTS.
PHYSIOGRAPHIC UNIT NO.207
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 639**
**Subdivision of landscape into facets**




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. | (&) | | |
| FLAT POOR DRAIN. | 80 | 80 | |
| < 8% | 20 | 15 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 20 | 15 | |
| ORIGINAL VEGETATION CLASS. (&) | | | |
| SEAS.IN.P. | 60 | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 40 | 100 | |
| INDUCED VEGETATION (&) | | | |
| PASTURE | 20 | | |
| CROPS | 5 | 8 | |

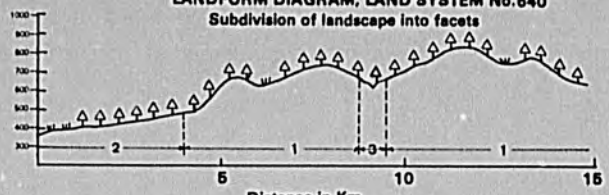
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | IAQ | EAQ | |
| GREAT GROUPS | IAQSU | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | B | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | A A | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | B B | M M | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A A | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | C | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES CC LL
MODIFIERS FACET 1 HC
FACET 2 G
FACET 3

## Land System Gb640

CLIMATE 11300 TUCUPITA
AREA 2434000 HAS.
ALTITUDE 0 MTS.
PHYSIOGRAPHIC UNIT NO.
GENERALIZED CLASSIFICATION




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

ϕ = Other

DISTANCE BETWEEN PERENNIAL STREAMS KM
DEPTH OF WELLS.MAIN LAND FACET M

LANDSCAPE FACETS

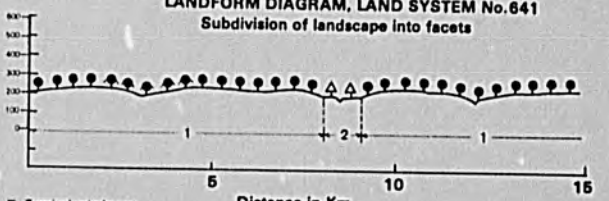
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | | | |
| PERCENTAGE OF L.S. | 0 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 10 | 20 | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | 90 | 80 | |
| CAAT | | | |
| OTHER | | | 100 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | | | |
| SUBORDERS | | | |
| GREAT GROUPS | | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | | | |
| DEPTH | | | |
| INIT. INFIL. RATE | | | |
| HYDRAUL. CONDUCT. | | | |
| DRAINAGE | | | |
| MOIST. HOLD. CAP. | | | |
| TEMP. REGIME | | | |
| MOIST. REGIME | | | |
| EXPANDING CLAYS | | | |
| TEXTURE | | | |
| COARSE MATERIAL | | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | | | |
| AL SATURATION % | | | |
| EXCHANGEABLE AL | | | |
| EXCHANGEABLE CA | | | |
| EXCHANGEABLE MG | | | |
| EXCHANGEABLE K | | | |
| EXCHANGEABLE NA | | | |
| TOTAL EXCH. BASES | | | |
| CATION EXCH. CAPAC. | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | | | |
| PHOSPHORUS | | | |
| PHOSPHORUS FIXATION | | | |
| MANGANESE | | | |
| SULPHUR | | | |
| ZINC | | | |
| IRON | | | |
| COPPER | | | |
| BORON | | | |
| MOLYBDENUM | | | |
| FREE CARBONATES | | | |
| SALINITY | | | |
| NATRIC | | | |
| CAT CLAY | | | |
| X-RAY AMORPHOUS | | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | | | |
| I | | | |
| SE | | | |
| CR | | | |
| NI | | | |
| OTHERS | | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | | | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Ga641

CLIMATE 8720 ADSORDO
AREA 576600 HAS.
ALTITUDE 0 MTS.
PHYSIOGRAPHIC UNIT NO.
GENERALIZED CLASSIFICATION




= Tropical rain forest

= Tropical semi-evergreen seasonal forest

ϕ = Other

DISTANCE BETWEEN PERENNIAL STREAMS KM
DEPTH OF WELLS.MAIN LAND FACET M

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | | | |
| PERCENTAGE OF L.S. | 0 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 20 | | |
| SESF | 80 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | 100 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | | | |

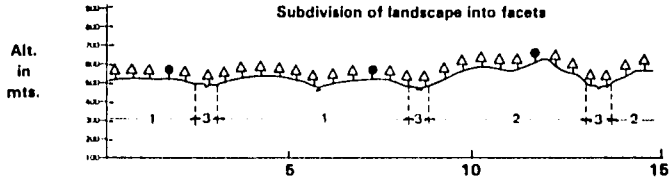
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | | | |
| SUBORDERS | | | |
| GREAT GROUPS | | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | | | |
| DEPTH | | | |
| INIT. INFIL. RATE | | | |
| HYDRAUL. CONDUCT. | | | |
| DRAINAGE | | | |
| MOIST. HOLD. CAP. | | | |
| TEMP. REGIME | | | |
| MOIST. REGIME | | | |
| EXPANDING CLAYS | | | |
| TEXTURE | | | |
| COARSE MATERIAL | | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | | | |
| AL SATURATION % | | | |
| EXCHANGEABLE AL | | | |
| EXCHANGEABLE CA | | | |
| EXCHANGEABLE MG | | | |
| EXCHANGEABLE K | | | |
| EXCHANGEABLE NA | | | |
| TOTAL EXCH. BASES | | | |
| CATION EXCH. CAPAC. | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | | | |
| PHOSPHORUS | | | |
| PHOSPHORUS FIXATION | | | |
| MANGANESE | | | |
| SULPHUR | | | |
| ZINC | | | |
| IRON | | | |
| COPPER | | | |
| BORON | | | |
| MOLYBDENUM | | | |
| FREE CARBONATES | | | |
| SALINITY | | | |
| NATRIC | | | |
| CAT CLAY | | | |
| X-RAY AMORPHOUS | | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | | | |
| I | | | |
| SE | | | |
| CR | | | |
| NI | | | |
| OTHERS | | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | | | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Ge642

CLIMATE 11350 UPATA
AREA 3797200 HAS.
ALTITUDE 0 MTS.
PHYSIOGRAPHIC UNIT NO.
GENERALIZED CLASSIFICATION

**LANDFORM DIAGRAM, LAND SYSTEM No. 642**
**Subdivision of landscape into facets**




DISTANCE BETWEEN PERENNIAL STREAMS KM
DEPTH OF WELLS.MAIN LAND FACET M

= Tropical semi-evergreen seasonal forest

= Other

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | | | |
| PERCENTAGE OF L.S. | 0 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 5 | 5 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 95 | 95 | 100 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | | | |

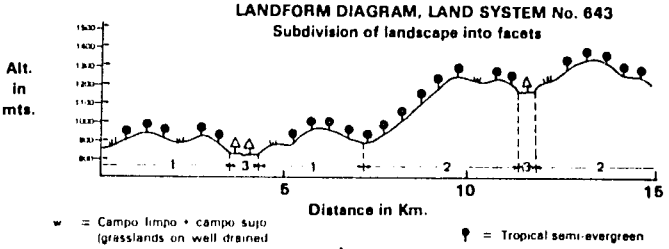
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | | | |
| SUBORDERS | | | |
| GREAT GROUPS | | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | | | |
| DEPTH | | | |
| INIT. INFIL. RATE | | | |
| HYDRAUL. CONDUCT. | | | |
| DRAINAGE | | | |
| MOIST. HOLD. CAP. | | | |
| TEMP. REGIME | | | |
| MOIST. REGIME | | | |
| EXPANDING CLAYS | | | |
| TEXTURE | | | |
| COARSE MATERIAL | | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | | | |
| AL SATURATION % | | | |
| EXCHANGEABLE AL | | | |
| EXCHANGEABLE CA | | | |
| EXCHANGEABLE MG | | | |
| EXCHANGEABLE K | | | |
| EXCHANGEABLE NA | | | |
| TOTAL EXCH. BASES | | | |
| CATION EXCH. CAPAC. | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | | | |
| PHOSPHORUS | | | |
| PHOSPHORUS FIXATION | | | |
| MANGANESE | | | |
| SULPHUR | | | |
| ZINC | | | |
| IRON | | | |
| COPPER | | | |
| BORON | | | |
| MOLYBDENUM | | | |
| FREE CARBONATES | | | |
| SALINITY | | | |
| NATRIC | | | |
| CAT CLAY | | | |
| X-RAY AMORPHOUS | | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | | | |
| I | | | |
| SE | | | |
| CR | | | |
| NI | | | |
| OTHERS | | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | | | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Gb643

CLIMATE 4900 CAMIGUIN
AREA 4903700 HAS.
ALTITUDE 0 MTS.
PHYSIOGRAPHIC UNIT NO.
GENERALIZED CLASSIFICATION

**LANDFORM DIAGRAM, LAND SYSTEM No. 643**
**Subdivision of landscape into facets**




DISTANCE BETWEEN PERENNIAL STREAMS KM
DEPTH OF WELLS.MAIN LAND FACET M

= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Other

= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

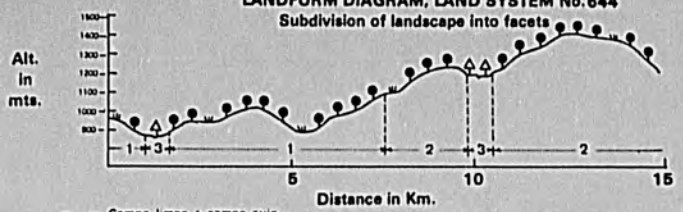
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | | | |
| PERCENTAGE OF L.S. | 0 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 10 | 10 | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 90 | 90 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | 100 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | | | |
| SUBORDERS | | | |
| GREAT GROUPS | | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | | | |
| DEPTH | | | |
| INIT. INFIL. RATE | | | |
| HYDRAUL. CONDUCT. | | | |
| DRAINAGE | | | |
| MOIST. HOLD. CAP. | | | |
| TEMP. REGIME | | | |
| MOIST. REGIME | | | |
| EXPANDING CLAYS | | | |
| TEXTURE | | | |
| COARSE MATERIAL | | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | | | |
| AL SATURATION % | | | |
| EXCHANGEABLE AL | | | |
| EXCHANGEABLE CA | | | |
| EXCHANGEABLE MG | | | |
| EXCHANGEABLE K | | | |
| EXCHANGEABLE NA | | | |
| TOTAL EXCH. BASES | | | |
| CATION EXCH. CAPAC. | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | | | |
| PHOSPHORUS | | | |
| PHOSPHORUS FIXATION | | | |
| MANGANESE | | | |
| SULPHUR | | | |
| ZINC | | | |
| IRON | | | |
| COPPER | | | |
| BORON | | | |
| MOLYBDENUM | | | |
| FREE CARBONATES | | | |
| SALINITY | | | |
| NATRIC | | | |
| CAT CLAY | | | |
| X-RAY AMORPHOUS | | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | | | |
| I | | | |
| SE | | | |
| CR | | | |
| NI | | | |
| OTHERS | | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | | | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Gb644

CLIMATE 9990 CASIGUA
AREA 12299900 HAS.
ALTITUDE 0 MTS.
PHYSIOGRAPHIC UNIT NO.
GENERALIZED CLASSIFICATION




DISTANCE BETWEEN PERENNIAL STREAMS <M
DEPTH OF WELLS,MAIN LAND FACET M

w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

φ = Other

φ = Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

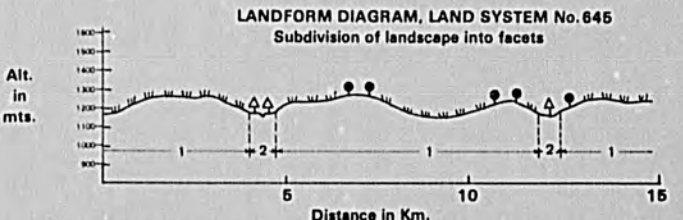
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | | | |
| PERCENTAGE OF L.S. | 0 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 10 | 10 | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 90 | 90 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | 100 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | | | |
| SUBORDERS | | | |
| GREAT GROUPS | | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | | | |
| DEPTH | | | |
| INIT. INFIL. RATE | | | |
| HYDRAUL. CONDUCT. | | | |
| DRAINAGE | | | |
| MOIST. HOLD. CAP. | | | |
| TEMP. REGIME | | | |
| MOIST. REGIME | | | |
| EXPANDING CLAYS | | | |
| TEXTURE | | | |
| COARSE MATERIAL | | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | | | |
| AL SATURATION % | | | |
| EXCHANGEABLE AL | | | |
| EXCHANGEABLE CA | | | |
| EXCHANGEABLE MG | | | |
| EXCHANGEABLE K | | | |
| EXCHANGEABLE NA | | | |
| TOTAL EXCH. BASES | | | |
| CATION EXCH. CAPAC. | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | | | |
| PHOSPHORUS | | | |
| PHOSPHORUS FIXATION | | | |
| MANGANESE | | | |
| SULPHUR | | | |
| ZINC | | | |
| IRON | | | |
| COPPER | | | |
| BORON | | | |
| MOLYBDENUM | | | |
| FREE CARBONATES | | | |
| SALINITY | | | |
| NATRIC | | | |
| CAT CLAY | | | |
| X-RAY AMORPHOUS | | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | | | |
| I | | | |
| SE | | | |
| CR | | | |
| NI | | | |
| OTHERS | | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | | | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Gc645

CLIMATE 11320 TUMEREMO
AREA 461600 HAS.
ALTITUDE 0 MTS.
PHYSIOGRAPHIC UNIT NO.
GENERALIZED CLASSIFICATION




DISTANCE BETWEEN PERENNIAL STREAMS <M
DEPTH OF WELLS,MAIN LAND FACET M

w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

φ = Other

φ = Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

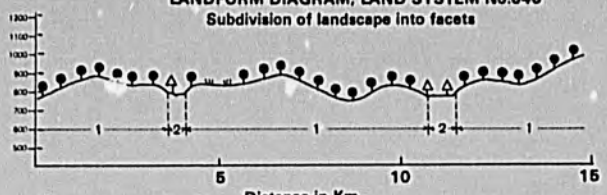
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | | | |
| PERCENTAGE OF L.S. | 0 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 80 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 20 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | 100 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | | | |
| SUBORDERS | | | |
| GREAT GROUPS | | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | | | |
| DEPTH | | | |
| INIT. INFIL. RATE | | | |
| HYDRAUL. CONDUCT. | | | |
| DRAINAGE | | | |
| MOIST. HOLD. CAP. | | | |
| TEMP. REGIME | | | |
| MOIST. REGIME | | | |
| EXPANDING CLAYS | | | |
| TEXTURE | | | |
| COARSE MATERIAL | | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | | | |
| AL SATURATION % | | | |
| EXCHANGEABLE AL | | | |
| EXCHANGEABLE CA | | | |
| EXCHANGEABLE MG | | | |
| EXCHANGEABLE K | | | |
| EXCHANGEABLE NA | | | |
| TOTAL EXCH. BASES | | | |
| CATION EXCH. CAPAC. | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | | | |
| PHOSPHORUS | | | |
| PHOSPHORUS FIXATION | | | |
| MANGANESE | | | |
| SULPHUR | | | |
| ZINC | | | |
| IRON | | | |
| COPPER | | | |
| BORON | | | |
| MOLYBDENUM | | | |
| FREE CARBONATES | | | |
| SALINITY | | | |
| NATRIC | | | |
| CAT CLAY | | | |
| X-RAY AMORPHOUS | | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | | | |
| I | | | |
| SE | | | |
| CR | | | |
| NI | | | |
| OTHERS | | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | | | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Gb646

CLIMATE 11320 TUMEREMO
AREA 6098800 HAS.
ALTITUDE 0 MTS.
PHYSIOGRAPHIC UNIT NO.
GENERALIZED CLASSIFICATION




DISTANCE BETWEEN PERENNIAL STREAMS KM
DEPTH OF WELLS,MAIN LAND FACET M

LANDSCAPE FACETS

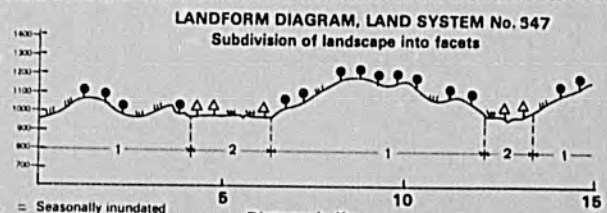
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | | | |
| PERCENTAGE OF L.S. | 0 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 5 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 95 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | | | |
| SUBORDERS | | | |
| GREAT GROUPS | | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | | | |
| DEPTH | | | |
| INIT. INFIL. RATE | | | |
| HYDRAUL. CONDUCT. | | | |
| DRAINAGE | | | |
| MOIST. HOLD. CAP. | | | |
| TEMP. REGIME | | | |
| MOIST. REGIME | | | |
| EXPANDING CLAYS | | | |
| TEXTURE | | | |
| COARSE MATERIAL | | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | | | |
| AL SATURATION % | | | |
| EXCHANGEABLE AL | | | |
| EXCHANGEABLE CA | | | |
| EXCHANGEABLE MG | | | |
| EXCHANGEABLE K | | | |
| EXCHANGEABLE NA | | | |
| TOTAL EXCH. BASES | | | |
| CATION EXCH. CAPAC. | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | | | |
| PHOSPHORUS | | | |
| PHOSPHORUS FIXATION | | | |
| MANGANESE | | | |
| SULPHUR | | | |
| ZINC | | | |
| IRON | | | |
| COPPER | | | |
| BORON | | | |
| MOLYBDENUM | | | |
| FREE CARBONATES | | | |
| SALINITY | | | |
| NATRIC | | | |
| CAT CLAY | | | |
| X-RAY AMORPHOUS | | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | | | |
| I | | | |
| SE | | | |
| CR | | | |
| NI | | | |
| OTHERS | | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | | | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Gb647

CLIMATE 11110 SANTA ELENA
AREA 1176800 HAS.
ALTITUDE 0 MTS.
PHYSIOGRAPHIC UNIT NO.
GENERALIZED CLASSIFICATION




DISTANCE BETWEEN PERENNIAL STREAMS KM
DEPTH OF WELLS,MAIN LAND FACET M

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | | | |
| PERCENTAGE OF L.S. | 0 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | 10 | |
| CL + CS | 30 | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 70 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 90 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | | | |

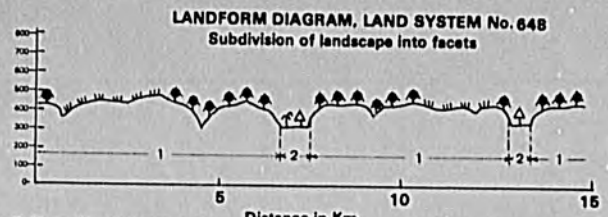
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | | | |
| SUBORDERS | | | |
| GREAT GROUPS | | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | | | |
| DEPTH | | | |
| INIT. INFIL. RATE | | | |
| HYDRAUL. CONDUCT. | | | |
| DRAINAGE | | | |
| MOIST. HOLD. CAP. | | | |
| TEMP. REGIME | | | |
| MOIST. REGIME | | | |
| EXPANDING CLAYS | | | |
| TEXTURE | | | |
| COARSE MATERIAL | | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | | | |
| AL SATURATION % | | | |
| EXCHANGEABLE AL | | | |
| EXCHANGEABLE CA | | | |
| EXCHANGEABLE MG | | | |
| EXCHANGEABLE K | | | |
| EXCHANGEABLE NA | | | |
| TOTAL EXCH. BASES | | | |
| CATION EXCH. CAPAC. | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | | | |
| PHOSPHORUS | | | |
| PHOSPHORUS FIXATION | | | |
| MANGANESE | | | |
| SULPHUR | | | |
| ZINC | | | |
| IRON | | | |
| COPPER | | | |
| BORON | | | |
| MOLYBDENUM | | | |
| FREE CARBONATES | | | |
| SALINITY | | | |
| NATRIC | | | |
| CAT CLAY | | | |
| X-RAY AMORPHOUS | | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | | | |
| I | | | |
| SE | | | |
| CR | | | |
| NI | | | |
| OTHERS | | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | | | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Ga648

CLIMATE 11010 SAN CARLOS RIO NEG
AREA 8054200 HAS.
ALTITUDE 400 MTS.
PHYSIOGRAPHIC UNIT NO.209
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 60 | |
| < 8% | 15 | 35 | |
| 8-30 % | 70 | 5 | |
| > 30 % | 15 | | |
| ALTITUDE IN MTS | 400 | 350 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 20 | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 80 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | | |
| CROPS | 5 | 5 | |

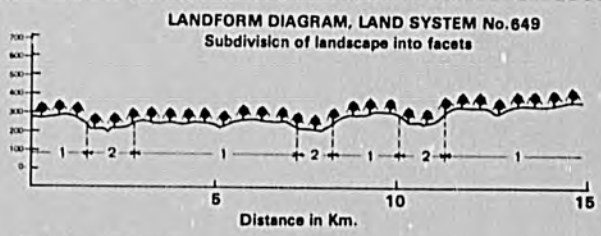
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORAC | EAQTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | H H | B B | |
| EXCHANGEABLE AL | A M | B B | |
| EXCHANGEABLE CA | B B | M M | |
| EXCHANGEABLE MG | B B | M M | |
| EXCHANGEABLE K | K K | M M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | M M | |
| CATION EXCH. CAPAC. | M E | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | HAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Oa649

CLIMATE 11010 SAN CARLOS RIO NEG
AREA 1489500 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO.209
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | B | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 30 | |
| < 8% | 20 | 65 | |
| 8-30 % | 60 | 5 | |
| > 30 % | 20 | | |
| ALTITUDE IN MTS | 200 | 150 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 100 | 100 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | | |
| CROPS | 5 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | O | |
| SUBORDERS | OOR | OOR | |
| GREAT GROUPS | OORAC | OORAC | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | B | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | C C | C C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | H H | |
| AL SATURATION % | A H | A H | |
| EXCHANGEABLE AL | A A | A M | |
| EXCHANGEABLE CA | B B | B B | |
| EXCHANGEABLE MG | B B | B B | |
| EXCHANGEABLE K | K K | K K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E E | E E | |

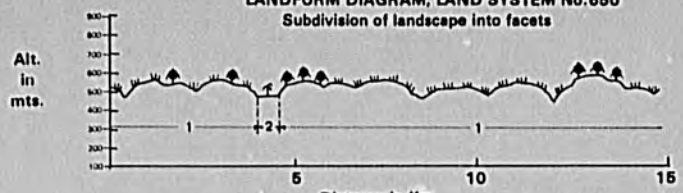
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | O | I | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | CC | |
| MODIFIERS FACET 1 | HAKEI | | |
| FACET 2 | HAKEI | | |
| FACET 3 | | | |

## Land System Oa650

CLIMATE 11010 SAN CARLOS RIO NEG
AREA 220600 HAS.
ALTITUDE 500 MTS.
PHYSIOGRAPHIC UNIT NO.208
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No.650**
**Subdivision of landscape into facets**




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Tropical rain forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 90 | |
| < 8% | 15 | 5 | |
| 8-30 % | 70 | 5 | |
| > 30 % | 15 | | |
| ALTITUDE IN MTS | 900 | 850 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 75 | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 25 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | | |
| CROPS | 2 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | F | |
| SUBORDERS | OOR | EAQ | |
| GREAT GROUPS | OORHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | E | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | R | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A M | B b | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | M K | M M | |
| EXCHANGEABLE NA | B B | M M | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M E | A M | |

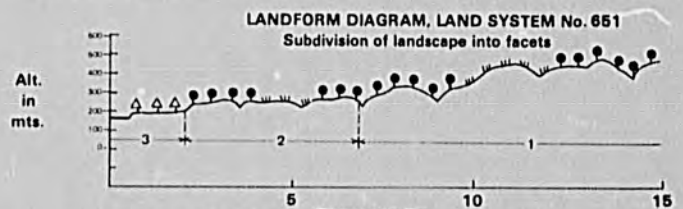
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | HA | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Oe651

CLIMATE 11060 SAN FERNANDO
AREA 594000 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO.208
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No.651**
**Subdivision of landscape into facets**




w = Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)

= Other

= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | C | V |
| PERCENTAGE OF L.S. | 60 | 30 | 10 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | 75 |
| < 8% | 10 | 30 | 20 |
| 8-30 % | 30 | 60 | 5 |
| > 30 % | 60 | 10 | |
| ALTITUDE IN MTS | 400 | 300 | 200 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 20 | 20 | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 80 | 80 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | 100 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 10 | 20 |
| CROPS | 10 | 10 | 30 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | O | E | E |
| SUBORDERS | OOR | EPS | EAQ |
| GREAT GROUPS | OORHA | EPSGU | EAQFL |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | M | B |
| DEPTH | P | P | M |
| INIT. INFIL. RATE | A | A | M |
| HYDRAUL. CONDUCT. | A | A | M |
| DRAINAGE | B | B | G |
| MOIST. HOLD. CAP. | B | B | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | U | SD | U |
| EXPANDING CLAYS | O | O | O |
| TEXTURE | C C | S S | L L |
| COARSE MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | A M | B B | B B |
| EXCHANGEABLE AL | A A | B B | B B |
| EXCHANGEABLE CA | B B | B B | M M |
| EXCHANGEABLE MG | B B | B B | M M |
| EXCHANGEABLE K | M K | K K | M M |
| EXCHANGEABLE NA | B B | B B | M B |
| TOTAL EXCH. BASES | B B | B B | M M |
| CATION EXCH. CAPAC. | M E | E E | M M |

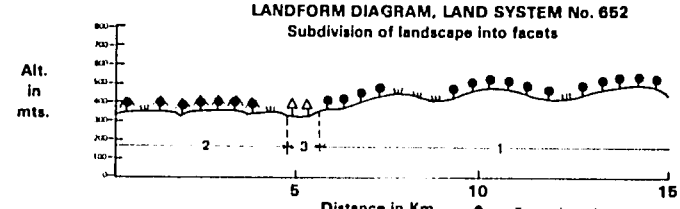
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | M B |
| PHOSPHORUS | M B | B B | M B |
| PHOSPHORUS FIXATION | I | O | O |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | SS | LL |
| MODIFIERS FACET 1 | HAI | | |
| FACET 2 | DHKE | | |
| FACET 3 | G | | |

252

## Land System Gb652

CLIMATE 99999
AREA 710800 HAS.
ALTITUDE 0 MTS.
PHYSIOGRAPHIC UNIT NO.
GENERALIZED CLASSIFICATION

### LANDFORM DIAGRAM, LAND SYSTEM No. 652
Subdivision of landscape into facets




= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
= Tropical rain forest
= Tropical semi-evergreen seasonal forest
= Other

DISTANCE BETWEEN PERENNIAL STREAMS KM
DEPTH OF WELLS.MAIN LAND FACET M

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | | | |
| PERCENTAGE OF L.S. | 0 | 0 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | | |
| < 8% | | | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | | | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | 15 | 20 | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | 80 | |
| SESF | 85 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | 100 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | | | |

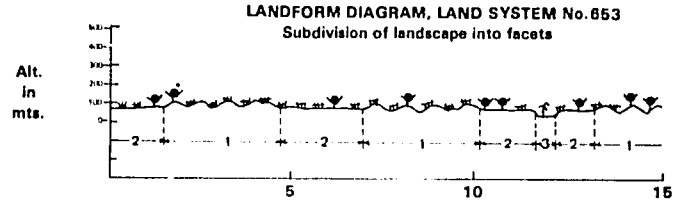
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | | | |
| SUBORDERS | | | |
| GREAT GROUPS | | | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | | | |
| DEPTH | | | |
| INIT. INFIL. RATE | | | |
| HYDRAUL. CONDUCT. | | | |
| DRAINAGE | | | |
| MOIST. HOLD. CAP. | | | |
| TEMP. REGIME | | | |
| MOIST. REGIME | | | |
| EXPANDING CLAYS | | | |
| TEXTURE | | | |
| COARSE MATERIAL | | | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | | | |
| AL SATURATION % | | | |
| EXCHANGEABLE AL | | | |
| EXCHANGEABLE CA | | | |
| EXCHANGEABLE MG | | | |
| EXCHANGEABLE K | | | |
| EXCHANGEABLE NA | | | |
| TOTAL EXCH. BASES | | | |
| CATION EXCH. CAPAC. | | | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | | | |
| PHOSPHORUS | | | |
| PHOSPHORUS FIXATION | | | |
| MANGANESE | | | |
| SULPHUR | | | |
| ZINC | | | |
| IRON | | | |
| COPPER | | | |
| BORON | | | |
| MOLYBDENUM | | | |
| FREE CARBONATES | | | |
| SALINITY | | | |
| NATRIC | | | |
| CAT CLAY | | | |
| X-RAY AMORPHOUS | | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | | | |
| I | | | |
| SE | | | |
| CR | | | |
| NI | | | |
| OTHERS | | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | | | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Oe653

CLIMATE 11060 SAN FERNANDO
AREA 2052500 HAS.
ALTITUDE 90 MTS.
PHYSIOGRAPHIC UNIT NO.204
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS.SLOPE<8%
SAVANNAS

### LANDFORM DIAGRAM, LAND SYSTEM No. 653
Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)
= Tropical semi-deciduos seasonal forest
= Palm forest

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS.MAIN LAND FACET 0-5 M

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | 0 | P | 0 |
| PERCENTAGE OF L.S. | 50 | 45 | 5 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 60 | 95 | 90 |
| < 8% | 20 | 5 | 5 |
| 8-30 % | 20 | | 5 |
| > 30 % | | | |
| ALTITUDE IN MTS | 95 | 90 | 85 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 60 | 80 | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 40 | 20 | 100 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 20 | |
| CROPS | 5 | 5 | 10 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | U | E |
| SUBORDERS | EAQ | UAQ | EAQ |
| GREAT GROUPS | EAQPS | UAQTR | EAQTR |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | B |
| DEPTH | M | M | M |
| INIT. INFIL. RATE | A | M | M |
| HYDRAUL. CONDUCT. | A | M | M |
| DRAINAGE | G | G | G |
| MOIST. HOLD. CAP. | B | M | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | U | U | U |
| EXPANDING CLAYS | O | O | O |
| TEXTURE | S S | L C | L L |
| COARSE MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | B B | M M | B B |
| EXCHANGEABLE AL | B B | A A | B B |
| EXCHANGEABLE CA | B B | B B | M M |
| EXCHANGEABLE MG | B B | B B | M M |
| EXCHANGEABLE K | K K | K K | M K |
| EXCHANGEABLE NA | B B | B B | M B |
| TOTAL EXCH. BASES | B B | B B | M M |
| CATION EXCH. CAPAC. | E E | M E | M M |

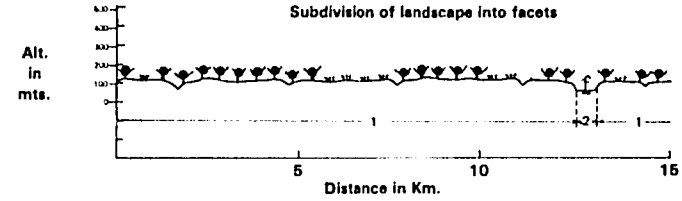
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M B | M B |
| PHOSPHORUS | M B | M B | M B |
| PHOSPHORUS FIXATION | O | O | O |
| MANGANESE | J | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | U | B |
| NATRIC | B | U | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SS | LC | LL |
| MODIFIERS FACET 1 | GHKE | | |
| FACET 2 | GK | | |
| FACET 3 | | | |

## Land System Oe654

CLIMATE 11060 SAN FERNANDO
AREA 487500 HAS.
ALTITUDE 110 MTS.
PHYSIOGRAPHIC UNIT NO.204
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS.SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS.MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No.654
Subdivision of landscape into facets




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 75 | 85 | |
| < 8% | | 25 | 10 |
| 8-30 % | | | 5 |
| > 30 % | | | |
| ALTITUDE IN MTS | 110 | 100 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 25 | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 75 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | | |
| CROPS | 5 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | J | E | |
| SUBORDERS | JAC | EAU | |
| GREAT GROUPS | JAQTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | D | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | A A | |
| EXCHANGEABLE AL | A A | A A | |
| EXCHANGEABLE CA | B B | A M | |
| EXCHANGEABLE MG | B B | M M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | B B | M M | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | M E | A M | |

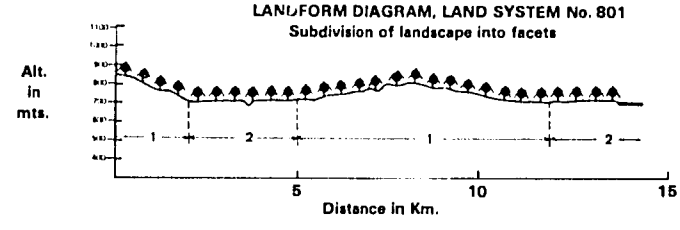
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | U | | |
| FACET 2 | U | | |
| FACET 3 | | | |

## Land System Fa801

CLIMATE 8590 TIPUTINI
AREA 294100 HAS.
ALTITUDE 750 MTS.
PHYSIOGRAPHIC UNIT NO.109
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
WELL DRAINED LANDS
FLAT LANDS.SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS.MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 801
Subdivision of landscape into facets




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | V | B | |
| PERCENTAGE OF L.S. | 65 | 35 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 10 | 80 | |
| < 8% | | 80 | 15 |
| 8-30 % | | 10 | 5 |
| > 30 % | | | |
| ALTITUDE IN MTS | 800 | 750 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 100 | 100 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 60 | 40 | |
| CROPS | 40 | 60 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | IAN | EFL | |
| GREAT GROUPS | IANDY | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | A M | A M | |
| EXCHANGEABLE NA | M B | B B | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | I | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | X | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | IX | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Fa802

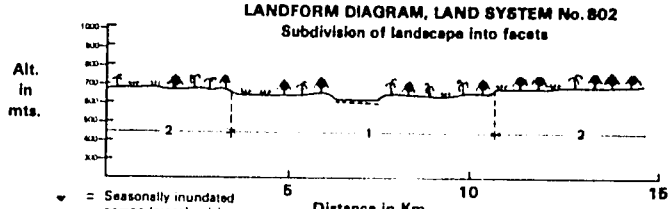
CLIMATE 8580 TIPUTINI
AREA 112100 HAS.
ALTITUDE 660 MTS.
PHYSIOGRAPHIC UNIT NO.110
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 70 | 50 | |
| < 8% | 30 | 50 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 660 | 670 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 15 | 10 | |
| CL + CS | 5 | 5 | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 40 | 10 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 40 | 75 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 5 | |
| CROPS | 20 | 15 | |

### LANDFORM DIAGRAM, LAND SYSTEM No. 802
Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)
= Campo limpo + campo sujo (grasslands on well drained lands with occasional shrubs)
= Palm forest
= Tropical rain forest
= Tropical semi-deciduos seasonal forest

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EFL | |
| GREAT GROUPS | EAQFL | EFLT< | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | A K | A K | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | A A | A A | |
| PHOSPHORUS FIXATION | U | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Fa803

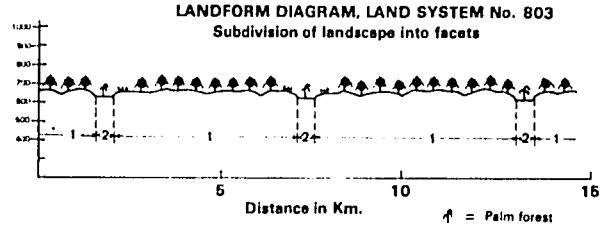
CLIMATE 8580 TIPUTINI
AREA 474600 HAS.
ALTITUDE 650 MTS.
PHYSIOGRAPHIC UNIT NO.108
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 35 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 60 | |
| < 8% | 90 | 35 | |
| 8-30 % | 5 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 650 | 645 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 5 | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 95 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 30 | |
| CROPS | 5 | 25 | |

### LANDFORM DIAGRAM, LAND SYSTEM No. 803
Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)
= Palm forest
= Tropical rain forest

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | IAN | EAQ | |
| GREAT GROUPS | IANDY | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M B | A M | |
| EXCHANGEABLE MG | B B | M M | |
| EXCHANGEABLE K | K K | M M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | M M | |
| CATION EXCH. CAPAC. | E M | A M | |

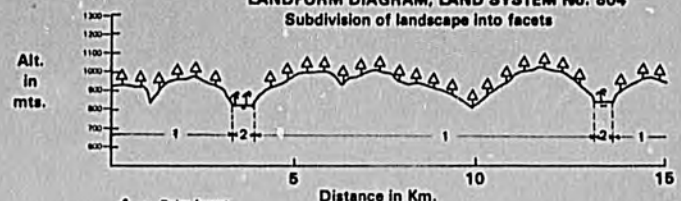
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | HAKE | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Fe804

CLIMATE 3600 MOYOBAMBA
AREA 1848100 HAS.
ALTITUDE 800 MTS.
PHYSIOGRAPHIC UNIT NO.103
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 804**
**Subdivision of landscape into facets**




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | Y | |
| PERCENTAGE OF L.S. | 92 | 8 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 50 | |
| < 8% | 10 | 40 | |
| 8-30 % | 50 | 10 | |
| > 30 % | 40 | | |
| ALTITUDE IN MTS | 800 | 750 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 5 | |
| CROPS | 1 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | IAN | EAQ | |
| GREAT GROUPS | IANDY | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | H H | B B | |
| EXCHANGEABLE AL | B A | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | M M | |
| EXCHANGEABLE K | A K | M M | |
| EXCHANGEABLE NA | A M | M M | |
| TOTAL EXCH. BASES | A A | M M | |
| CATION EXCH. CAPAC. | A A | A M | |

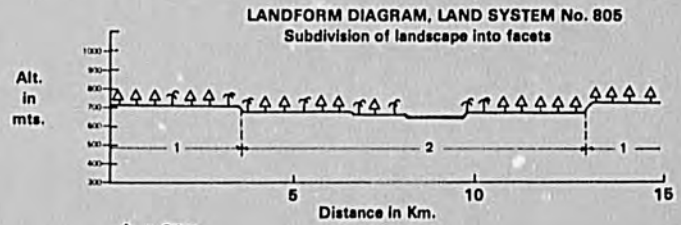
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A B | M B | |
| PHOSPHORUS | A B | A B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | X | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | | LL | |
| MODIFIERS FACET 1 | | M | |
| FACET 2 | | G | |
| FACET 3 | | | |

## Land System Aa805

CLIMATE 8590 TIPUTINI
AREA 249900 HAS.
ALTITUDE 700 MTS.
PHYSIOGRAPHIC UNIT NO.110
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 805**
**Subdivision of landscape into facets**




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 80 | 20 | |
| < 8% | 15 | 80 | |
| 8-30 % | 5 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 680 | 710 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | 2 | 4 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EFL | |
| GREAT GROUPS | EAQFL | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L S | L L | |
| COARSE MATERIAL | B M | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | M K | M M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A B | A M | |
| CATION EXCH. CAPAC. | A E | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | U | B | |
| NATRIC | U | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LS | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

256

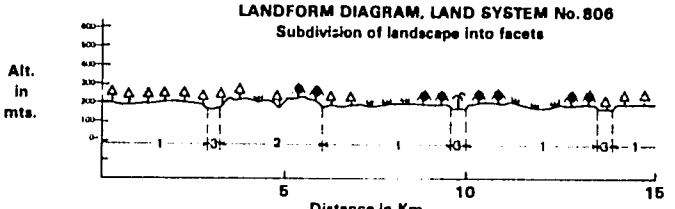
## Land System Aa806

CLIMATE 8580 TIPUTINI
AREA 5400200 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO.105
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 806

Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)
= Tropical rain forest
= Palm forest
= Other

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | C | D |
| PERCENTAGE OF L.S. | 75 | 15 | 10 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 10 | 97 |
| < 8% | 10 | 88 | |
| 8-30 % | | 2 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 200 | 205 | 195 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 25 | 10 | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 10 | 90 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 65 | | 100 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | | |
| CROPS | 2 | 1 | 1 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | U | E |
| SUBORDERS | UAQ | UUD | EAQ |
| GREAT GROUPS | UAQTR | UUDPA | EAQFL |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | P | B | B |
| DEPTH | P | M | M |
| INIT. INFIL. RATE | R | M | M |
| HYDRAUL. CONDUCT. | B | B | M |
| DRAINAGE | S | B | G |
| MOIST. HOLD. CAP. | M | M | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | U | U | U |
| EXPANDING CLAYS | D | D | D |
| TEXTURE | L C | L L | L L |
| COARSE MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | M M | A A | B B |
| EXCHANGEABLE AL | M A | A A | B B |
| EXCHANGEABLE CA | M M | M B | A M |
| EXCHANGEABLE MG | M B | B B | M M |
| EXCHANGEABLE K | K K | K K | M M |
| EXCHANGEABLE NA | M M | B B | M B |
| TOTAL EXCH. BASES | B B | B B | A M |
| CATION EXCH. CAPAC. | E M | E M | A M |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | M B |
| PHOSPHORUS | M B | M B | M B |
| PHOSPHORUS FIXATION | D | D | D |
| MANGANESE | U | U | J |
| SULPHUR | J | U | U |
| ZINC | J | U | J |
| IRON | U | U | U |
| COPPER | U | U | J |
| BORON | J | U | J |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | J |
| I | U | U | U |
| SE | J | U | J |
| CR | U | U | J |
| NI | U | U | U |
| OTHERS | J | U | J |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LC | LL |
| MODIFIERS FACET 1 | GHKE | | |
| FACET 2 | HAKE | | |
| FACET 3 | G | | |

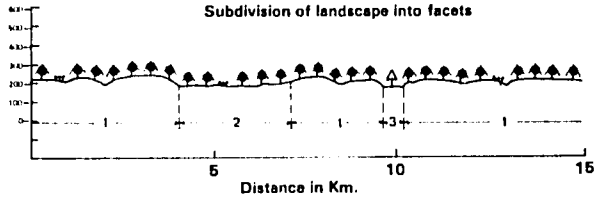
## Land System Aa807

CLIMATE 8580 TIPUTINI
AREA 1589500 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO.106
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS >10 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 807

Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)
= Other
= Tropical rain forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | D | V |
| PERCENTAGE OF L.S. | 70 | 25 | 5 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 30 | 95 | 90 |
| < 8% | 35 | 5 | 5 |
| 8-30 % | 35 | | 5 |
| > 30 % | | | |
| ALTITUDE IN MTS | 200 | 190 | 185 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 2 | 15 | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 98 | 85 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | 100 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 1 | 1 | 10 |
| CROPS | 2 | 3 | 5 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | U | E |
| SUBORDERS | UUD | UAQ | EAQ |
| GREAT GROUPS | UUDPA | UAQTR | EAQFL |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | B |
| DEPTH | P | M | M |
| INIT. INFIL. RATE | M | M | M |
| HYDRAUL. CONDUCT. | B | M | M |
| DRAINAGE | D | G | G |
| MOIST. HOLD. CAP. | M | M | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | U | U | U |
| EXPANDING CLAYS | D | D | D |
| TEXTURE | L C | L C | L L |
| COARSE MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | A A | M M | B B |
| EXCHANGEABLE AL | A A | M A | B B |
| EXCHANGEABLE CA | M B | A M | A M |
| EXCHANGEABLE MG | B B | M B | A M |
| EXCHANGEABLE K | K K | K K | M M |
| EXCHANGEABLE NA | B B | B B | M B |
| TOTAL EXCH. BASES | B B | B B | A M |
| CATION EXCH. CAPAC. | E M | E M | A M |

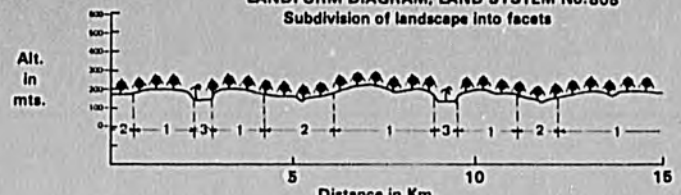
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | M B |
| PHOSPHORUS | M B | M B | M B |
| PHOSPHORUS FIXATION | D | D | D |
| MANGANESE | J | U | U |
| SULPHUR | U | U | U |
| ZINC | J | U | J |
| IRON | U | U | U |
| COPPER | U | U | J |
| BORON | J | U | J |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | J |
| I | U | U | U |
| SE | U | U | J |
| CR | J | U | U |
| NI | U | U | U |
| OTHERS | J | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LC | LL |
| MODIFIERS FACET 1 | HAKE | | |
| FACET 2 | GHKE | | |
| FACET 3 | G | | |

## Land System Aa808

CLIMATE 3570 IQUITOS
AREA 2563000 HAS.
ALTITUDE 180 MTS.
PHYSIOGRAPHIC UNIT NO.104
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No.808**
**Subdivision of landscape into facets**




= Tropical rain forest  = Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | N | D |
| PERCENTAGE OF L.S. | 70 | 23 | 7 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 75 | 90 |
| < 8% | 90 | 25 | 5 |
| 8-30 % | 5 | | 5 |
| > 30 % | | | |
| ALTITUDE IN MTS | 180 | 178 | 175 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 100 | 100 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | 100 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 2 | 2 |
| CROPS | 1 | 1 | 6 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | S | E |
| SUBORDERS | UUD | SAQ | EAQ |
| GREAT GROUPS | HUDTR | SAQTR | EAQFL |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | B |
| DEPTH | P | M | M |
| INIT. INFIL. RATE | A | A | M |
| HYDRAUL. CONDUCT. | A | M | M |
| DRAINAGE | B | G | G |
| MOIST. HOLD. CAP. | B | B | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | U | U | U |
| EXPANDING CLAYS | D | D | D |
| TEXTURE | S L | S L | L L |
| COARSE MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | A A | A A | B B |
| EXCHANGEABLE AL | M M | A A | B B |
| EXCHANGEABLE CA | B B | B B | A M |
| EXCHANGEABLE MG | B B | B M | M M |
| EXCHANGEABLE K | K K | K K | M K |
| EXCHANGEABLE NA | B B | B B | B B |
| TOTAL EXCH. BASES | B B | B B | M B |
| CATION EXCH. CAPAC. | E E | E E | M M |

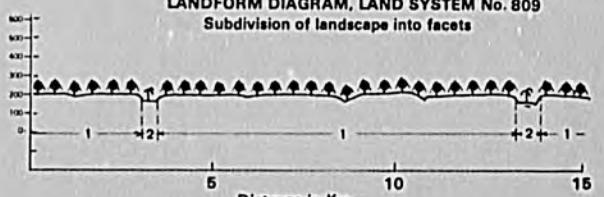
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M M | A A | M B |
| PHOSPHORUS | A A | B B | M M |
| PHOSPHORUS FIXATION | D | D | D |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | SL | SL | LL |
| MODIFIERS FACET 1 | HAKE | | |
| FACET 2 | GHAKE | | |
| FACET 3 | G | | |

## Land System Aa809

CLIMATE 8580 TIPUTINI
AREA 5038500 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO.104
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 809**
**Subdivision of landscape into facets**




= Tropical rain forest  = Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 3 | 90 | |
| < 8% | 70 | 3 | |
| 8-30 % | 27 | 7 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 200 | 195 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 100 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 2 | |
| CROPS | 1 | 2 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | ITR | EAQ | |
| GREAT GROUPS | ITROY | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | M M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | E M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | HAKE | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Fb810

CLIMATE 3580 JUANJUI CURPAC
AREA 3534500 HAS.
ALTITUDE 800 MTS.
PHYSIOGRAPHIC UNIT NO.103
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

LANDSCAPE FACETS

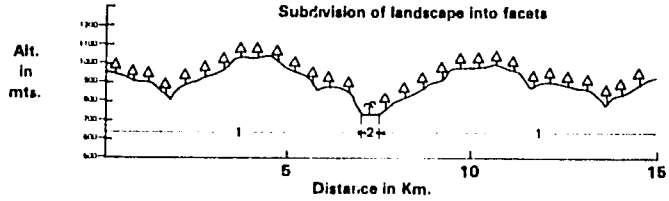
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | V | |
| PERCENTAGE OF L.S. | 94 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 60 | |
| < 8% | 5 | 30 | |
| 8-30 % | 25 | 10 | |
| > 30 % | 70 | | |
| ALTITUDE IN MTS | 800 | 700 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 10 | |
| CROPS | 5 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | IAN | EAQ | |
| GREAT GROUPS | IANDY | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | B | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | I | I | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | M A | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M B | B B | |
| EXCHANGEABLE AL | M B | M B | |
| EXCHANGEABLE CA | M A | A A | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | A M | A M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | H | | |
| FACET 2 | G | | |
| FACET 3 | | | |

### LANDFORM DIAGRAM, LAND SYSTEM No. 810

Subdivision of landscape into facets




= Other

= Palm forest

## Land System Aa811

CLIMATE 3570 IQUITOS
AREA 483100 HAS.
ALTITUDE 120 MTS.
PHYSIOGRAPHIC UNIT NO.105
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
SAVANNAS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

LANDSCAPE FACETS

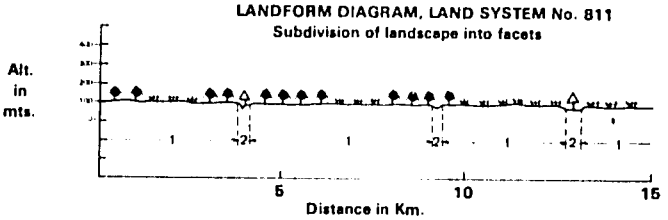
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 95 | |
| < 8% | 10 | 5 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 120 | 115 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | 60 | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 40 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 3 | | |
| CROPS | 2 | 2 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | J | E | |
| SUBORDERS | JAQ | EAQ | |
| GREAT GROUPS | UAQTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B P | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | M A | B B | |
| EXCHANGEABLE CA | M B | M M | |
| EXCHANGEABLE MG | B B | M M | |
| EXCHANGEABLE K | K K | M M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | M M | |
| CATION EXCH. CAPAC. | E M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | GHAKE | | |
| FACET 2 | G | | |
| FACET 3 | | | |

### LANDFORM DIAGRAM, LAND SYSTEM No. 811

Subdivision of landscape into facets




= Seasonally inundated pampa (grasslands)

= Other

= Tropical rain forest

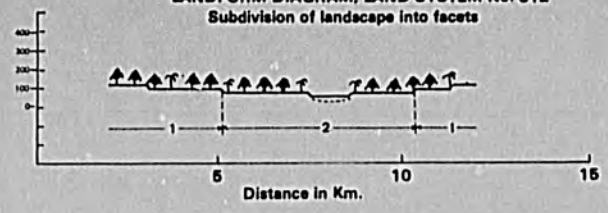
## Land System Aa812

CLIMATE 3570 IQUITOS
AREA 824400 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO.110
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 812

Subdivision of landscape into facets




↑ = Palm forest ↑ = Tropical rain forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 50 | 50 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 65 | 99 | |
| < 8% | 35 | | |
| 8-30 % | 10 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 95 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 5 | |
| CROPS | 20 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | M | E | |
| SUBORDERS | MAQ | EAQ | |
| GREAT GROUPS | MAQHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A M | |
| EXCHANGEABLE K | M A | M M | |
| EXCHANGEABLE NA | M M | M M | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | B P | |
| PHOSPHORUS | M B | M R | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | G | | |
| FACET 3 | | | |

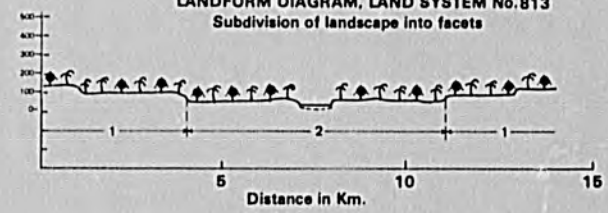
## Land System Aa813

CLIMATE 3570 IQUITOS
AREA 309300 HAS.
ALTITUDE 100 MTS.
PHYSIOGRAPHIC UNIT NO.110
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 813

Subdivision of landscape into facets




↑ = Palm forest ↑ = Tropical rain forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 50 | 50 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 65 | 99 | |
| < 8% | 35 | 1 | |
| 8-30 % | 10 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 100 | 95 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 50 | 50 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 50 | 50 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 5 | |
| CROPS | 20 | 5 | |

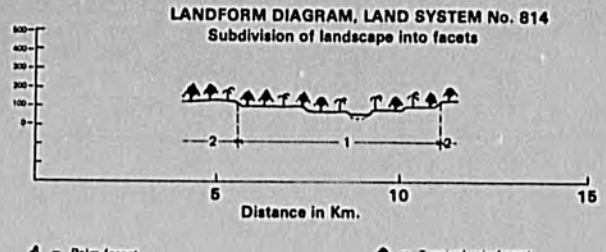
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | M | E | |
| SUBORDERS | MAQ | EAQ | |
| GREAT GROUPS | MAQHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | M M | M M | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | B B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | IL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Aa814

CLIMATE 3570 IQUITOS
AREA 140400 HAS.
ALTITUDE 120 MTS.
PHYSIOGRAPHIC UNIT NO.110
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 75 | 25 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 40 | |
| < 8% | 8 | 60 | |
| 8-30 % | 2 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 120 | 125 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 3 | 10 | |
| CROPS | 3 | 10 | |

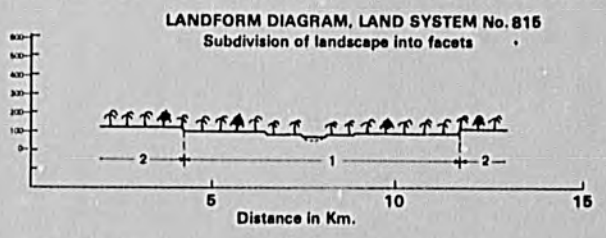
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EFL | |
| GREAT GROUPS | EAQFL | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M M | A M | |
| EXCHANGEABLE MG | M B | M M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M M | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Aa815

CLIMATE 8580 TIPUTINI
AREA 597700 HAS.
ALTITUDE 120 MTS.
PHYSIOGRAPHIC UNIT NO.110
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 40 | |
| < 8% | 7 | 60 | |
| 8-30 % | 3 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 120 | 125 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 10 | |
| CROPS | 3 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EFL | |
| GREAT GROUPS | EAQFL | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M M | A M | |
| EXCHANGEABLE MG | M B | M M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M M | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

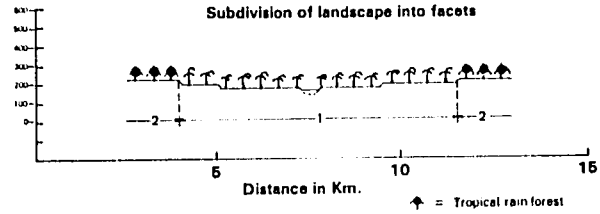
## Land System Aa816

CLIMATE 3570 IQUITOS
AREA 319000 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO.110
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No.816

Subdivision of landscape into facets




= Tropical rain forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 50 | |
| < 8% | 8 | 50 | |
| 8-30 % | 2 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 200 | 235 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | 50 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 50 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 3 | 10 | |
| CROPS | 2 | 10 | |

| | FACETS 1 | | 2 | | 3 | |
|---|---|---|---|---|---|---|
| SOIL CLASSIFICATION | | | | | | |
| ORDERS | E | | E | | | |
| SUBORDERS | EAQ | | EFL | | | |
| GREAT GROUPS | EAQFL | | EFLTR | | | |
| SOIL PHYSICAL PROPERTIES | | | | | | |
| SLOPE | B | | B | | | |
| DEPTH | M | | P | | | |
| INIT. INFIL. RATE | M | | M | | | |
| HYDRAUL. CONDUCT. | M | | M | | | |
| DRAINAGE | G | | D | | | |
| MOIST. HOLD. CAP. | M | | M | | | |
| TEMP. REGIME | S | | S | | | |
| MOIST. REGIME | U | | U | | | |
| EXPANDING CLAYS | D | | D | | | |
| TEXTURE | L | L | L | L | | |
| COARSE MATERIAL | B | B | B | B | | |
| SOIL CHEMICAL PROPERTIES | | | | | | |
| PH | M | M | M | M | | |
| AL SATURATION % | B | B | B | B | | |
| EXCHANGEABLE AL | B | B | B | B | | |
| EXCHANGEABLE CA | M | M | A | M | | |
| EXCHANGEABLE MG | M | B | M | M | | |
| EXCHANGEABLE K | M | M | M | M | | |
| EXCHANGEABLE NA | B | B | B | B | | |
| TOTAL EXCH. BASES | M | M | A | M | | |
| CATION EXCH. CAPAC. | A | M | A | M | | |

| | FACETS 1 | | 2 | | 3 | |
|---|---|---|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | | | | |
| ORGANIC MATTER % | B | B | M | B | | |
| PHOSPHORUS | M | B | M | B | | |
| PHOSPHORUS FIXATION | D | | D | | | |
| MANGANESE | J | | J | | | |
| SULPHUR | U | | U | | | |
| ZINC | U | | U | | | |
| IRON | J | | J | | | |
| COPPER | U | | U | | | |
| BORON | J | | J | | | |
| MOLYBDENUM | U | | U | | | |
| FREE CARBONATES | A | | A | | | |
| SALINITY | B | | B | | | |
| NATRIC | B | | B | | | |
| CAT CLAY | N | | N | | | |
| X-RAY AMORPHOUS | N | | N | | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | | | | |
| CO | J | | J | | | |
| I | J | | U | | | |
| SE | U | | U | | | |
| CR | J | | J | | | |
| NI | J | | J | | | |
| OTHERS | U | | U | | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | | | | |
| TYPE AND SUBSTRATA TYPES | LL | | LL | | | |
| MODIFIERS FACET 1 | G | | | | | |
| FACET 2 | | | | | | |
| FACET 3 | | | | | | |

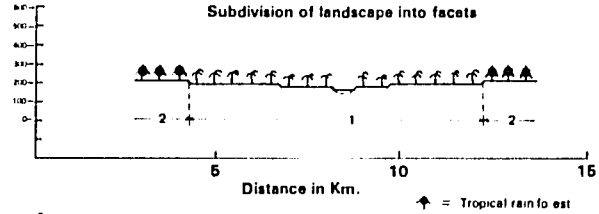
## Land System Aa817

CLIMATE 8580 TIPUTINI
AREA 357800 HAS.
ALTITUDE 180 MTS.
PHYSIOGRAPHIC UNIT NO.110
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 817

Subdivision of landscape into facets




= Tropical rain fo est

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 85 | 30 | |
| < 8% | 10 | 70 | |
| 8-30 % | 5 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 180 | 195 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | 50 | |
| SLSF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 50 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 6 | 10 | |
| CROPS | 2 | 10 | |

| | FACETS 1 | | 2 | | 3 | |
|---|---|---|---|---|---|---|
| SOIL CLASSIFICATION | | | | | | |
| ORDERS | E | | E | | | |
| SUBORDERS | EAQ | | EFL | | | |
| GREAT GROUPS | EAQFL | | EFLTR | | | |
| SOIL PHYSICAL PROPERTIES | | | | | | |
| SLOPE | B | | B | | | |
| DEPTH | M | | P | | | |
| INIT. INFIL. RATE | M | | M | | | |
| HYDRAUL. CONDUCT. | M | | M | | | |
| DRAINAGE | C | | D | | | |
| MOIST. HOLD. CAP. | M | | M | | | |
| TEMP. REGIME | S | | S | | | |
| MOIST. REGIME | U | | U | | | |
| EXPANDING CLAYS | D | | D | | | |
| TEXTURE | L | L | L | L | | |
| COARSE MATERIAL | B | B | B | B | | |
| SOIL CHEMICAL PROPERTIES | | | | | | |
| PH | M | M | M | M | | |
| AL SATURATION % | B | B | B | B | | |
| EXCHANGEABLE AL | B | B | B | B | | |
| EXCHANGEABLE CA | A | M | A | M | | |
| EXCHANGEABLE MG | M | B | A | M | | |
| EXCHANGEABLE K | M | M | M | M | | |
| EXCHANGEABLE NA | M | B | B | B | | |
| TOTAL EXCH. BASES | A | M | A | M | | |
| CATION EXCH. CAPAC. | A | M | A | M | | |

| | FACETS 1 | | 2 | | 3 | |
|---|---|---|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | | | | |
| ORGANIC MATTER % | B | B | M | B | | |
| PHOSPHORUS | M | B | M | B | | |
| PHOSPHORUS FIXATION | D | | D | | | |
| MANGANESE | J | | U | | | |
| SULPHUR | J | | J | | | |
| ZINC | U | | U | | | |
| IRON | J | | J | | | |
| COPPER | J | | J | | | |
| BORON | U | | J | | | |
| MOLYBDENUM | J | | U | | | |
| FREE CARBONATES | A | | A | | | |
| SALINITY | B | | B | | | |
| NATRIC | B | | B | | | |
| CAT CLAY | N | | N | | | |
| X-RAY AMORPHOUS | N | | N | | | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | | | | |
| CO | J | | J | | | |
| I | J | | U | | | |
| SE | U | | U | | | |
| CR | J | | J | | | |
| NI | J | | U | | | |
| OTHERS | U | | U | | | |
| FERTILITY CAPABILITY CLASSIFICATION | | | | | | |
| TYPE AND SUBSTRATA TYPES | LL | | LL | | | |
| MODIFIERS FACET 1 | G | | | | | |
| FACET 2 | | | | | | |
| FACET 3 | | | | | | |

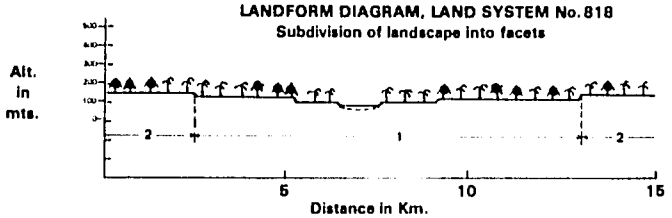
## Land System Aa818

CLIMATE 3570 IQUITOS
AREA 329000 HAS.
ALTITUDE 150 MTS.
PHYSIOGRAPHIC UNIT NO.110
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No.818

Subdivision of landscape into facets




= Tropical rain forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 85 | 30 | |
| < 8% | 10 | 70 | |
| 8-30 % | 5 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 150 | 155 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 50 | 75 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 50 | 25 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 4 | 10 | |
| CROPS | 3 | 15 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | M | |
| SUBORDERS | EAQ | MAQ | |
| GREAT GROUPS | EAQFL | MACHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A A | |
| EXCHANGEABLE MG | M M | A A | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | B B | M M | |
| TOTAL EXCH. BASES | A M | A A | |
| CATION EXCH. CAPAC. | A M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

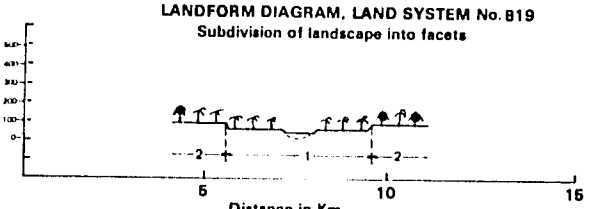
## Land System Aa819

CLIMATE 3570 IQUITOS
AREA 217600 HAS.
ALTITUDE 190 MTS.
PHYSIOGRAPHIC UNIT NO.110
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No.819

Subdivision of landscape into facets




= Tropical rain forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 95 | 40 | |
| < 8% | 3 | 60 | |
| 8-30 % | 2 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 190 | 195 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | 30 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 70 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 3 | 5 | |
| CROPS | 3 | 4 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EFL | |
| GREAT GROUPS | EAQFL | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L S | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A B | A M | |
| EXCHANGEABLE MG | M B | M M | |
| EXCHANGEABLE K | M K | M M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | A B | A M | |
| CATION EXCH. CAPAC. | A E | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M P | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LS | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

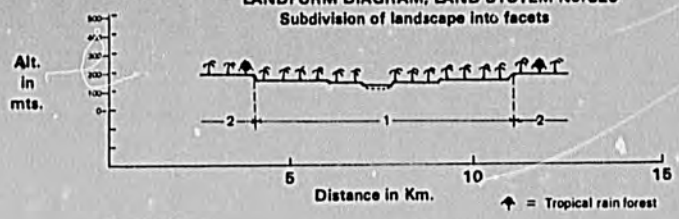
## Land System Aa820

CLIMATE 3720 YURIMAGUAS
AREA 171800 HAS.
ALTITUDE 190 MTS.
PHYSIOGRAPHIC UNIT NO.110
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No.820

Subdivision of landscape into facets




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 45 | |
| < 8% | | 5 | 55 |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 190 | 195 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | 20 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 80 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 3 | 4 | |
| CROPS | 3 | 4 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EFL | |
| GREAT GROUPS | EAQFL | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | M M | M M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M M | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | J | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | J | J | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | J | U | |
| SE | U | U | |
| CR | U | U | |
| NI | J | U | |
| OTHERS | J | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

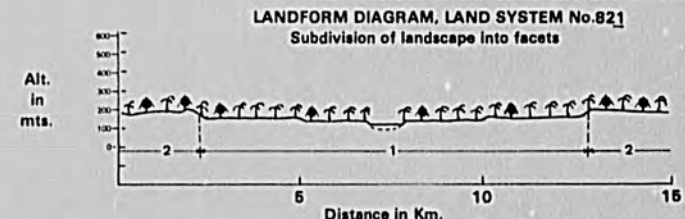
## Land System Aa821

CLIMATE 3570 IQUITOS
AREA 518200 HAS.
ALTITUDE 180 MTS.
PHYSIOGRAPHIC UNIT NO.100
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No.821

Subdivision of landscape into facets




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 60 | |
| < 8% | | 5 | 40 |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 180 | 185 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 30 | 50 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 70 | 50 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 5 | |
| CROPS | 3 | 6 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | M | |
| SUBORDERS | EAQ | MAQ | |
| GREAT GROUPS | EAQFL | MAQHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A A | |
| EXCHANGEABLE MG | M M | A A | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | A M | A A | |
| CATION EXCH. CAPAC. | A M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | A M | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | J | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | G | | |
| FACET 3 | | | |

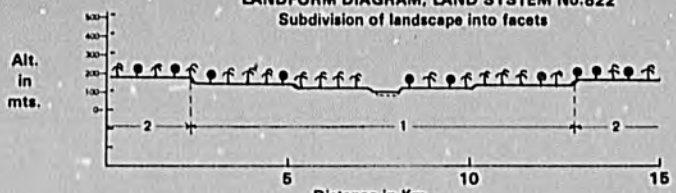
## Land System Ab822

CLIMATE 3630 PUCALLPA
AREA 740700 HAS.
ALTITUDE 180 MTS.
PHYSIOGRAPHIC UNIT NO.110
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 3-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No.822

Subdivision of landscape into facets




= Palm forest

= Tropical semi-evergreen seasonal forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 71 | 29 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 85 | 65 | |
| < 8% | 10 | 35 | |
| 8-30 % | 5 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 180 | 185 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 30 | 60 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 70 | 40 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 3 | 4 | |
| CROPS | 4 | 6 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | M | |
| SUBORDERS | EAQ | MAQ | |
| GREAT GROUPS | EAQFL | MAQHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | A M | A M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | A M | |
| PHOSPHORUS | A A | A A | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | B | B | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | GB | | |
| FACET 2 | GB | | |
| FACET 3 | | | |

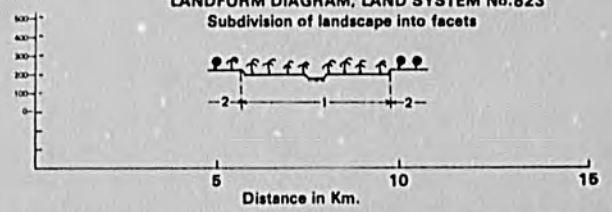
## Land System Ab823

CLIMATE 3630 PUCALLPA
AREA 34000 HAS.
ALTITUDE 220 MTS.
PHYSIOGRAPHIC UNIT NO.110
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 3-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No.823

Subdivision of landscape into facets




= Palm forest

= Tropical semi-evergreen seasonal forest

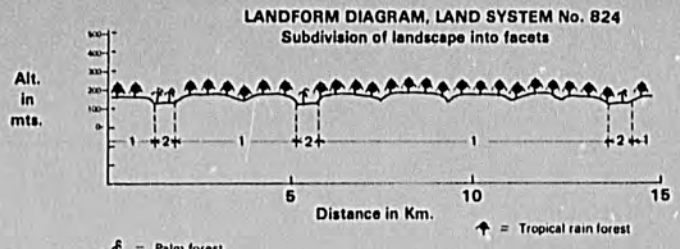
LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 64 | 36 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 85 | 60 | |
| < 8% | 10 | 40 | |
| 8-30 % | 5 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 220 | 225 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 3 | 5 | |
| CROPS | 4 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EFL | |
| GREAT GROUPS | EAQFL | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L S | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | M B | A M | |
| EXCHANGEABLE MG | B B | M M | |
| EXCHANGEABLE K | M K | M M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | A M | |
| CATION EXCH. CAPAC. | M E | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | B B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LS | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Aa824




```
CLIMATE    720  CRUZEIRO DO SUL
AREA                3952347 HAS.
ALTITUDE                 200 MTS.
PHYSIOGRAPHIC UNIT NO.104
GENERALIZED CLASSIFICATION
  LOWLANDS,BELOW 900M
  WELL DRAINED LANDS
  FLAT LANDS,SLOPES<8%
  FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M
```

LANDSCAPE FACETS

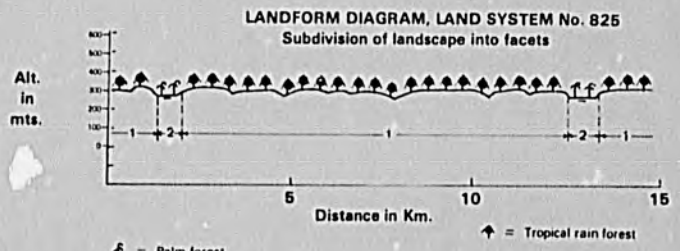
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 75 | |
| < 8% | 80 | 20 | |
| 8-30 % | 15 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 150 | 145 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 100 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 15 | |
| CROPS | 2 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | a | b | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M M | A A | |
| EXCHANGEABLE MG | M B | A A | |
| EXCHANGEABLE K | K K | A M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT'D) | | | |
| ORGANIC MATTER % | M M | A M | |
| PHOSPHORUS | B B | A A | |
| PHOSPHORUS FIXATION | J | J | |
| MANGANESE | J | J | |
| SULPHUR | J | J | |
| ZINC | J | U | |
| IRON | J | J | |
| COPPER | U | U | |
| BORON | J | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | A | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CU | J | J | |
| I | J | U | |
| SE | J | J | |
| CR | J | J | |
| NI | U | U | |
| OTHERS | J | J | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES LC LL
MODIFIERS FACET 1 HAS
FACET 2
FACET 3

## Land System Aa825




```
CLIMATE    3720  YURIMAGUAS
AREA                2121900 HAS.
ALTITUDE                 300 MTS.
PHYSIOGRAPHIC UNIT NO.104
GENERALIZED CLASSIFICATION
  LOWLANDS,BELOW 900M
  WELL DRAINED LANDS
  FLAT LANDS,SLOPES<8%
  FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M
```

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 92 | 8 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 80 | |
| < 8% | 85 | 15 | |
| 8-30 % | 10 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 300 | 290 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 100 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 4 | 20 | |
| CROPS | 1 | 40 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDPA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | S L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | H A | B M | |
| EXCHANGEABLE AL | M A | B M | |
| EXCHANGEABLE CA | A M | M B | |
| EXCHANGEABLE MG | B B | M M | |
| EXCHANGEABLE K | M K | M K | |
| EXCHANGEABLE NA | B B | B M | |
| TOTAL EXCH. BASES | B B | B B | |
| CATION EXCH. CAPAC. | E M | M A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT'D) | | | |
| ORGANIC MATTER % | M E | A E | |
| PHOSPHORUS | B B | M M | |
| PHOSPHORUS FIXATION | J | J | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | A | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CU | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | J | U | |

FERTILITY CAPABILITY CLASSIFICATION
TYPE AND SUBSTRATA TYPES SL LL
MODIFIERS FACET 1 HE
FACET 2 G
FACET 3

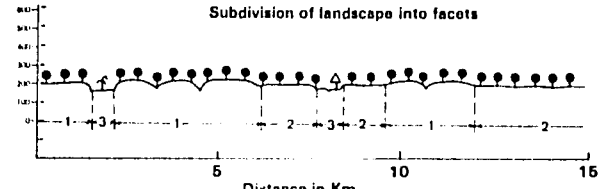
## Land System Ab826

CLIMATE 3630 PUCALLPA
AREA 1047000 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO.107
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPESCRB
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No.826

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Other

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | A | P | D |
| PERCENTAGE OF L.S. | 60 | 32 | 8 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 5 | 75 | 85 |
| < 8% | 90 | 20 | 10 |
| 8-30 % | 5 | 5 | 5 |
| > 30 % | | | |
| ALTITUDE IN MTS | 200 | 200 | 198 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | 100 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | 100 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 6 | 4 | 20 |
| CROPS | 1 | 1 | 40 |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | D | I | E |
| SUBORDERS | UDD | IAQ | EAQ |
| GREAT GROUPS | UDDTH | IAQTH | EAQFL |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | B |
| DEPTH | P | M | M |
| INIT. INFIL. RATE | M | B | M |
| HYDRAUL. CONDUCT. | B | B | M |
| DRAINAGE | B | G | G |
| MOIST. HOLD. CAP. | M | M | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | U | U | U |
| EXPANDING CLAYS | D | D | D |
| TEXTURE | L C | L C | L L |
| COARSE MATERIAL | B B | B B | B B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | M A | M M | M B |
| EXCHANGEABLE AL | A A | A A | M B |
| EXCHANGEABLE CA | A M | M A | A A |
| EXCHANGEABLE MG | A M | M A | A M |
| EXCHANGEABLE K | A M | K M | M M |
| EXCHANGEABLE NA | B B | B B | B B |
| TOTAL EXCH. BASES | A M | M B | A M |
| CATION EXCH. CAPAC. | A A | A A | A M |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT.) | | | |
| ORGANIC MATTER % | M B | B B | M D |
| PHOSPHORUS | B B | M M | M M |
| PHOSPHORUS FIXATION | D | D | D |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CU | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LC | LL |
| MODIFIERS FACET 1 | HA | | |
| FACET 2 | SHK | | |
| FACET 3 | G | | |

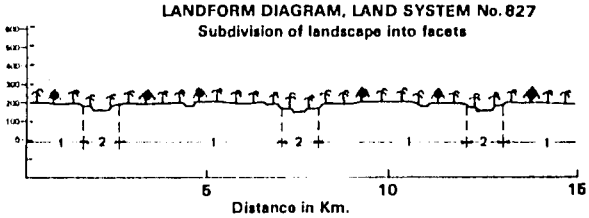
## Land System Aa827

CLIMATE 3570 IQUITOS
AREA 1730200 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO.105
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPESCRB
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No.827

Subdivision of landscape into facets




= Tropical rain forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | V | |
| PERCENTAGE OF L.S. | 80 | 20 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 85 | 98 | |
| < 8% | 15 | | |
| 8-30 % | | 2 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 200 | 190 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | 15 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 85 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 5 | |
| CROPS | 2 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | L | |
| SUBORDERS | EAQ | EAQ | |
| GREAT GROUPS | EAQFL | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M B | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | M M | M M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | A M | |
| CATION EXCH. CAPAC. | M M | M M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT.) | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | J | |
| COPPER | U | U | |
| BORON | J | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CU | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | J | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | G | | |
| FACET 3 | | | |

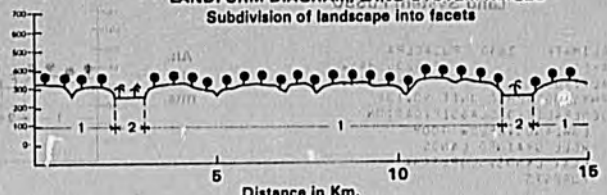
## Land System Ab828

CLIMATE 3630 PUCALLPA
AREA 2710400 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO.106
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>4%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 828

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 70 | |
| < 8% | 80 | 25 | |
| 8-30 % | 15 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 300 | 290 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 4 | 20 | |
| CROPS | 3 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDPA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | A M | A A | |
| EXCHANGEABLE MG | A M | A A | |
| EXCHANGEABLE K | A M | M M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | A M | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | M M | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | HA | | |
| FACET 2 | G | | |
| FACET 3 | | | |

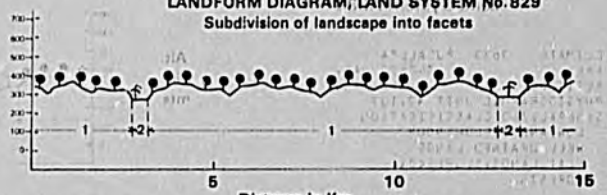
## Land System Ab829

CLIMATE 3630 PUCALLPA
AREA 323600 HAS.
ALTITUDE 350 MTS.
PHYSIOGRAPHIC UNIT NO.106
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

### LANDFORM DIAGRAM, LAND SYSTEM No. 829

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 75 | |
| < 8% | 60 | 20 | |
| 8-30 % | 30 | 5 | |
| > 30 % | 5 | | |
| ALTITUDE IN MTS | 350 | 320 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 4 | |
| CROPS | 1 | 6 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AUD | EAQ | |
| GREAT GROUPS | AUDHA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | M M | A M | |
| EXCHANGEABLE NA | M M | A M | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | A M | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | G | | |
| FACET 3 | | | |

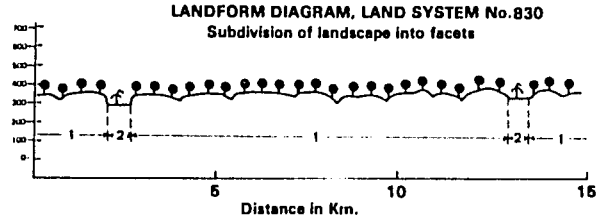
## Land System Fb830

CLIMATE 3630 PUCALLPA
AREA 224200 HAS.
ALTITUDE 350 MTS.
PHYSIOGRAPHIC UNIT NO.109
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No.830

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 75 | |
| < 8% | 90 | 25 | |
| 8-30 % | 5 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 350 | 340 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 4 | 20 | |
| CROPS | 1 | 20 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | J | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUD4A | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | J | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | A A | a a | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M B | A A | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | M M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | E M | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | J | J | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | J | J | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | J | |
| I | U | U | |
| SE | U | U | |
| CR | J | J | |
| NI | J | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | HAKF | | |
| FACET 2 | G | | |
| FACET 3 | | | |

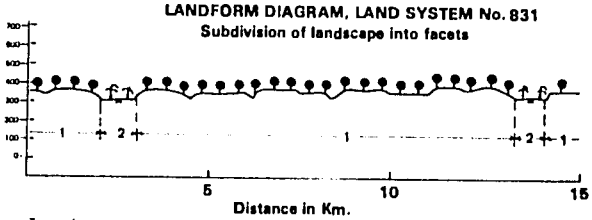
## Land System Ab831

CLIMATE 3630 PUCALLPA
AREA 740800 HAS.
ALTITUDE 350 MTS.
PHYSIOGRAPHIC UNIT NO.107
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 831

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 88 | 12 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 75 | |
| < 8% | 80 | 20 | |
| 8-30 % | 15 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 350 | 340 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 20 | |
| CROPS | 4 | 40 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AUD | EAQ | |
| GREAT GROUPS | AUD4A | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | A M | A M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

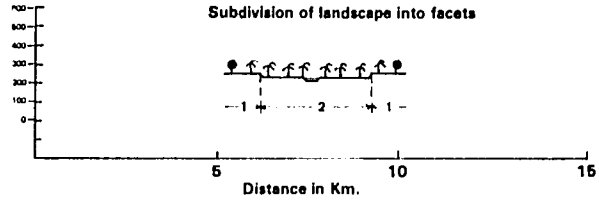
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | J | U | |
| SULPHUR | J | U | |
| ZINC | U | U | |
| IRON | J | U | |
| COPPER | U | U | |
| BORON | J | U | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | J | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab832

```
CLIMATE    3640  PUERTO MALDONADO
AREA               155000 HAS.
ALTITUDE               250 MTS.
PHYSIOGRAPHIC UNIT NO.110
GENERALIZED CLASSIFICATION
  LOWLANDS,BELOW 900M
  POORLY DRAINED LANDS
  FLAT LANDS,SLOPES<8%
  FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M
```

**LANDFORM DIAGRAM, LAND SYSTEM No.832**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest  = Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 94 | 60 | |
| < 8% | 3 | 40 | |
| 8-30 % | 3 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 250 | 255 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | 2 | 4 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EFL | |
| GREAT GROUPS | EAQFL | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | A K | A K | |
| EXCHANGEABLE NA | A M | A M | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A M | A M | |

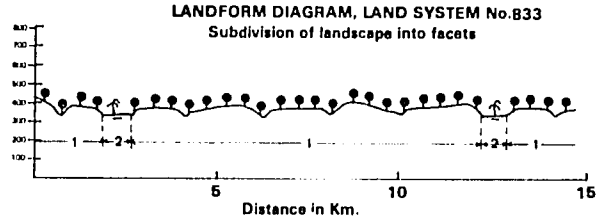
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONTI. | | | |
| ORGANIC MATTER % | A B | A B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITIO | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | S | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Ab833

```
CLIMATE    3640  PUERTO MALDONADO
AREA              4920000 HAS.
ALTITUDE               330 MTS.
PHYSIOGRAPHIC UNIT NO.107
GENERALIZED CLASSIFICATION
  LOWLANDS,BELOW 900M
  WELL DRAINED LANDS
  FLAT LANDS,SLOPES<8%
  FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M
```

**LANDFORM DIAGRAM, LAND SYSTEM No.833**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest  = Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 90 | |
| < 8% | 30 | 5 | |
| 8-30 % | 60 | 5 | |
| > 30 % | 10 | | |
| ALTITUDE IN MTS | 330 | 325 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | 100 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 15 | |
| CROPS | 3 | 10 | |

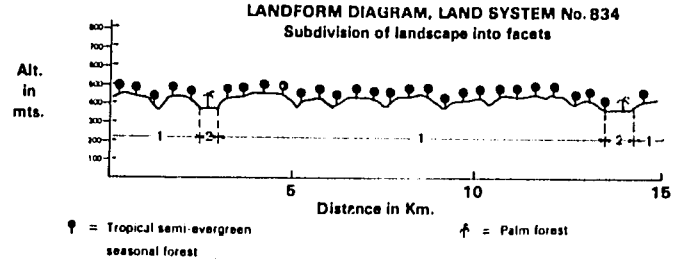
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDRH | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L C | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | B M | B B | |
| EXCHANGEABLE CA | M M | A M | |
| EXCHANGEABLE MG | M M | A M | |
| EXCHANGEABLE K | M K | M M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | M M | A M | |
| CATION EXCH. CAPAC. | M M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONTI. | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | H | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab834

CLIMATE 3630 PUCALLPA
AREA 1495930 HAS.
ALTITUDE 400 MTS.
PHYSIOGRAPHIC UNIT NO.106
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 75 | |
| < 8% | 60 | 20 | |
| 8-30 % | 50 | 5 | |
| > 30 % | 5 | | |
| ALTITUDE IN MTS | 400 | 380 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 100 | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 20 | 4 | |
| CROPS | 10 | 8 | |

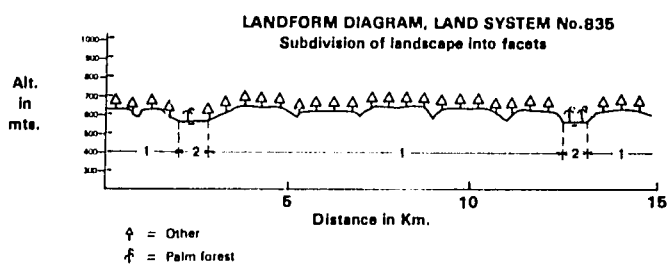
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | M A | B B | |
| EXCHANGEABLE CA | M M | A A | |
| EXCHANGEABLE MG | M M | A A | |
| EXCHANGEABLE K | A M | A M | |
| EXCHANGEABLE NA | B B | M M | |
| TOTAL EXCH. BASES | M M | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | M B | |
| PHOSPHORUS | M M | A M | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | J | U | |
| ZINC | U | J | |
| IRON | J | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | M | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Fo835

CLIMATE 3660 QUINCEMIL
AREA 1673300 HAS.
ALTITUDE 600 MTS.
PHYSIOGRAPHIC UNIT NO.108
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 90 | |
| < 8% | 30 | 5 | |
| 8-30 % | 60 | 5 | |
| > 30 % | 10 | | |
| ALTITUDE IN MTS | 600 | 590 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SOSF | | | |
| CAAT | | | |
| OTHER | 99 | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 3 | 10 | |
| CROPS | 3 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | O | O | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | M M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | A M | |
| CATION EXCH. CAPAC. | E M | A M | |

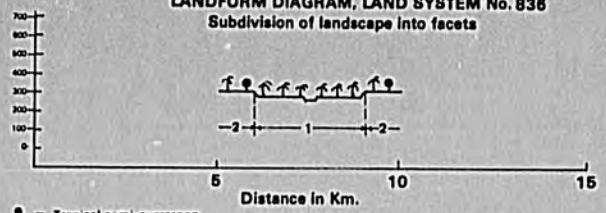
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | O | O | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | MAKE | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab836

CLIMATE 3640 PUERTO MALDONADO
AREA 368200 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO.110
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 836
Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 90 | 40 | |
| < 8% | 5 | 60 | |
| 8-30 % | 5 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 300 | 305 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | | |
| CROPS | 5 | 8 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EFL | |
| GREAT GROUPS | EAQFL | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L S | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A A | |
| EXCHANGEABLE K | A A | A A | |
| EXCHANGEABLE NA | A M | A M | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

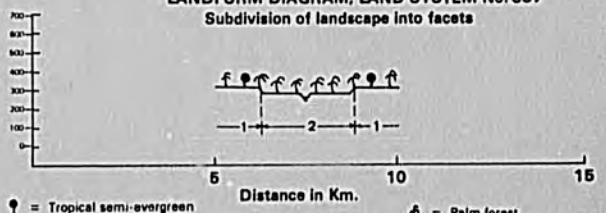
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | A M | A A | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LS | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Ab837

CLIMATE 850 SENA MADUREIRA
AREA 49200 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO.110
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No. 837
Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 50 | 50 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 80 | 50 | |
| < 8% | 10 | 50 | |
| 8-30 % | 10 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 300 | 305 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CO | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | | 5 | |
| CROPS | 1 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EFL | |
| GREAT GROUPS | EAQFL | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A M | |
| EXCHANGEABLE MG | M M | M M | |
| EXCHANGEABLE K | M M | M M | |
| EXCHANGEABLE NA | M B | B B | |
| TOTAL EXCH. BASES | A M | A M | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

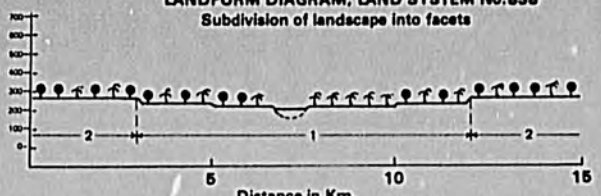
## Land System Ab838

CLIMATE 3633 PUCALLPA
AREA 644000 HAS.
ALTITUDE 250 MTS.
PHYSIOGRAPHIC UNIT NO.110
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No.838

Subdivision of landscape into facets




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 90 | 60 | |
| < 8% | 5 | 40 | |
| 8-30 % | 5 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 250 | 255 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 30 | 70 | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 70 | 30 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 5 | |
| CROPS | 2 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | M | |
| SUBORDERS | EAQ | MAQ | |
| GREAT GROUPS | EAQFL | MAQHA | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | b | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A A | |
| EXCHANGEABLE MG | M M | A A | |
| EXCHANGEABLE K | M M | A M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | A M | A A | |
| CATION EXCH. CAPAC. | A M | A M | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

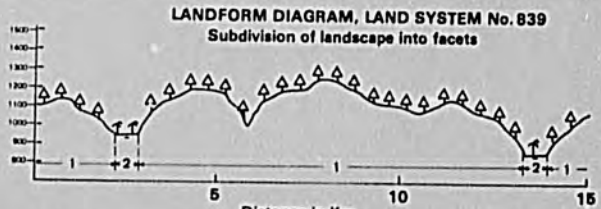
## Land System Fo839

CLIMATE 3660 QUINCEMIL
AREA 3430500 HAS.
ALTITUDE 1000 MTS.
PHYSIOGRAPHIC UNIT NO.103
GENERALIZED CLASSIFICATION
UPLANDS,ABOVE 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

### LANDFORM DIAGRAM, LAND SYSTEM No.839

Subdivision of landscape into facets




= Other

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | V | |
| PERCENTAGE OF L.S. | 94 | 6 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 60 | |
| < 8% | 15 | 30 | |
| 8-30 % | 35 | 10 | |
| > 30 % | 50 | | |
| ALTITUDE IN MTS | 1100 | 950 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 4 | |
| CROPS | 1 | 4 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | ITR | EAQ | |
| GREAT GROUPS | ITREU | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | S | M | |
| INIT. INFIL. RATE | B | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | I | I | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L R | L L | |
| COARSE MATERIAL | M A | B M | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | M M | B B | |
| EXCHANGEABLE AL | M M | B B | |
| EXCHANGEABLE CA | A M | A A | |
| EXCHANGEABLE MG | A M | A A | |
| EXCHANGEABLE K | A M | A M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | M M | A A | |
| CATION EXCH. CAPAC. | M M | A A | |

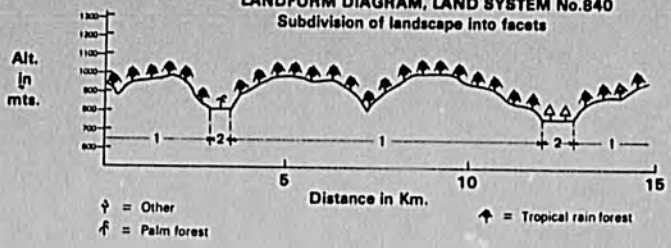
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | B B | M B | |
| PHOSPHORUS | M B | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LR | LL | |
| MODIFIERS FACET 1 | M | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Fa840

CLIMATE 8580 TIPUTINI
AREA 250300 HAS.
ALTITUDE 800 MTS.
PHYSIOGRAPHIC UNIT NO.103
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

**LANDFORM DIAGRAM, LAND SYSTEM No.840**
**Subdivision of landscape into facets**




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | M | B | |
| PERCENTAGE OF L.S. | 92 | 8 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | | 50 | |
| < 8% | 10 | 40 | |
| 8-30 % | 50 | 10 | |
| > 30 % | 40 | | |
| ALTITUDE IN MTS | 800 | 750 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 100 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 5 | |
| CROPS | 1 | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | IAN | EFL | |
| GREAT GROUPS | IANHY | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | H | I | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B M | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | N N | B B | |
| EXCHANGEABLE AL | N N | B B | |
| EXCHANGEABLE CA | N B | A M | |
| EXCHANGEABLE MG | N B | A M | |
| EXCHANGEABLE K | N K | M N | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | M B | A M | |
| CATION EXCH. CAPAC. | A A | A A | |

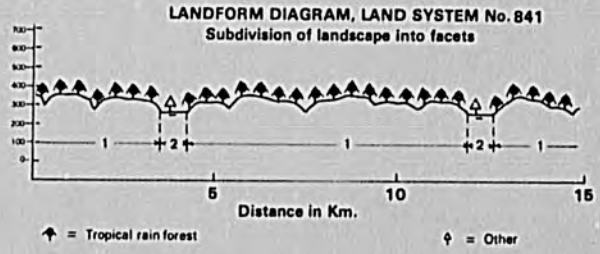
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | N M | |
| PHOSPHORUS | B B | M M | |
| PHOSPHORUS FIXATION | I | D | |
| MANGANESE | J | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | J | J | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | P | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | J | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | HIX | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Fa841

CLIMATE 8580 TIPUTINI
AREA 1788100 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO.101
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No.841**
**Subdivision of landscape into facets**




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 75 | |
| < 8% | 35 | 20 | |
| 8-30 % | 50 | 5 | |
| > 30 % | 10 | | |
| ALTITUDE IN MTS | 300 | 275 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 100 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 10 | |
| CROPS | 1 | 4 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | ITR | EAQ | |
| GREAT GROUPS | ITROY | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | N | B | |
| DEPTH | S | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | B | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B A | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | A H | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M B | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | M K | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A M | |
| CATION EXCH. CAPAC. | E E | A M | |

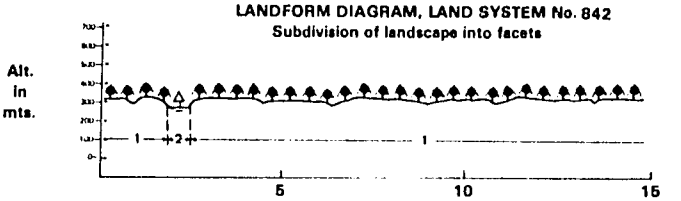
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | N B | N B | |
| PHOSPHORUS | B B | M B | |
| PHOSPHORUS FIXATION | I | D | |
| MANGANESE | J | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | J | U | |
| COPPER | U | U | |
| BORON | J | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | P | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | J | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | HAKEI | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Aa842

CLIMATE 8580 TIPUTINI
AREA 751200 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO.104
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
WELL DRAINED LANDS
FLAT LANDS.SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS.MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 842**
**Subdivision of landscape into facets**




↑ = Tropical rain forest  ↑ = Other

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 77 | 3 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 10 | 80 | |
| < 8% | 85 | 15 | |
| 8-30 % | 5 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 300 | 295 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 100 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 6 | 5 | |
| CROPS | 2 | 3 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | IAN | EAQ | |
| GREAT GROUPS | IANDY | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | A | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | M M | A A | |
| EXCHANGEABLE K | M K | A M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | A M | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

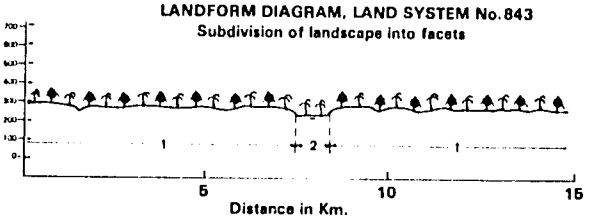
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | M M | |
| PHOSPHORUS | B B | M M | |
| PHOSPHORUS FIXATION | I | D | |
| MANGANESE | J | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | J | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | J | U | |
| NI | J | J | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | IX | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Aa843

CLIMATE 8590 TIPUTINI
AREA 215300 HAS.
ALTITUDE 280 MTS.
PHYSIOGRAPHIC UNIT NO.105
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
WELL DRAINED LANDS
FLAT LANDS.SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS.MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 843**
**Subdivision of landscape into facets**




↑ = Tropical rain forest  ↑ = Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 45 | 90 | |
| < 8% | 50 | 8 | |
| 8-30 % | 5 | 2 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 280 | 275 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 6 | |
| CROPS | 2 | 4 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | IAN | EAQ | |
| GREAT GROUPS | IANDY | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | A | M | |
| HYDRAUL. CONDUCT. | A | M | |
| DRAINAGE | D | G | |
| MOIST. HOLD. CAP. | A | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A M | A A | |
| EXCHANGEABLE MG | M B | A A | |
| EXCHANGEABLE K | M K | A M | |
| EXCHANGEABLE NA | M M | M B | |
| TOTAL EXCH. BASES | A M | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | M M | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | I | D | |
| MANGANESE | J | U | |
| SULPHUR | J | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | N | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | J | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | IX | | |
| FACET 2 | G | | |
| FACET 3 | | | |

275

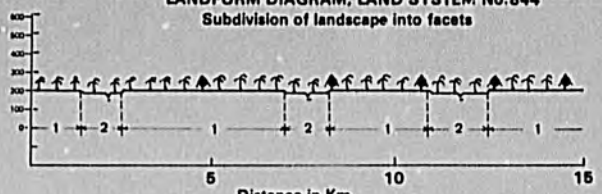
## Land System Aa844

CLIMATE 8580 TIPUTINI
AREA 537400 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO.105
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No.844

Subdivision of landscape into facets




= Tropical rain forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 70 | 30 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 85 | 99 | |
| < 8% | 10 | | |
| 8-30 % | 5 | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 200 | 195 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 15 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 85 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 4 | 5 | |
| CROPS | 1 | 2 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EAQ | |
| GREAT GROUPS | EAQFL | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | A M | A M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | A M | |
| PHOSPHORUS | A M | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | G | | |
| FACET 3 | | | |

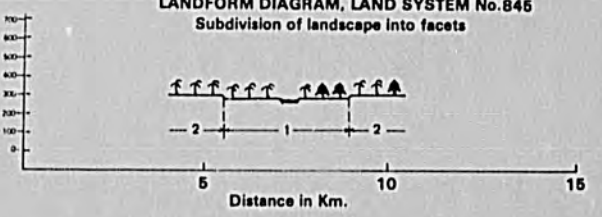
## Land System Aa845

CLIMATE 8580 TIPUTINI
AREA 274400 HAS.
ALTITUDE 295 MTS.
PHYSIOGRAPHIC UNIT NO.110
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No.845

Subdivision of landscape into facets




= Tropical rain forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 95 | 40 | |
| < 8% | 5 | 55 | |
| 8-30 % | | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 295 | 300 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 10 | 15 | |
| CROPS | 5 | 8 | |

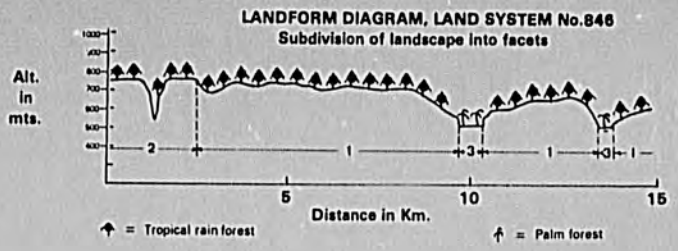
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EFL | |
| GREAT GROUPS | EAQFL | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | A M | A M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | A M | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | A M | |
| PHOSPHORUS | A M | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

## Land System Fa846

CLIMATE 8580 TIPUTINI
AREA 715400 HAS.
ALTITUDE 600 MTS.
PHYSIOGRAPHIC UNIT NO.102
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | D | A | V |
| PERCENTAGE OF L.S. | 77 | 15 | 8 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 2 | 2 | 75 |
| < 8% | 38 | 70 | 10 |
| 8-30 % | 50 | 25 | 15 |
| > 30 % | 10 | 3 | |
| ALTITUDE IN MTS | 600 | 600 | 550 |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 100 | 100 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | | 100 |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 2 | 8 |
| CROPS | 1 | 1 | 6 |

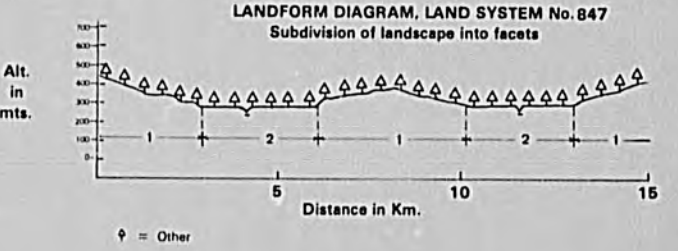
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | D | D | E |
| SUBORDERS | DDR | DDR | EFL |
| GREAT GROUPS | DDRHA | DDRHA | EFLTR |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | M | B |
| DEPTH | P | M | M |
| INIT. INFIL. RATE | A | A | M |
| HYDRAUL. CONDUCT. | A | A | M |
| DRAINAGE | B | B | G |
| MOIST. HOLD. CAP. | B | B | M |
| TEMP. REGIME | S | S | S |
| MOIST. REGIME | U | U | U |
| EXPANDING CLAYS | D | D | D |
| TEXTURE | L S | L L | L L |
| COARSE MATERIAL | B M | B A | R B |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | M M |
| AL SATURATION % | A M | A A | B B |
| EXCHANGEABLE AL | A A | A A | B B |
| EXCHANGEABLE CA | M B | M B | A A |
| EXCHANGEABLE MG | M B | M B | A M |
| EXCHANGEABLE K | K K | M K | A M |
| EXCHANGEABLE NA | B B | B B | B B |
| TOTAL EXCH. BASES | M B | M B | A M |
| CATION EXCH. CAPAC. | E E | M E | A A |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | M B |
| PHOSPHORUS | B B | B B | A M |
| PHOSPHORUS FIXATION | D | D | D |
| MANGANESE | U | U | U |
| SULPHUR | U | U | U |
| ZINC | U | U | U |
| IRON | U | U | U |
| COPPER | U | U | U |
| BORON | U | U | U |
| MOLYBDENUM | U | U | U |
| FREE CARBONATES | A | A | A |
| SALINITY | B | B | B |
| NATRIC | B | B | B |
| CAT CLAY | N | N | N |
| X-RAY AMORPHOUS | N | N | N |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | U |
| I | U | U | U |
| SE | U | U | U |
| CR | U | U | U |
| NI | U | U | U |
| OTHERS | U | U | U |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LS | LL | LL |
| MODIFIERS FACET 1 | HAKE | | |
| FACET 2 | HA | | |
| FACET 3 | G | | |

## Land System Fo847

CLIMATE 3550 JUANJUI CORPAC
AREA 578700 HAS.
ALTITUDE 800 MTS.
PHYSIOGRAPHIC UNIT NO.109
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | V | R | |
| PERCENTAGE OF L.S. | 65 | 35 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 10 | 80 | |
| < 8% | 80 | 15 | |
| 8-30 % | 10 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 850 | 800 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | 100 | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 50 | 30 | |
| CROPS | 30 | 50 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | ITR | EFL | |
| GREAT GROUPS | ITREU | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | H | H | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B M | B B | |
| EXCHANGEABLE AL | B A | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A A | A M | |
| EXCHANGEABLE K | A A | A M | |
| EXCHANGEABLE NA | A M | B B | |
| TOTAL EXCH. BASES | A A | A M | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | M R | |
| PHOSPHORUS | M M | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | GHK | | |
| FACET 2 | GH | | |
| FACET 3 | | | |

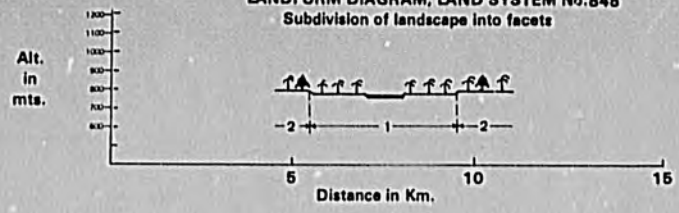
## Land System Fo848

CLIMATE 3590 JUANJUI CORPAC
AREA 69000 HAS.
ALTITUDE 800 MTS.
PHYSIOGRAPHIC UNIT NO.110
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No.848

Subdivision of landscape into facets




= Palm forest  = Tropical rain forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 80 | 40 | |
| < 8% | 15 | 55 | |
| 8-30 % | 5 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 800 | 805 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 100 | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 40 | 60 | |
| CROPS | 60 | 40 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EFL | |
| GREAT GROUPS | EAQFL | EFLTR | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | G | D | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | H | H | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | A M | A M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | A M | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | G | | |
| FACET 2 | | | |
| FACET 3 | | | |

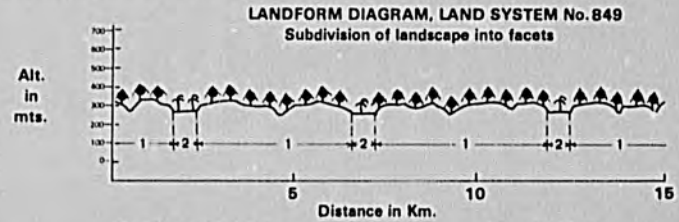
## Land System Aa849

CLIMATE 8580 TIPUTINI
AREA 818200 HAS.
ALTITUDE 300 MTS.
PHYSIOGRAPHIC UNIT NO.102
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 0-5 M

### LANDFORM DIAGRAM, LAND SYSTEM No.849

Subdivision of landscape into facets




= Tropical rain forest  = Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | X | V | |
| PERCENTAGE OF L.S. | 85 | 15 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 75 | |
| < 8% | 25 | 15 | |
| 8-30 % | 60 | 10 | |
| > 30 % | 10 | | |
| ALTITUDE IN MTS | 300 | 280 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 100 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 8 | |
| CROPS | | 5 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUO | EAQ | |
| GREAT GROUPS | UUOPA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | A A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M B | A A | |
| EXCHANGEABLE MG | B B | A A | |
| EXCHANGEABLE K | K K | A M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | B B | A A | |
| CATION EXCH. CAPAC. | E M | A A | |

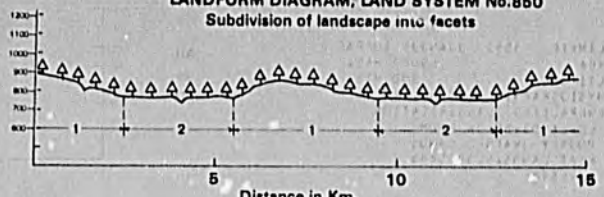
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | HAKE | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Fa850

CLIMATE 3700 TINGO MARIA
AREA 210500 HAS.
ALTITUDE 800 MTS.
PHYSIOGRAPHIC UNIT NO.109
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS.SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS.MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No.850**
**Subdivision of landscape into facets**




= Other

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | V | B | |
| PERCENTAGE OF L.S. | 65 | 35 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 10 | 80 | |
| < 8% | 50 | 15 | |
| 8-30 % | 10 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 820 | 780 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 5 | 30 | |
| CROPS | 5 | 50 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | I | E | |
| SUBORDERS | IAQ | EAQ | |
| GREAT GROUPS | IAQTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | P | P | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | D | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | H | H | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A A | M B | |
| EXCHANGEABLE AL | A A | M B | |
| EXCHANGEABLE CA | M M | A M | |
| EXCHANGEABLE MG | B B | A M | |
| EXCHANGEABLE K | K K | M M | |
| EXCHANGEABLE NA | B B | B B | |
| TOTAL EXCH. BASES | M B | A M | |
| CATION EXCH. CAPAC. | A A | A A | |

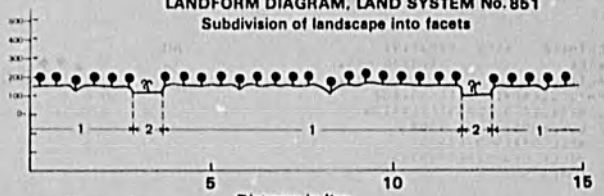
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | A M | M B | |
| PHOSPHORUS | A A | M B | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | SHAK | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab851

CLIMATE 3630 PUCALLPA
AREA 376500 HAS.
ALTITUDE 150 MTS.
PHYSIOGRAPHIC UNIT NO.105
GENERALIZED CLASSIFICATION
LOWLANDS.BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS.SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS.MAIN LAND FACET 0-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No.851**
**Subdivision of landscape into facets**




= Tropical semi-evergreen seasonal forest

= Palm forest

LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | P | D | |
| PERCENTAGE OF L.S. | 90 | 10 | 0 |
| TOPOGRAPHIC CLASS. | (%) | | |
| FLAT POOR DRAIN. | 60 | 95 | |
| < 8% | 40 | 3 | |
| 8-30 % | | 2 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 150 | 125 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | 99 | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 15 | 8 | |
| CROPS | 2 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UAQ | EAQ | |
| GREAT GROUPS | UAQPA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | B | M | |
| HYDRAUL. CONDUCT. | B | M | |
| DRAINAGE | G | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | C C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | H H | M M | |
| AL SATURATION % | H A | B B | |
| EXCHANGEABLE AL | A A | B B | |
| EXCHANGEABLE CA | M M | A A | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | A A | M M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | M B | A A | |
| CATION EXCH. CAPAC. | M A | A A | |

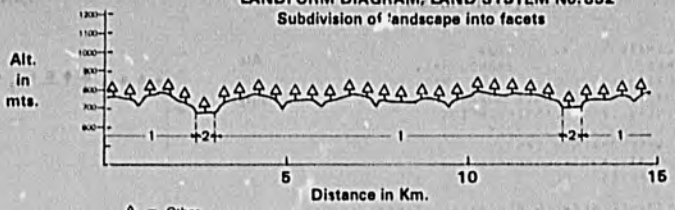
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M M | M B | |
| PHOSPHORUS FIXATION | I | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | CC | LL | |
| MODIFIERS FACET 1 | SHAI | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Fa852

CLIMATE 3660 QUINCEMIL
AREA 264100 HAS.
ALTITUDE 750 MTS.
PHYSIOGRAPHIC UNIT NO.103
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
HILLY LANDS,SLOPES>8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET >10 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 852**
**Subdivision of landscape into facets**




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 93 | 7 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 75 | |
| < 8% | 50 | 20 | |
| 8-30 % | 45 | 5 | |
| > 30 % | | | |
| ALTITUDE IN MTS | 750 | 700 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 4 | 10 | |
| CROPS | 1 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | U | E | |
| SUBORDERS | UUD | EAQ | |
| GREAT GROUPS | UUDPA | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | P | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | A M | B B | |
| EXCHANGEABLE AL | A M | B B | |
| EXCHANGEABLE CA | A M | A A | |
| EXCHANGEABLE MG | M B | A M | |
| EXCHANGEABLE K | M M | A M | |
| EXCHANGEABLE NA | B B | M B | |
| TOTAL EXCH. BASES | A M | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

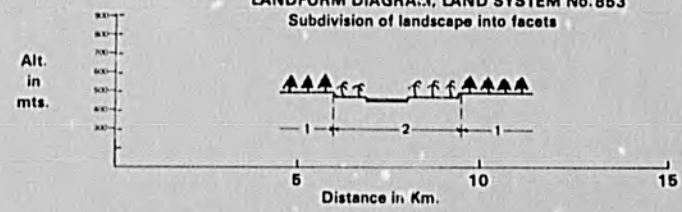
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | M B | |
| PHOSPHORUS | M B | M E | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | 4A | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab853

CLIMATE 3580 JUANJUI CORPAC
AREA 97200 HAS.
ALTITUDE 500 MTS.
PHYSIOGRAPHIC UNIT NO.103
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
POORLY DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 0-5 KM
DEPTH OF WELLS,MAIN LAND FACET 3-5 M

**LANDFORM DIAGRAM, LAND SYSTEM No. 853**
**Subdivision of landscape into facets**




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | T | T | |
| PERCENTAGE OF L.S. | 60 | 40 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 40 | 90 | |
| < 8% | 60 | 10 | |
| 8-30 % | | | |
| > 30 % | | | |
| ALTITUDE IN MTS | 500 | 502 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | 99 | 99 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 23 | 15 | |
| CROPS | 30 | 10 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | E | E | |
| SUBORDERS | EAQ | EAQ | |
| GREAT GROUPS | EAQFL | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | B | B | |
| DEPTH | M | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | M | M | |
| DRAINAGE | D | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L L | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | A M | A M | |
| EXCHANGEABLE K | M M | A M | |
| EXCHANGEABLE NA | M B | M B | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A M | |

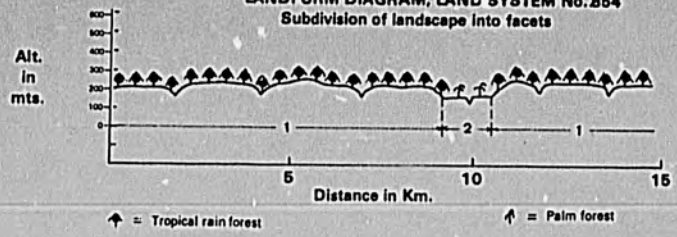
| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | M B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | U | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | U | U | |
| COPPER | U | U | |
| BORON | U | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | U | U | |
| I | U | U | |
| SE | U | U | |
| CR | U | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LL | LL | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | G | | |
| FACET 3 | | | |

## Land System Ab854

CLIMATE 90 DORIJA
AREA 290000 HAS.
ALTITUDE 200 MTS.
PHYSIOGRAPHIC UNIT NO.106
GENERALIZED CLASSIFICATION
LOWLANDS,BELOW 900M
WELL DRAINED LANDS
FLAT LANDS,SLOPES<8%
FORESTS

DISTANCE BETWEEN PERENNIAL STREAMS 5-10KM
DEPTH OF WELLS,MAIN LAND FACET 5-10M

**LANDFORM DIAGRAM, LAND SYSTEM No.854**
**Subdivision of landscape into facets**




LANDSCAPE FACETS

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| GENERAL DESCRIPTION | C | V | |
| PERCENTAGE OF L.S. | 95 | 5 | 0 |
| TOPOGRAPHIC CLASS. (%) | | | |
| FLAT POOR DRAIN. | 5 | 75 | |
| < 8% | | 50 | 20 |
| 8-30 % | | 40 | 5 |
| > 30 % | | 5 | |
| ALTITUDE IN MTS | 200 | 190 | |
| ORIGINAL VEGETATION CLASS. (%) | | | |
| SEAS.IN.P. | | | |
| CL + CS | | | |
| CC | | | |
| C | | | |
| CD | | | |
| TRF | 100 | | |
| SESF | | | |
| SDSF | | | |
| CAAT | | | |
| OTHER | | 100 | |
| INDUCED VEGETATION (%) | | | |
| PASTURE | 2 | 20 | |
| CROPS | 2 | 30 | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CLASSIFICATION | | | |
| ORDERS | A | E | |
| SUBORDERS | AUD | EAQ | |
| GREAT GROUPS | AUDTR | EAQFL | |
| SOIL PHYSICAL PROPERTIES | | | |
| SLOPE | M | B | |
| DEPTH | P | M | |
| INIT. INFIL. RATE | M | M | |
| HYDRAUL. CONDUCT. | B | B | |
| DRAINAGE | B | G | |
| MOIST. HOLD. CAP. | M | M | |
| TEMP. REGIME | S | S | |
| MOIST. REGIME | U | U | |
| EXPANDING CLAYS | D | D | |
| TEXTURE | L C | L L | |
| COARSE MATERIAL | B B | B B | |
| SOIL CHEMICAL PROPERTIES | | | |
| PH | M M | M M | |
| AL SATURATION % | B B | B B | |
| EXCHANGEABLE AL | B B | B B | |
| EXCHANGEABLE CA | A A | A A | |
| EXCHANGEABLE MG | M M | A A | |
| EXCHANGEABLE K | M K | A M | |
| EXCHANGEABLE NA | B B | M M | |
| TOTAL EXCH. BASES | A A | A A | |
| CATION EXCH. CAPAC. | A A | A A | |

| | FACETS 1 | 2 | 3 |
|---|---|---|---|
| SOIL CHEM. PROP. (CONT). | | | |
| ORGANIC MATTER % | M B | A M | |
| PHOSPHORUS | B B | A M | |
| PHOSPHORUS FIXATION | D | D | |
| MANGANESE | J | U | |
| SULPHUR | U | U | |
| ZINC | U | U | |
| IRON | J | U | |
| COPPER | U | U | |
| BORON | J | U | |
| MOLYBDENUM | U | U | |
| FREE CARBONATES | A | A | |
| SALINITY | B | B | |
| NATRIC | B | B | |
| CAT CLAY | N | N | |
| X-RAY AMORPHOUS | N | N | |
| ELEMENTS OF IMPORTANCE MAINLY TO ANIMAL NUTRITION | | | |
| CO | J | U | |
| I | U | U | |
| SE | U | U | |
| CR | J | U | |
| NI | U | U | |
| OTHERS | U | U | |
| FERTILITY CAPABILITY CLASSIFICATION | | | |
| TYPE AND SUBSTRATA TYPES | LC | LL | |
| MODIFIERS FACET 1 | | | |
| FACET 2 | G | | |
| FACET 3 | | | |

PART
PARTE
PARTE **2**

# A Selection of Meteorological Data Sets

# Selección de Conjuntos de Datos Meteorológicos

# Seleção de Conjuntos de Dados Meteorológicos

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# Glossary of Coding in the Meteorological Data Sets

| | |
|---|---|
| Location: | Site of meteorological experiment station |
| LAT | Latitude |
| LON | Longitude |
| MEAN TEMP | Mean temperature (°C) |
| MEAN R.H. | Mean relative humidity (%) |
| PCT SUN | Percentage of possible sunshine (%) |
| MEAN RAD. | Mean solar radiation (Langleys/day) |
| PRECIP. | Mean precipitation (mm) |
| POT ET | Potential evapotranspiration (mm) |
| DEF PREC | Precipitation deficit (mm): PRECIP. - POT ET |
| DEP PREC | Dependable precipitation (mm): 75% probability level of precipitation occurrence |
| MAI | Moisture availability index: DEP PREC ÷ POT ET. |

# Glosario de Codificación en los Conjuntos de Datos Meteorológicos

| | |
|---|---|
| Ubicación: | Sitio de la estación meteorológica experimental |
| LAT | Latitud |
| LON | Longitud |
| MEAN TEMP | Temperatura media (°C) |
| MEAN R.H. | Humedad relativa media (%) |
| PCT SUN | Porcentaje de brillo solar posible (%) |
| MEAN RAD. | Radiación solar media (Langleys/day) |
| PRECIP. | Precipitación media (mm) |
| POT ET | Evapotranspiración potencial (mm) |
| DEF PREC | Déficit de precipitación (mm): PRECIP. - POT ET |
| DEP PREC | Precipitación confiable (mm): 75% probabilidad de ocurrencia del nivel de precipitación |
| MAI | Indice de disponibilidad de humedad: DEP PREC ÷ POT ET. |

# Glossário de Codificação nos Conjuntos de Dados Meteorológicos

| | |
|---|---|
| Localização: | Lugar da estação meteorológica experimental |
| LAT | Latitude |
| LON | Longitude |
| MEAN TEMP | Temperatura média (°C) |
| MEAN R.H. | Umidade relativa média (%) |
| PCT SUN | Porcentagem de brilho solar possivel (%) |
| MEAN RAD | Radiação solar média (Langleys/day) |
| PRECIP. | Precipitação média (mm) |
| POT ET. | Evapotranspiração potencial (mm) |
| DEF PREC | Déficit de precipitação (mm): PRECIP. – POT ET. |
| DEP PREC | Precipitação confiável (mm): 75% de probabilidade de ocorrência do nivel de precipitação |
| MAI | Indice de disponibilidade de umidade: DEP PREC ÷ POT ET. |

# List of Sites
## *Lista de Lugares*
## Lista de Lugares

| Name<br>*Nombre*<br>Nome | Country<br>*País*<br>País | Latitude<br>*Latitud*<br>Latitude | | Long<br>*Long*<br>Long | | Altitude<br>*Altitud*<br>Altitude<br>(masl) |
|---|---|---|---|---|---|---|
| ALTO TAPAJOS | Brasil | 7 | 20 | 57 | 30 | 140 |
| AQUIDAUANA | Brasil | 20 | 28 | 55 | 48 | 152 |
| ARAUCA | Colombia | 7 | 4 | 70 | 44 | 122 |
| ARAXA | Brasil | 19 | 34 | 46 | 56 | 961 |
| BARCELOS | Brasil | 0 | 59 | 62 | 55 | 40 |
| BARINAS | Venezuela | 8 | 38 | 70 | 12 | 180 |
| BARINTAS | Venezuela | 8 | 43 | 70 | 24 | 500 |
| BARRA | Brasil | 11 | 5 | 43 | 10 | 408 |
| BAUL (EL) | Venezuela | 8 | 58 | 68 | 17 | 102 |
| BELA VISTA | Brasil | 22 | 32 | 55 | 38 | 650 |
| BELÉM | Brasil | 1 | 28 | 48 | 27 | 24 |
| BOA VISTA | Brasil | 2 | 49 | 60 | 40 | 70 |
| BRUZUAL VILLA | Venezuela | 8 | 4 | 69 | 18 | 104 |
| CACERES | Brasil | 16 | 3 | 57 | 41 | 117 |
| CAETITE | Brasil | 14 | 4 | 42 | 29 | 872 |
| CALABOZO | Venezuela | 8 | 56 | 67 | 26 | 106 |
| CAMPO GRANDE | Brasil | 20 | 27 | 54 | 37 | 566 |
| CARACAS-CAGIGAL | Venezuela | 10 | 30 | 66 | 56 | 1043 |
| CARIPE | Venezuela | 10 | 10 | 63 | 35 | 870 |
| CIUDAD BOLIVAR | Venezuela | 8 | 9 | 63 | 33 | 54 |
| COARI | Brasil | 4 | 5 | 63 | 8 | 49 |
| COBIJA | Bolivia | 11 | 1 | 66 | 44 | 280 |
| COLONIA TOVAR | Venezuela | 10 | 25 | 67 | 17 | 1791 |
| CONCEPCION | Bolivia | 16 | 15 | 62 | 3 | 490 |
| CONCEIÇÃO DO ARAGUAIA | Brasil | 8 | 15 | 49 | 12 | 0 |
| CORUMBA | Brasil | 19 | 0 | 57 | 39 | 139 |
| CRUZEIRO DO SUL | Brasil | 7 | 38 | 72 | 40 | 170 |
| CUIABÁ | Brasil | 15 | 36 | 56 | 0 | 172 |
| ENGENHO DE DENTRO | Brasil | 15 | 9 | 56 | 22 | 153 |
| FONTE BOA | Brasil | 2 | 32 | 66 | 10 | 56 |
| FORMOSA | Brasil | 15 | 32 | 47 | 18 | 912 |
| FRUTAL | Brasil | 20 | 2 | 48 | 56 | 563 |
| GOIÂNIA | Brasil | 16 | 41 | 49 | 17 | 729 |
| GOIÁS | Brasil | 15 | 56 | 50 | 8 | 520 |
| GUARATINGA | Brasil | 18 | 33 | 46 | 38 | 856 |
| GUAYARAMERIN | Bolivia | 10 | 48 | 65 | 22 | 172 |
| HOSOROR[illegible] | Guyana | 8 | 10 | 59 | 50 | 0 |
| HUMAITÁ | Brasil | 7 | 31 | 63 | 0 | 50 |
| IAUARETE | Brasil | 0 | 18 | 68 | 54 | 122 |
| IBIPETUBA | Brasil | 11 | 1 | 44 | 31 | 434 |
| IMPERATRIZ | Brasil | 5 | 32 | 47 | 30 | 39 |
| IQUITOS | Perú | 3 | 45 | 73 | 15 | 177 |
| JUANJUI CORPAC | Perú | 7 | 6 | 76 | 44 | 500 |
| JUSEPIN | Venezuela | 9 | 45 | 67 | 27 | 120 |
| LUZIÂNIA | Brasil | 16 | 15 | 47 | 56 | 958 |
| MANAUS | Brasil | 3 | 8 | 60 | 1 | 48 |
| MARACAY | Venezuela | 10 | 15 | 67 | 36 | 445 |
| MATURIN | Venezuela | 9 | 45 | 63 | 11 | 75 |
| MERURI | Brasil | 15 | 43 | 51 | 44 | 416 |
| MIRANDA | Venezuela | 10 | 9 | 68 | 23 | 629 |
| MONTE ALEGRE MINAS | Brasil | 18 | 52 | 48 | 52 | 756 |
| MOYOBAMBA | Perú | 6 | 2 | 76 | 58 | 860 |
| PARACATU | Brasil | 17 | 13 | 46 | 52 | 698 |
| PARANÁ | Brasil | 12 | 33 | 47 | 47 | 275 |
| PARATINGA | Brasil | 12 | 41 | 43 | 11 | 422 |
| PARIAGUAN | Venezuela | 8 | 46 | 64 | 44 | 126 |
| PARINTINS | Brasil | 2 | 38 | 56 | 44 | 29 |
| PIRAPORA | Brasil | 17 | 21 | 44 | 57 | 412 |
| PIRENÓPOLIS | Brasil | 15 | 51 | 48 | 58 | 740 |
| PITANGUI | Brasil | 19 | 41 | 44 | 46 | 704 |
| PORTO NACIONAL | Brasil | 10 | 31 | 48 | 43 | 237 |
| PORTO VELHO | Brasil | 8 | 46 | 63 | 55 | 128 |
| PRESIDENTE MURTINHO | Brasil | 15 | 38 | 53 | 55 | 552 |
| PUCALLPA | Perú | 8 | 25 | 74 | 37 | 148 |
| PUERTO MALDONADO | Perú | 12 | 36 | 69 | 12 | 200 |
| QUINCEMIL | Perú | 13 | 16 | 70 | 40 | 620 |
| RIBERALTA | Bolivia | 11 | 0 | 66 | 5 | 172 |
| RURRENABAQUE | Bolivia | 14 | 25 | 67 | 35 | 227 |
| SAN BORJA | Bolivia | 14 | 49 | 66 | 35 | 226 |
| SAN CARLOS RIO NEG | Venezuela | 1 | 54 | 67 | 3 | 65 |
| SAN FERNANDO | Venezuela | 7 | 54 | 67 | 28 | 73 |
| SAN IGNACIO | Bolivia | 16 | 22 | 60 | 58 | 335 |
| SAN JOAQUIN | Bolivia | 13 | 4 | 64 | 48 | 202 |
| SAN JOSE | Bolivia | 17 | 47 | 60 | 47 | 297 |
| SAN TOME | Venezuela | 8 | 57 | 64 | 8 | 269 |
| SANTA ANA | Bolivia | 13 | 45 | 65 | 35 | 220 |
| SANTA CRUZ | Bolivia | 17 | 47 | 63 | 11 | 437 |
| SANTA ELENA | Venezuela | 4 | 36 | 61 | 7 | 907 |
| SÃO GABRIEL RIO NE | Brasil | 0 | 8 | 67 | 5 | 85 |
| SENA MADUREIRA | Brasil | 9 | 8 | 68 | 40 | 135 |
| SOURE | Brasil | 0 | 40 | 48 | 33 | 11 |
| TAPERINHA-SANTAREM | Brasil | 2 | 25 | 54 | 42 | 20 |
| TARACUA | Brasil | 0 | 4 | 68 | 14 | 105 |
| TINGO MARIA | Perú | 9 | 8 | 75 | 57 | 685 |
| TIPUTINI | Ecuador | 0 | 45 | 75 | 32 | 220 |
| TODOS SANTOS | Bolivia | 16 | 48 | 65 | 8 | 300 |
| TRINIDAD | Bolivia | 14 | 45 | 64 | 48 | 236 |
| TUCUPITA | Venezuela | 9 | 3 | 62 | 3 | 30 |
| TUMEREMO | Venezuela | 7 | 18 | 61 | 27 | 177 |
| UBERABA | Brasil | 19 | 44 | 47 | 55 | 739 |
| UPATA | Venezuela | 8 | 1 | 62 | 25 | 340 |
| VALLE DE LA PASCUA | Venezuela | 9 | 13 | 66 | 3 | 200 |
| VILLAVO | Colombia | 4 | 9 | 73 | 34 | 423 |
| YURIMAGUAS | Perú | 5 | 54 | 76 | 5 | 179 |

# Meteorological Data Printouts

*Impresos de Datos Meteorológicos*

Impressos de Dados Meteorológicos

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ALTO TAPAJOS LAT 7 20 LON 57 30 140. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 25.1 | 25.2 | 25.3 | 25.5 | 25.5 | 24.9 | 24.4 | 25.5 | 25.8 | 25.6 | 25.5 | 25.3 | 25.3 |
| MEAN R.H. | 93. | 94. | 93. | 87. | 73. | 59. | 57. | 62. | 78. | 88. | 93. | 93. | 81. |
| PCT SUN | 29. | 28. | 29. | 40. | 57. | 70. | 72. | 68. | 52. | 38. | 30. | 29. | 45. |
| MEAN RAD. | 384. | 375. | 371. | 406. | 445. | 466. | 483. | 510. | 486. | 432. | 386. | 391. | 427. |
| PRECIP. | 408. | 375. | 435. | 286. | 128. | 26. | 11. | 33. | 138. | 235. | 315. | 329. | 2719. |
| POT ET | 118. | 105. | 115. | 122. | 139. | 138. | 146. | 159. | 147. | 135. | 116. | 118. | 1560. |
| DEF PREC | -289. | -270. | -320. | -164. | 11. | 113. | 135. | 126. | 10. | -100. | -199. | -211. | -1158. |
| DEP PREC | 327. | 298. | 350. | 223. | 89. | 2. | 0. | 8. | 97. | 180. | 248. | 259. | |
| MAI | 2.76 | 2.85 | 3.04 | 1.82 | 0.64 | 0.02 | 0.00 | 0.05 | 0.66 | 1.33 | 2.13 | 2.19 | |

AQUIDAUANA LAT 20 28 LON 55 48 152. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 26.5 | 26.4 | 25.9 | 23.9 | 21.7 | 20.4 | 19.9 | 21.7 | 24.0 | 25.5 | 26.1 | 26.5 | 24.0 |
| MEAN R.H. | 80. | 83. | 76. | 68. | 63. | 68. | 61. | 64. | 76. | 76. | 71. | 79. | 72. |
| PCT SUN | 50. | 46. | 53. | 62. | 67. | 63. | 68. | 66. | 54. | 54. | 59. | 50. | 58. |
| MEAN RAD. | 538. | 496. | 485. | 449. | 393. | 347. | 378. | 432. | 460. | 520. | 581. | 547. | 469. |
| PRECIP. | 234. | 193. | 150. | 116. | 98. | 57. | 44. | 30. | 71. | 139. | 138. | 198. | 1468. |
| POT ET | 172. | 142. | 153. | 130. | 112. | 92. | 102. | 122. | 134. | 162. | 178. | 174. | 1673. |
| DEF PREC | -62. | -51. | 2. | 14. | 14. | 35. | 58. | 93. | 63. | 23. | 40. | -24. | 204. |
| DEP PREC | 162. | 130. | 96. | 69. | 55. | 22. | 12. | 1. | 33. | 87. | 86. | 134. | |
| MAI | 0.94 | 0.91 | 0.63 | 0.53 | 0.49 | 0.24 | 0.12 | 0.01 | 0.25 | 0.54 | 0.49 | 0.77 | |

ARAUCA LAT 7 4 LON 70 44 122. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 27.8 | 27.6 | 27.6 | 27.7 | 27.5 | 27.3 | 27.5 | 27.6 | 27.6 | 27.1 | 27.0 | 27.1 | 27.5 |
| MEAN R.H. | 65. | 71. | 76. | 86. | 77. | 78. | 74. | 85. | 77. | 73. | 79. | 66. | 76. |
| PCT SUN | 52. | 49. | 44. | 34. | 43. | 43. | 46. | 34. | 43. | 47. | 42. | 52. | 44. |
| MEAN RAD. | 440. | 450. | 450. | 400. | 440. | 430. | 450. | 400. | 450. | 450. | 400. | 430. | 433. |
| PRECIP. | 4. | 7. | 17. | 177. | 232. | 244. | 236. | 180. | 162. | 163. | 60. | 20. | 1502. |
| POT ET | 145. | 133. | 147. | 127. | 144. | 135. | 147. | 131. | 142. | 146. | 125. | 139. | 1662. |
| DEF PREC | 141. | 126. | 130. | -50. | -88. | -109. | -89. | -49. | -20. | -17. | 65. | 119. | 159. |
| DEP PREC | 0. | 0. | 0. | 124. | 170. | 180. | 173. | 126. | 111. | 112. | 25. | 0. | |
| MAI | 0.00 | 0.00 | 0.00 | 0.97 | 1.18 | 1.33 | 1.18 | 0.86 | 0.78 | 0.77 | 0.20 | 0.00 | |

ARAXA LAT 19 34 LON 46 56 961. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 21.5 | 21.5 | 21.3 | 20.2 | 18.4 | 17.1 | 16.4 | 18.7 | 20.3 | 20.8 | 21.1 | 20.8 | 19.8 |
| MEAN R.H. | 78. | 85. | 80. | 69. | 63. | 54. | 51. | 56. | 75. | 84. | 86. | 92. | 73. |
| PCT SUN | 52. | 43. | 49. | 61. | 67. | 75. | 77. | 73. | 55. | 44. | 41. | 31. | 56. |
| MEAN RAD. | 549. | 481. | 465. | 450. | 401. | 387. | 409. | 459. | 469. | 469. | 483. | 429. | 454. |
| PRECIP. | 318. | 285. | 229. | 126. | 28. | 22. | 16. | 19. | 68. | 173. | 246. | 395. | 1927. |
| POT ET | 154. | 122. | 130. | 119. | 104. | 93. | 100. | 120. | 124. | 130. | 130. | 119. | 1443. |
| DEF PREC | -164. | -163. | -99. | -7. | 75. | 71. | 83. | 101. | 56. | -43. | -116. | -277. | -483. |
| DEP PREC | 201. | 179. | 142. | 73. | 9. | 4. | 0. | 2. | 34. | 104. | 153. | 252. | |
| MAI | 1.31 | 1.46 | 1.09 | 0.62 | 0.08 | 0.04 | 0.00 | 0.02 | 0.28 | 0.80 | 1.17 | 2.13 | |

JARCELOS LAT 0 59 LON 62 55 40. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 26.1 | 26.2 | 26.3 | 25.8 | 25.6 | 25.5 | 25.4 | 26.0 | 26.0 | 26.4 | 26.5 | 26.6 | 26.0 |
| MEAN R.H. | 84. | 84. | 84. | 88. | 87. | 85. | 82. | 71. | 73. | 74. | 77. | 78. | 81. |
| PCT SUN | 43. | 44. | 44. | 38. | 40. | 43. | 47. | 59. | 57. | 56. | 52. | 51. | 48. |
| MEAN RAD. | 440. | 454. | 456. | 411. | 3[illegible]7. | 398. | 422. | 500. | 515. | 516. | 488. | 474. | 456. |
| PRECIP. | 172. | 145. | 175. | 256. | 272. | 234. | 169. | 119. | 105. | 119. | 111. | 125. | 2002. |
| POT ET | 139. | 130. | 145. | 125. | 124. | 120. | 131. | 158. | 157. | 164. | 151. | 151. | 1675. |
| DEF PREC | -33. | -15. | -30. | -131. | -148. | -114. | -38. | 39. | 52. | 45. | 40. | 26. | -307. |
| DEP PREC | 126. | 103. | 129. | 198. | 211. | 179. | 124. | 81. | 69. | 81. | 74. | 86. | |
| MAI | 0.91 | 0.80 | 0.89 | 1.58 | 1.70 | 1.49 | 0.94 | 0.52 | 0.44 | 0.50 | 0.49 | 0.57 | |

BARINAS LAT 8 38 LON 70 12 180. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 26.2 | 26.7 | 27.3 | 26.3 | 26.9 | 26.1 | 26.1 | 26.2 | 26.0 | 26.1 | 26.5 | 26.5 | 26.4 |
| MEAN R.H. | 69. | 69. | 71. | 86. | 86. | 83. | 79. | 75. | 82. | 80. | 76. | 69. | 77. |
| PCT SUN | 71. | 71. | 68. | 47. | 47. | 52. | 58. | 63. | 53. | 57. | 62. | 71. | 60. |
| MEAN RAD. | 503. | 522. | 499. | 437. | 398. | 393. | 426. | 486. | 440. | 472. | 463. | 500. | 462. |
| PRECIP. | 9. | 4. | 31. | 74. | 226. | 231. | 220. | 179. | 175. | 179. | 110. | 23. | 1461. |
| POT ET | 191. | 174. | 185. | 134. | 128. | 120. | 135. | 154. | 150. | 168. | 174. | 191. | 1905. |
| DEF PREC | 182. | 170. | 154. | 60. | -98. | -111. | -85. | -25. | -25. | -11. | 64. | 168. | 444. |
| DEP PREC | 0. | 0. | 10. | 44. | 161. | 165. | 156. | 125. | 122. | 125. | 71. | 4. | |
| MAI | 0.00 | 0.00 | 0.06 | 0.32 | 1.26 | 1.37 | 1.16 | 0.81 | 0.81 | 0.74 | 0.41 | 0.02 | |

BARINTAS LAT 8 43 LON 70 24 506. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 23.8 | 23.9 | 24.3 | 25.1 | 25.5 | 25.1 | 25.2 | 25.6 | 25.9 | 25.6 | 25.0 | 24.4 | 24.9 |
| MEAN R.H. | 77. | 71. | 72. | 87. | 93. | 89. | 87. | 85. | 91. | 84. | 82. | 74. | 83. |
| PCT SUN | 61. | 68. | 67. | 45. | 34. | 41. | 45. | 50. | 39. | 51. | 54. | 65. | 52. |
| MEAN RAD. | 458. | 507. | 495. | 428. | 335. | 351. | 377. | 431. | 366. | 443. | 425. | 473. | 424. |
| PRECIP. | 52. | 42. | 81. | 188. | 358. | 355. | 355. | 347. | 348. | 259. | 211. | 56. | 2651. |
| POT ET | 167. | 159. | 171. | 128. | 104. | 105. | 116. | 134. | 127. | 157. | 156. | 174. | 1698. |
| DEF PREC | 114. | 117. | 90. | -61. | -253. | -250. | -238. | -212. | -222. | -101. | -54. | 118. | -953. |
| DEP PREC | 27. | 19. | 49. | 132. | 263. | 261. | 261. | 254. | 256. | 186. | 149. | 30. | |
| MAI | 0.16 | 0.12 | 0.29 | 1.04 | 2.52 | 2.49 | 2.24 | 1.89 | 2.02 | 1.19 | 0.95 | 0.17 | |

BARRA LAT 11 5 LON 43 10 408. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 26.7 | 26.8 | 26.6 | 26.4 | 25.5 | 24.5 | 24.1 | 25.0 | 27.2 | 28.6 | 27.5 | 26.4 | 26.3 |
| MEAN R.H. | 55. | 59. | 64. | 55. | 49. | 45. | 48. | 41. | 53. | 58. | 67. | 72. | 55. |
| PCT SUN | 74. | 71. | 66. | 73. | 79. | 81. | 80. | 85. | 75. | 71. | 63. | 59. | 73. |
| MEAN RAD. | 626. | 604. | 559. | 536. | 497. | 473. | 481. | 549. | 577. | 598. | 575. | 556. | 553. |
| PRECIP. | 89. | 93. | 119. | 62. | 16. | 0. | 0. | 0. | 9. | 32. | 118. | 147. | 634. |
| POT ET | 201. | 175. | 179. | 165. | 155. | 139. | 145. | 169. | 181. | 200. | 182. | 177. | 2068. |
| DEF PREC | 112. | 82. | 59. | 103. | 139. | 139. | 145. | 169. | 173. | 168. | 64. | 30. | 1384. |
| DEP PREC | 48. | 51. | 68. | 30. | 0. | 0. | 0. | 0. | 0. | 11. | 68. | 87. | |
| MAI | 0.24 | 0.29 | 0.38 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.37 | 0.49 | |

BAUL (EL) LAT 8 58 LON 68 17 102. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 25.0 | 25.1 | 25.5 | 26.3 | 26.7 | 26.4 | 26.4 | 26.8 | 27.1 | 26.8 | 26.2 | 25.6 | 26.2 |
| MEAN R.H. | 67. | 67. | 70. | 82. | 83. | 83. | 82. | 77. | 79. | 74. | 75. | 68. | 76. |
| PCT SUN | 73. | 72. | 70. | 54. | 53. | 52. | 55. | 61. | 58. | 64. | 64. | 71. | 62. |
| MEAN RAD. | 510. | 527. | 506. | 465. | 420. | 393. | 411. | 475. | 460. | 507. | 472. | 504. | 471. |
| PRECIP. | 4. | 2. | 12. | 36. | 178. | 236. | 285. | 226. | 141. | 83. | 88. | 21. | 1311. |
| POT ET | 188. | 169. | 130. | 143. | 134. | 121. | 131. | 152. | 160. | 182. | 175. | 189. | 1925. |
| DEF PREC | 184. | 167. | 168. | 107. | -43. | -116. | -154. | -73. | 19. | 100. | 98. | 168. | 613. |
| DEP PREC | 0. | 0. | 0. | 14. | 124. | 169. | 207. | 161. | 96. | 50. | 54. | 2. | |
| MAI | 0.00 | 0.00 | 0.00 | 0.10 | 0.92 | 1.40 | 1.58 | 1.06 | 0.60 | 0.28 | 0.31 | 0.01 | |

BELA VISTA LAT 22 32 LON 55 38 650. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 26.0 | 25.6 | 25.0 | 22.8 | 20.2 | 18.3 | 17.6 | 20.0 | 22.1 | 23.3 | 24.5 | 25.6 | 22.6 |
| MEAN R.H. | 82. | 74. | 71. | 65. | 69. | 70. | 64. | 64. | 76. | 78. | 77. | 85. | 72. |
| PCT SUN | 47. | 56. | 59. | 65. | 69. | 61. | 65. | 66. | 54. | 52. | 53. | 43. | 58. |
| MEAN RAD. | 530. | 548. | 503. | 446. | 386. | 326. | 355. | 417. | 452. | 510. | 555. | 510. | 461. |
| PRECIP. | 160. | 134. | 119. | 119. | 122. | 76. | 34. | 44. | 76. | 132. | 148. | 169. | 1334. |
| POT ET | 167. | 155. | 155. | 126. | 105. | 81. | 90. | 113. | 125. | 150. | 163. | 159. | 1589. |
| DEF PREC | 7. | 21. | 35. | 7. | -17. | 5. | 56. | 68. | 49. | 18. | 16. | -10. | 255. |
| DEP PREC | 103. | 83. | 72. | 71. | 74. | 38. | 4. | 12. | 38. | 81. | 94. | 111. | |
| MAI | 0.62 | 0.54 | 0.46 | 0.57 | 0.70 | 0.46 | 0.04 | 0.11 | 0.30 | 0.54 | 0.57 | 0.70 | |

BELEM LAT 1 28 LON 48 27 24. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 25.6 | 25.[illegible] | 25.4 | 25.7 | 26.0 | 26.0 | 25.9 | 26.0 | 26.0 | 26.2 | 26.5 | 26.3 | 25.9 |
| MEAN R.H. | 85. | [illegible] | 92. | 87. | 81. | 73. | 67. | 62. | 64. | 66. | 71. | 74. | 76. |
| PCT SUN | 42. | 33. | 31. | 39. | 48. | 57. | 63. | 68. | 66. | 64. | 59. | 56. | 52. |
| MEAN RAD. | 436. | 396. | 384. | 415. | 435. | 456. | 485. | 535. | 556. | 552. | 519. | 497. | 472. |
| PRECIP. | 318. | 407. | 436. | 382. | 265. | 165. | 161. | 116. | 120. | 105. | 90. | 197. | 2762. |
| POT ET | 136. | 112. | 119. | 126. | 137. | 139. | 153. | 169. | 170. | 175. | 160. | 158. | 1753. |
| DEF PREC | -182. | -295. | -317. | -256. | -128. | -26. | -8. | 53. | 50. | 70. | 70. | -39. | -1009. |
| DEP PREC | 250. | 326. | 350. | 305. | 205. | 120. | 117. | 79. | 82. | 69. | 57. | 148. | |
| MAI | 1.84 | 2.92 | 2.94 | 2.42 | 1.50 | 0.87 | 0.77 | 0.47 | 0.48 | 0.40 | 0.35 | 0.94 | |

BOA VISTA BRASIL LAT 2 49 LON 60 40 70. METERS

| | JAN | FEB | MAR | ABR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 27.8 | 27.9 | 28.2 | 27.9 | 26.7 | 25.9 | 25.7 | 26.2 | 27.8 | 28.4 | 28.5 | 28.0 | 27.4 |
| MEAN R.H. | 71. | 70. | 69. | 71. | 76. | 77. | 77. | 78. | 73. | 72. | 71. | 73. | 73. |
| PCT SUN | 65. | 56. | 67. | 65. | 59. | 58. | 58. | 56. | 62. | 63. | 65. | 62. | 62. |
| PRECIP. | 75. | 75. | 80. | 151. | 304. | 365. | 346. | 226. | 110. | 74. | 66. | 69. | 1941. |
| POT ET | 169. | 161. | 186. | 174. | 160. | 146. | 152. | 158. | 172. | 180. | 169. | 165. | 1991. |
| DEF PREC | 94. | 86. | 106. | 23. | -144. | -219. | -194. | -68. | -62. | 106. | 103. | 96. | -50. |
| DEP PREC | 13. | 7. | 17. | 83. | 232. | 282. | 238. | 160. | 74. | 38. | 27. | 10. | |
| MAI | 0.08 | 0.04 | 0.09 | 0.48 | 1.45 | 1.93 | 1.57 | 1.01 | 0.43 | 0.21 | 0.16 | 0.06 | |

BRUZUAL VILLA LAT 8 4 LON 69 18 104. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 25.0 | 25.1 | 25.5 | 26.3 | 25.7 | 26.3 | 26.4 | 26.8 | 27.1 | 26.8 | 26.2 | 25.6 | 26.2 |
| MEAN R.H. | 68. | 69. | 70. | 86. | 83. | 85. | 79. | 74. | 82. | 79. | 72. | 69. | 77. |
| PCT SUN | 71. | 70. | 69. | 48. | 44. | 49. | 59. | 64. | 53. | 59. | 67. | 70. | 60. |
| MEAN RAD. | 501. | 517. | 503. | 443. | 387. | 385. | 433. | 494. | 440. | 481. | 483. | 495. | 463. |
| PRECIP. | 10. | 22. | 13. | 116. | 267. | 273. | 212. | 163. | 192. | 162. | 35. | 28. | 1493. |
| POT ET | 195. | 166. | 179. | 136. | 124. | 118. | 138. | 158. | 154. | 174. | 179. | 186. | 1897. |
| DEF PREC | 175. | 144. | 166. | 20. | -143. | -155. | -74. | -5. | -34. | 12. | 144. | 158. | 404. |
| DEP PREC | 0. | 3. | 0. | 76. | 193. | 197. | 150. | 112. | 135. | 112. | 14. | 8. | |
| MAI | 0.00 | 0.02 | 0.00 | 0.56 | 1.56 | 1.67 | 1.09 | 0.71 | 0.88 | 0.64 | 0.08 | 0.04 | |

CACERES LAT 16 3 LON 57 41 117. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 26.4 | 26.4 | 26.2 | 25.3 | 23.5 | 22.1 | 21.5 | 23.9 | 26.1 | 26.8 | 26.6 | 26.6 | 25.1 |
| MEAN R.H. | 86. | 87. | 83. | 75. | 72. | 69. | 61. | 65. | 81. | 80. | 82. | 86. | 77. |
| PCT SUN | 42. | 40. | 46. | 54. | 58. | 61. | 69. | 65. | 48. | 49. | 47. | 41. | 52. |
| MEAN RAD. | 484. | 459. | 456. | 441. | 396. | 376. | 412. | 453. | 449. | 500. | 511. | 485. | 452. |
| PRECIP. | 215. | 205. | 171. | 78. | 49. | 20. | 11. | 7. | 36. | 94. | 157. | 197. | 1240. |
| POT ET | 154. | 132. | 145. | 132. | 118. | 104. | 116. | 136. | 137. | 160. | 158. | 155. | 1647. |
| DEF PREC | -61. | -74. | -26. | 54. | 70. | 84. | 105. | 129. | 101. | 66. | 1. | -42. | 407. |
| DEP PREC | 147. | 140. | 112. | 39. | 15. | 0. | 0. | 0. | 6. | 52. | 101. | 133. | |
| MAI | 0.96 | 1.06 | 0.78 | 0.29 | 0.13 | 0.00 | 0.00 | 0.00 | 0.04 | 0.32 | 0.64 | 0.86 | |

CALIIIE LAT 14 4 LON 42 29 872. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 22.0 | 22.3 | 22.4 | 21.6 | 20.4 | 19.2 | 18.7 | 19.5 | 21.6 | 22.8 | 22.2 | 22.1 | 21.2 |
| MEAN R.H. | 65. | 71. | 75. | 70. | 59. | 62. | 63. | 52. | 67. | 70. | 78. | 79. | 68. |
| PCT SUN | 65. | 59. | 55. | 60. | 71. | 67. | 67. | 76. | 63. | 61. | 51. | 50. | 62. |
| MEAN RAD. | 597. | 559. | 503. | 473. | 454. | 409. | 421. | 503. | 519. | 553. | 529. | 525. | 504. |
| PRECIP. | 134. | 92. | 126. | 63. | 19. | 11. | 12. | 10. | 13. | 59. | 185. | 164. | 888. |
| POT ET | 170. | 145. | 145. | 129. | 124. | 105. | 110. | 134. | 142. | 161. | 147. | 150. | 1662. |
| DEF PREC | 36. | 53. | 19. | 66. | 105. | 94. | 98. | 124. | 129. | 102. | -38. | -14. | 775. |
| DEP PREC | 78. | 50. | 73. | 31. | 2. | 0. | 0. | 0. | 0. | 28. | 112. | 98. | |
| MAI | 0.46 | 0.35 | 0.50 | 0.24 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.18 | 0.76 | 0.65 | |

CALABOZO LAT 8 56 LON 67 26 106. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 27.8 | 28.0 | 29.1 | 29.2 | 27.8 | 26.7 | 26.6 | 26.6 | 27.0 | 27.2 | 27.2 | 27.1 | 27.5 |
| MEAN R.H. | 67. | 69. | 69. | 81. | 82. | 81. | 80. | 78. | 80. | 76. | 75. | 67. | 75. |
| PCT SUN | 73. | 72. | 71. | 56. | 54. | 55. | 57. | 60. | 56. | 53. | 64. | 73. | 63. |
| MEAN RAD. | 512. | 526. | 508. | 475. | 423. | 402. | 422. | 473. | 452. | 500. | 473. | 509. | 473. |
| PRECIP. | 2. | 7. | 9. | 69. | 173. | 197. | 245. | 232. | 174. | 123. | 83. | 13. | 1326. |
| POT ET | 201. | 181. | 196. | 156. | 139. | 125. | 135. | 151. | 157. | 182. | 190. | 197. | 2000. |
| DEF PREC | 200. | 174. | 187. | 87. | -34. | -72. | -110. | -81. | -18. | 58. | 97. | 184. | 674. |
| DEP PREC | 0. | 0. | 0. | 40. | 120. | 139. | 175. | 166. | 121. | 82. | 50. | 0. | |
| MAI | 0.00 | 0.00 | 0.00 | 0.26 | 0.86 | 1.11 | 1.30 | 1.10 | 0.77 | 0.45 | 0.28 | 0.00 | |

CAMPO GRANDE LAT 20 27 LON 54 37 566. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 24.3 | 24.2 | 23.8 | 22.0 | 20.3 | 19.3 | 19.1 | 21.1 | 22.8 | 23.5 | 24.0 | 24.5 | 22.4 |
| MEAN R.H. | 82. | 82. | 74. | 67. | 62. | 65. | 59. | 61. | 76. | 75. | 79. | 85. | 72. |
| PCT SUN | 46. | 46. | 56. | 64. | 68. | 65. | 71. | 69. | 54. | 55. | 51. | 42. | 57. |
| MEAN RAD. | 520. | 498. | 493. | 454. | 396. | 355. | 384. | 440. | 461. | 523. | 540. | 500. | 464. |
| PRECIP. | 229. | 199. | 140. | 101. | 81. | 50. | 36. | 29. | 62. | 162. | 164. | 191. | 1444. |
| POT ET | 157. | 136. | 149. | 125. | 108. | 91. | 101. | 122. | 130. | 155. | 157. | 152. | 1585. |
| DEF PREC | -72. | -63. | 9. | 24. | 27. | 41. | 65. | 94. | 68. | -7. | -7. | -39. | 140. |
| DEP PREC | 158. | 134. | 89. | 57. | 41. | 17. | 6. | 0. | 26. | 105. | 107. | 128. | |
| MAI | 1.01 | 0.99 | 0.59 | 0.46 | 0.38 | 0.18 | 0.06 | 0.00 | 0.20 | 0.68 | 0.68 | 0.84 | |

CARACAS-CAGIGAL LAT 10 30 LON 66 56 1043. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 19.2 | 19.3 | 20.1 | 21.4 | 21.9 | 21.4 | 21.2 | 21.4 | 21.6 | 21.6 | 20.8 | 20.1 | 20.8 |
| MEAN R.H. | 74. | 71. | 67. | 60. | 79. | 80. | 78. | 75. | 78. | 77. | 80. | 76. | 76. |
| PCT SUN | 65. | 68. | 73. | 57. | 60. | 57. | 60. | 63. | 59. | 61. | 57. | 63. | 62. |
| MEAN RAD. | 483. | 511. | 518. | 476. | 436. | 399. | 421. | 477. | 462. | 493. | 445. | 473. | 466. |
| PRECIP. | 22. | 11. | 13. | 33. | 81. | 104. | 103. | 111. | 103. | 110. | 99. | 44. | 824. |
| POT ET | 154. | 142. | 160. | 129. | 124. | 108. | 118. | 134. | 140. | 156. | 146. | 156. | 1666. |
| DEF PREC | 132. | 131. | 147. | 96. | 43. | 5. | 15. | 23. | 37. | 46. | 56. | 112. | -842. |
| DEP PREC | 3. | 0. | 0. | 12. | 49. | 67. | 66. | 72. | 66. | 71. | 56. | 20. | |
| MAI | 0.02 | 0.00 | 0.00 | 0.09 | 0.39 | 0.61 | 0.56 | 0.54 | 0.47 | 0.46 | 0.38 | 0.13 | |

CARIPE LAT 10 10 LON 63 35 870. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 19.3 | 19.5 | 20.3 | 21.3 | 22.0 | 21.9 | 21.7 | 21.6 | 21.3 | 21.1 | 21.1 | 20.2 | 20.9 |
| MEAN R.H. | 79. | 72. | 64. | 74. | 80. | 84. | 80. | 77. | 76. | 74. | 80. | 79. | 77. |
| PCT SUN | 58. | 67. | 76. | 65. | 57. | 50. | 57. | 61. | 62. | 64. | 57. | 59. | 61. |
| MEAN RAD. | 452. | 508. | 529. | 506. | 427. | 378. | 413. | 472. | 476. | 509. | 447. | 454. | 464. |
| PRECIP. | 54. | 46. | 26. | 61. | 137. | 210. | 162. | 151. | 109. | 114. | 101. | 72. | 1243. |
| POT ET | 146. | 142. | 163. | 137. | 122. | 104. | 117. | 133. | 143. | 158. | 147. | 151. | 1664. |
| DEF PREC | 92. | 95. | 137. | 76. | -16. | -106. | -45. | -17. | 34. | 45. | 47. | 78. | 421. |
| DEP PREC | 28. | 22. | 7. | 34. | 93. | 149. | 111. | 103. | 70. | 74. | 64. | 42. | |
| MAI | 0.19 | 0.16 | 0.04 | 0.24 | 0.76 | 1.43 | 0.95 | 0.77 | 0.49 | 0.47 | 0.44 | 0.28 | |

CIUDAD BOLIVAR LAT 8 9 LON 63 33 54. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 26.5 | 27.0 | 27.7 | 28.1 | 28.1 | 27.2 | 27.0 | 27.7 | 28.3 | 28.2 | 27.8 | 27.0 | 27.6 |
| MEAN R.H. | 72. | 69. | 66. | 75. | 77. | 80. | 76. | 75. | 74. | 71. | 73. | 71. | 73. |
| PCT SUN | 67. | 71. | 74. | 63. | 61. | 57. | 62. | 64. | 65. | 68. | 66. | 68. | 65. |
| MEAN RAD. | 483. | 520. | 521. | 508. | 454. | 417. | 442. | 491. | 492. | 524. | 479. | 485. | 485. |
| PRECIP. | 31. | 16. | 10. | 35. | 119. | 151. | 181. | 179. | 109. | 90. | 59. | 44. | 1024. |
| POT ET | 186. | 175. | 194. | 163. | 150. | 131. | 143. | 161. | 174. | 194. | 184. | 189. | 2043. |
| DEF PREC | 155. | 158. | 184. | 127. | 31. | -20. | -38. | -18. | 65. | 104. | 125. | 145. | 1019. |
| DEP PREC | 10. | 0. | 0. | 14. | 79. | 103. | 126. | 125. | 71. | 56. | 32. | 20. | |
| MAI | 0.05 | 0.00 | 0.00 | 0.08 | 0.52 | 0.79 | 0.88 | 0.77 | 0.41 | 0.29 | 0.17 | 0.11 | |

COARI LAT 4 5 LON 63 8 49. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 25.2 | 25.2 | 25.4 | 25.2 | 25.3 | 25.3 | 25.4 | 26.0 | 26.0 | 25.9 | 25.9 | 25.6 | 25.5 |
| MEAN R.H. | 90. | 90. | 89. | 89. | 82. | 75. | 73. | 69. | 77. | 82. | 81. | 88. | 82. |
| PCT SUN | 34. | 34. | 36. | 37. | 46. | 55. | 57. | 62. | 53. | 47. | 48. | 32. | 46. |
| MEAN RAD. | 403. | 408. | 413. | 397. | 415. | 432. | 450. | 500. | 494. | 476. | 481. | 425. | 441. |
| PRECIP. | 316. | 274. | 280. | 288. | 226. | 134. | 88. | 75. | 99. | 158. | 188. | 222. | 2348. |
| POT ET | 125. | 114. | 129. | 119. | 129. | 130. | 140. | 158. | 151. | 150. | 146. | 133. | 1622. |
| DEF PREC | -171. | -160. | -151. | -169. | -97. | -5. | 52. | 83. | 52. | -8. | -41. | -89. | -726. |
| DEP PREC | 248. | 213. | 218. | 225. | 172. | 94. | 55. | 44. | 64. | 114. | 140. | 169. | |
| MAI | 1.99 | 1.87 | 1.70 | 1.89 | 1.34 | 0.73 | 0.39 | 0.28 | 0.43 | 0.76 | 0.95 | 1.27 | |

COBIJA LAT 11 1 LON 66 44 280. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 25.6 | 25.3 | 25.1 | 24.7 | 24.1 | 22.9 | 22.5 | 23.1 | 25.6 | 25.9 | 25.9 | 25.5 | 24.7 |
| PCT SUN | 25. | 31. | 31. | 32. | 38. | 55. | 51. | 47. | 33. | 31. | 26. | 27. | 36. |
| MEAN RAD. | 360. | 400. | 380. | 355. | 345. | 390. | 385. | 410. | 380. | 395. | 370. | 380. | 379. |
| PRECIP. | 233. | 222. | 213. | 192. | 80. | 25. | 25. | 36. | 94. | 165. | 192. | 251. | 1728. |
| POT ET | 113. | 112. | 117. | 105. | 104. | 110. | 111. | 120. | 115. | 124. | 113. | 118. | 1363. |
| DEF PREC | -120. | -110. | -96. | -87. | 24. | 85. | 86. | 84. | 21. | -41. | -79. | -132. | -365. |
| DEP PREC | 151. | 143. | 137. | 123. | 45. | 7. | 7. | 15. | 55. | 104. | 123. | 163. | |
| MAI | 1.34 | 1.28 | 1.17 | 1.17 | 0.44 | 0.07 | 0.07 | 0.12 | 0.48 | 0.84 | 1.09 | 1.38 | |

COLONIA TOVAR LAT 10 25 LON 67 17 1791. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEM | .1 | 14.3 | 14.9 | 15.9 | 16.3 | 15.8 | 15.5 | 15.7 | 15.9 | 15.8 | 15.5 | 14.8 | 15.4 |
| MEAN R.H. | [illegible] | 76. | 67. | 85. | 83. | 85. | 86. | 81. | 82. | 82. | 85. | 80. | 81. |
| PCT SUN | [illegible] | 63. | 73. | 50. | 52. | 50. | 48. | 55. | 53. | 54. | 49. | 57. | 55. |
| MEAN RAD. | 449. | 487. | 506. | 443. | 407. | 374. | 378. | 445. | 436. | 461. | 407. | 448. | 437. |
| PRECIP. | 44. | 21. | 26. | 58. | 133. | 136. | 164. | 161. | 143. | 178. | 135. | 62. | 1266. |
| POT ET | 125. | 117. | 134. | 103. | 99. | 87. | 90. | 106. | 113. | 125. | 116. | 127. | 1341. |
| DEF PREC | 81. | 96. | 108. | 45. | -39. | -49. | -74. | -55. | -30. | -53. | -19. | 65. | 76. |
| DEP PREC | 20. | 5. | 6. | 31. | 93. | 91. | 113. | 111. | 97. | 124. | 91. | 34. | |
| MAI | 0.16 | 0.02 | 0.05 | 0.30 | 0.94 | 1.06 | 1.26 | 1.04 | 0.86 | 0.99 | 0.78 | 0.27 | |

CONCEPCION LAT 16 15 LON 62 3 490. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 25.8 | 25.6 | 25.0 | 22.7 | 22.5 | 20.8 | 20.8 | 23.4 | 25.9 | 26.4 | 26.4 | 26.3 | 24.3 |
| PCT SUN | 30. | 37. | 36. | 37. | 44. | 66. | 64. | 56. | 38. | 36. | 35. | 46. | 44. |
| MEAN RAD. | 410. | 440. | 405. | 365. | 345. | 390. | 395. | 420. | 400. | 425. | 440. | 510. | 412. |
| PRECIP. | 175. | 157. | 135. | 65. | 64. | 39. | 30. | 29. | 50. | 98. | 136. | 150. | 1128. |
| POT ET | 129. | 124. | 125. | 103. | 100. | 104. | 109. | 124. | 122. | 135. | 135. | 162. | 1472. |
| DEF PREC | -46. | -33. | -10. | 38. | 36. | 65. | 79. | 95. | 72. | 37. | -0. | 12. | 344. |
| DEP PREC | 111. | 98. | 83. | 35. | 34. | 17. | 11. | 10. | 25. | 58. | 84. | 94. | |
| MAI | 0.66 | 0.79 | 0.67 | 0.34 | 0.34 | 0.16 | 0.10 | 0.08 | 0.20 | 0.43 | 0.62 | 0.58 | |

CONCEICAO ARAGUAIA LAT 8 15 LON 49 12 0. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 25.1 | 24.9 | 25.2 | 25.6 | 25.6 | 25.1 | 24.9 | 26.0 | 26.7 | 25.8 | 25.6 | 25.2 | 25.5 |
| MEAN R.H. | 88. | 89. | 88. | 79. | 65. | 48. | 44. | 54. | 70. | 83. | 83. | 89. | 73. |
| PCT SUN | 38. | 37. | 38. | 50. | 66. | 79. | 82. | 74. | 60. | 46. | 45. | 36. | 54. |
| MEAN RAD. | 437. | 431. | 428. | 453. | 470. | 488. | 510. | 530. | 521. | 479. | 477. | 427. | 471. |
| PRECIP. | 253. | 252. | 263. | 163. | 60. | 8. | 7. | 15. | 64. | 163. | 196. | 227. | 1671. |
| POT ET | 135. | 119. | 132. | 137. | 147. | 146. | 156. | 167. | 162. | 150. | 144. | 132. | 1727. |
| DEF PREC | -118. | -133. | -131. | -26. | 87. | 138. | 149. | 152. | 98. | -13. | -51. | -95. | 56. |
| DEP PREC | 195. | 194. | 204. | 119. | 31. | 0. | 0. | 0. | 34. | 119. | 146. | 173. | |
| MAI | 1.45 | 1.63 | 1.54 | 0.87 | 0.21 | 0.00 | 0.00 | 0.00 | 0.21 | 0.79 | 1.01 | 1.31 | |

CORUMBA LAT 19 0 LON 57 39 139. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 27.1 | 26.9 | 26.4 | 24.7 | 23.1 | 21.6 | 21.4 | 23.4 | 25.4 | 26.4 | 27.0 | 27.4 | 25.1 |
| MEAN R.H. | 83. | 80. | 76. | 72. | 71. | 71. | 63. | 67. | 80. | 80. | 76. | 83. | 75. |
| PCT SUN | 46. | 49. | 54. | 58. | 59. | 59. | 66. | 63. | 49. | 49. | 54. | 46. | 54. |
| MEAN RAD. | 513. | 509. | 491. | 442. | 382. | 348. | 384. | 431. | 445. | 499. | 552. | 520. | 460. |
| PRECIP. | 170. | 158. | 119. | 71. | 62. | 35. | 29. | 20. | 52. | 84. | 118. | 145. | 1063. |
| POT ET | 166. | 148. | 156. | 131. | 112. | 95. | 108. | 127. | 134. | 159. | 172. | 169. | 1678. |
| DEF PREC | -4. | -10. | 37. | 60. | 50. | 60. | 79. | 107. | 82. | 75. | 54. | 24. | 614. |
| DEP PREC | 112. | 102. | 71. | 33. | 26. | 5. | 0. | 0. | 13. | 44. | 71. | 92. | |
| MAI | 0.67 | 0.69 | 0.46 | 0.26 | 0.23 | 0.05 | 0.00 | 0.00 | 0.14 | 0.28 | 0.41 | 0.54 | |

CRUZEIRO DO SUL LAT 7 38 LON 72 40 170. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 24.4 | 24.6 | 24.4 | 24.2 | 24.1 | 23.4 | 22.9 | 23.8 | 24.5 | 24.6 | 24.7 | 24.6 | 24.2 |
| MEAN R.H. | 92. | 92. | 92. | 89. | 80. | 73. | 74. | 77. | 89. | 94. | 87. | 96. | 86. |
| PCT SUN | 30. | 30. | 31. | 36. | 50. | 57. | 56. | 53. | 36. | 28. | 40. | 23. | 39. |
| MEAN RAD. | 390. | 391. | 395. | 394. | 413. | 418. | 425. | 451. | 405. | 372. | 447. | 339. | 402. |
| PRECIP. | 246. | 244. | 269. | 241. | 138. | 104. | 47. | 86. | 147. | 251. | 216. | 241. | 2230. |
| POT ET | 118. | 106. | 117. | [illegible] | 124. | 120. | 124. | 135. | 119. | 113. | 132. | 103. | 1426. |
| DEF PREC | -128. | -115. | -152. | -129. | -14. | 16. | 77. | 49. | -28. | -138. | -84. | -138. | -804. |
| DEP PREC | 169. | 137 | 203. | [illegible] | 27. | 69. | 20. | 53. | 105. | 193. | 163. | 195. | |
| MAI | 1.60 | 1.74 | 1.78 | [illegible] | 0.78 | 0.57 | 0.16 | 0.40 | 0.88 | 1.71 | 1.24 | 1.79 | |

CUIABA LAT 15 36 LON 56 0 172. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 26.5 | 26.5 | 26.2 | 25.5 | 24.3 | 23.2 | 22.8 | 25.0 | 27.0 | 27.2 | 26.8 | 26.6 | 25.6 |
| MEAN R.H. | 85. | 85. | 87. | 74. | 68. | 64. | 57. | 62. | 78. | 83. | 82. | 86. | 76. |
| PCT SUN | 42. | 43. | 40. | 56. | 62. | 66. | 72. | 68. | 51. | 45. | 47. | 41. | 53. |
| MEAN RAD. | 497. | 476. | 428. | 448. | 412. | 393. | 425. | 467. | 464. | 478. | 507. | 481. | 455. |
| PRECIP. | 216. | 198. | 232. | 116. | 52. | 14. | 6. | 12. | 40. | 130. | 165. | 194. | 1375. |
| POT ET | 155. | 137. | 136. | 135. | 125. | 112. | 124. | 144. | 145. | 155. | 157. | 154. | 1678. |
| DEF PREC | -61. | -61. | -96. | 19. | 72. | 98. | 118. | 132. | 105. | 25. | -8. | -40. | 303. |
| DEP PREC | 148. | 134. | 161. | 69. | 13. | 0. | 0. | 0. | 9. | 80. | 103. | 131. | |
| MAI | 0.95 | 0.98 | 1.18 | 0.51 | 0.15 | 0.00 | 0.00 | 0.00 | 0.06 | 0.52 | 0.68 | 0.85 | |

ENGENHO DE DENTRO LAT 15 9 LON 56 22 153. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 26.2 | 26.1 | 25.3 | 23.9 | 22.4 | 20.8 | 20.2 | 20.6 | 22.0 | 22.3 | 23.6 | 24.7 | 23.2 |
| MEAN R.H. | 86. | 76. | 81. | 75. | 69. | 65. | 58. | 62. | 77. | 50. | 83. | 87. | 72. |
| PCT SUN | 42. | 54. | 42. | 55. | 62. | 65. | 72. | 67. | 52. | 78. | 46. | 40. | 57. |
| MEAN RAD. | 481. | 534. | 473. | 446. | 414. | 394. | 427. | 468. | 471. | 628. | 530. | 476. | 476. |
| PRECIP. | 121. | 122. | 157. | 108. | 59. | 64. | 34. | 59. | 49. | 113. | 109. | 131. | 1126. |
| POT ET | 152. | 153. | 147. | 129. | 119. | 105. | 116. | 129. | 133. | 181. | 144. | 145. | 1651. |
| DEF PREC | 32. | 31. | -11. | 21. | 60. | 41. | 82. | 70. | 81. | 68. | 35. | 14. | 525. |
| DEP PREC | 73. | 74. | 102. | 63. | 24. | 28. | 4. | 24. | 16. | 66. | 63. | 81. | |
| MAI | 0.48 | 0.48 | 0.69 | 0.48 | 0.20 | 0.26 | 0.04 | 0.19 | 0.12 | 0.37 | 0.44 | 0.56 | |

FONTE BOA LAT 2 32 LON 66 10 56. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 24.8 | 24.9 | 24.9 | 24.8 | 24.7 | 24.5 | 24.3 | 24.9 | 25.2 | 25.3 | 25.3 | 25.2 | 24.9 |
| MEAN R.H. | 90. | 89. | 91. | 91. | 87. | 83. | 81. | 76. | 80. | 83. | 83. | 87. | 85. |
| PCT SUN | 35. | 36. | 34. | 33. | 39. | 45. | 48. | 54. | 50. | 45. | 46. | 40. | 42. |
| MEAN RAD. | 404. | 418. | 401. | 381. | 387. | 398. | 419. | 471. | 480. | 465. | 462. | 425. | 426. |
| PRECIP. | 298. | 237. | 278. | 336. | 314. | 238. | 175. | 149. | 156. | 194. | 186. | 247. | 2802. |
| POT ET | 124. | 116. | 123. | 113. | 118. | 117. | 127. | 145. | 144. | 144. | 139. | 131. | 1540. |
| DEF PREC | -174. | -121. | -155. | -223. | -196. | -121. | -48. | -4. | -6. | -50. | -47. | -116. | -1262. |
| DEP PREC | 233. | 181. | 216. | 265. | 247. | 182. | 129. | 107. | 108. | 145. | 138. | 190. | |
| MAI | 1.89 | 1.57 | 1.75 | 2.35 | 2.09 | 1.56 | 1.02 | 0.74 | 0.75 | 1.00 | 1.00 | 1.45 | |

FORMOSA LAT 15 32 LON 47 18 912. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 22.0 | 22.1 | 21.9 | 21.5 | 20.1 | 19.0 | 18.9 | 20.7 | 22.8 | 22.9 | 21.9 | 21.6 | 21.3 |
| MEAN R.H. | 84. | 78. | 77. | 64. | 52. | 38. | 36. | 41. | 69. | 78. | 88. | 91. | 66. |
| PCT SUN | 44. | 52. | 53. | 66. | 76. | 87. | 88. | 85. | 61. | 51. | 38. | 33. | 61. |
| MEAN RAD. | 494. | 523. | 492. | 486. | 459. | 452. | 471. | 522. | 507. | 510. | 460. | 430. | 484. |
| PRECIP. | 252. | 204. | 227. | 93. | 17. | 3. | 6. | 3. | 30. | 127. | 255. | 343. | 1560. |
| POT ET | 141. | 135. | 140. | 132. | 125. | 115. | 123. | 144. | 143. | 149. | 127. | 121. | 1596. |
| DEF PREC | -111. | -69. | -87. | 39. | 108. | 112. | 117. | 141. | 113. | 22. | -128. | -221. | 35. |
| DEP PREC | 176. | 138. | 157. | 51. | 0. | 0. | 0. | 0. | 1. | 78. | 179. | 248. | |
| MAI | 1.25 | 1.02 | 1.12 | 0.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.52 | 1.41 | 2.04 | |

FRUTAL LAT 20 2 LON 48 56 563. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 24.6 | 24.6 | 24.4 | 22.9 | 20.8 | 19.4 | 19.6 | 21.9 | 23.5 | 24.5 | 24.6 | 24.5 | 22.9 |
| MEAN R.H. | 78. | 82. | 74. | 60. | 52. | 47. | 45. | 47. | 69. | 81. | 75. | 82. | 66. |
| PCT SUN | 52. | 47. | 57. | 70. | 76. | 80. | 82. | 80. | 61. | 49. | 55. | 47. | 63. |
| MEAN RAD. | 550. | 499. | 500. | 477. | 424. | 396. | 417. | 477. | 491. | 494. | 562. | 529. | 485. |
| PRECIP. | 269. | 238. | 199. | 87. | 43. | 25. | 11. | 12. | 57. | 132. | 203. | 254. | 1530. |
| POT ET | 168. | 137. | 152. | 135. | 117. | 102. | 111. | 136. | 141. | 150. | 166. | 161. | 1675. |
| DEF PREC | -101. | -101. | -47. | 48. | 74. | 77. | 101. | 124. | 84. | 19. | -37. | -93. | 146. |
| DEP PREC | 190. | 165. | 134. | 46. | 11. | 0. | 0. | 0. | 22. | 82. | 138. | 178. | |
| MAI | 1.13 | 1.20 | 0.89 | 0.34 | 0.10 | 0.00 | 0.00 | 0.00 | 0.16 | 0.54 | 0.83 | 1.11 | |

GOIANIA LAT 16 41 LON 49 17 729. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 22.8 | 23.0 | 22.8 | 22.2 | 20.4 | 18.9 | 18.8 | 21.2 | 23.2 | 23.6 | 23.0 | 22.7 | 21.9 |
| MEAN R.H. | 83. | 80. | 76. | 65. | 55. | 45. | 42. | 47. | 71. | 78. | 85. | 89. | 68. |
| PCT SUN | 45. | 49. | 54. | 65. | 74. | 81. | 84. | 80. | 59. | 51. | 43. | 37. | 60. |
| MEAN RAD. | 505. | 510. | 497. | 478. | 442. | 428. | 450. | 501. | 494. | 510. | 491. | 460. | 481. |
| PRECIP. | 234. | 210. | 198. | 110. | 30. | 5. | 10. | 3. | 36. | 143. | 237. | 271. | 1487. |
| POT ET | 147. | 135. | 145. | 133. | 121. | 109. | 118. | 140. | 141. | 152. | 139. | 134. | 1612. |
| DEF PREC | -87. | -75. | -54. | 23. | 91. | 104. | 108. | 137. | 105. | 9. | -98. | -137. | 125. |
| DEP PREC | 162. | 143. | 134. | 64. | 1. | 0. | 0. | 0. | 6. | 90. | 165. | 191. | |
| MAI | 1.10 | 1.06 | 0.93 | 0.48 | 0.01 | 0.00 | 0.00 | 0.00 | 0.04 | 0.59 | 1.18 | 1.43 | |

GOIAS LAT 15 56 LON 50 8 520. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 23.8 | 23.9 | 24.1 | 24.2 | 22.9 | 21.7 | 21.3 | 23.1 | 25.0 | 24.9 | 24.3 | 23.8 | 23.6 |
| MEAN R.H. | 83. | 87. | 85. | 67. | 58. | 47. | 44. | 48. | 69. | 80. | 83. | 87. | 70. |
| PCT SUN | 45. | 39. | 42. | 63. | 71. | 80. | 83. | 79. | 61. | 50. | 45. | 40. | 58. |
| MEAN RAD. | 505. | 457. | 440. | 474. | 439. | 430. | 453. | 502. | 506. | 502. | 501. | 474. | 474. |
| PRECIP. | 333. | 264. | 279. | 112. | 19. | 4. | 3. | 15. | 55. | 149. | 241. | 312. | 1786. |
| POT ET | 151. | 124. | 133. | 119. | 128. | 118. | 127. | 147. | 151. | 154. | 146. | 142. | 1659. |
| DEF PREC | -182. | -140. | -146. | 27. | 109. | 114. | 124. | 132. | 95. | 5. | -95. | -171. | -127. |
| DEP PREC | 240. | 186. | 198. | 66. | 0. | 0. | 0. | 0. | 21. | 95. | 168. | 224. | |
| MAI | 1.59 | 1.50 | 1.49 | 0.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.14 | 0.61 | 1.15 | 1.58 | |

GUARATINGA LAT 18 36 LON 46 38 856. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 21.9 | 21.8 | 21.4 | 20.3 | 17.7 | 16.5 | 15.7 | 17.9 | 20.5 | 21.7 | 21.9 | 21.7 | 19.9 |
| MEAN R.H. | 74. | 82. | 81. | 68. | 61. | 55. | 52. | 52. | 72. | 79. | 83. | 88. | 70. |
| PCT SUN | 57. | 47. | 44. | 63. | 69. | 74. | 76. | 76. | 58. | 51. | 45. | 37. | 58. |
| MEAN RAD. | 571. | 502. | 466. | 460. | 414. | 392. | 414. | 475. | 483. | 505. | 505. | 467. | 471. |
| PRECIP. | 223. | 230. | 185. | 102. | 29. | 8. | 8. | 7. | 43. | 108. | 209. | 296. | 1449. |
| POT ET | 163. | 129. | 131. | 122. | 105. | 93. | 99. | 121. | 128. | 143. | 139. | 132. | 1505. |
| DEF PREC | -60. | -101. | -54. | 19. | 76. | 85. | 90. | 114. | 85. | 35. | -70. | -164. | 56. |
| DEP PREC | 137. | 142. | 112. | 57. | 8. | 0. | 0. | 0. | 18. | 61. | 128. | 186. | |
| MAI | 0.84 | 1.10 | 0.86 | 0.47 | 0.08 | 0.00 | 0.00 | 0.00 | 0.14 | 0.43 | 0.92 | 1.41 | |

GUAYARAMERIN LAT 10 48 LON 65 22 172. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 26.2 | 26.5 | 27.0 | 26.7 | 26.1 | 26.1 | 26.1 | 25.9 | 27.7 | 28.5 | 26.3 | 26.2 | 26.6 |
| PCT SUN | 21. | 29. | 29. | 24. | 42. | 68. | 64. | 49. | 33. | 29. | 21. | 23. | 36. |
| MEAN RAD. | 330. | 390. | 370. | 305. | 365. | 435. | 435. | 420. | 380. | 385. | 330. | 350. | 375. |
| PRECIP. | 242. | 172. | 226. | 137. | 46. | 23. | 0. | 4. | 56. | 104. | 212. | 227. | 1450. |
| POT ET | 105. | 112. | 119. | 95. | 115. | 133. | 138. | 132. | 121. | 129. | 101. | 111. | 1411. |
| DEF PREC | -137. | -60. | -106. | -43. | 69. | 110. | 138. | 128. | 65. | 25. | -111. | -116. | -39. |
| DEP PREC | 157. | 169. | 166. | 85. | 22. | 6. | 0. | 0. | 29. | 62. | 137. | 147. | |
| MAI | 1.50 | 0.97 | 1.22 | 0.90 | 0.17 | 0.05 | 0.00 | 0.00 | 0.24 | 0.48 | 1.35 | 1.32 | |

BOSGHORO LAT 8 10 LON 59 50 0. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 24.9 | 25.2 | 25.5 | 26.2 | 26.2 | 25.8 | 25.7 | 26.2 | 26.6 | 26.7 | 26.3 | 25.9 | 25.9 |
| MEAN R.H. | 88. | 79. | 75. | 82. | 87. | 85. | 76. | 75. | 72. | 73. | 81. | 97. | 81. |
| PCT SUN | 43. | 58. | 64. | 55. | 46. | 49. | 62. | 63. | 68. | 66. | 55. | 22. | 54. |
| MEAN RAD. | 368. | 460. | 481. | 472. | 395. | 385. | 445. | 488. | 503. | 512. | 433. | 236. | 432. |
| PRECIP. | 209. | 118. | 101. | 149. | 276. | 390. | 345. | 232. | 214. | 204. | 232. | 320. | 2840. |
| POT ET | 144. | 151. | 172. | 145. | 125. | 117. | 139. | 155. | 171. | 183. | 164. | 106. | 1771. |
| DEF PREC | -66. | 33. | 71. | -5. | -151. | -274. | -206. | -127. | -43. | -21. | -68. | -214. | -1070. |
| DEP PREC | 148. | 78. | 65. | 102. | 199. | 288. | 253. | 204. | 152. | 144. | 166. | 233. | |
| MAI | 1.03 | 0.51 | 0.38 | 0.70 | 1.59 | 2.47 | 1.82 | 1.32 | 0.89 | 0.79 | 1.01 | 2.20 | |

HUMAITA LAT 7 31 LON 63 0 50. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 25.2 | 25.5 | 25.4 | 25.4 | 25.5 | 25.2 | 25.2 | 26.4 | 26.3 | 26.3 | 26.0 | 25.7 | 25.7 |
| MEAN R.H. | 93. | 93. | 91. | 88. | 76. | 65. | 64. | 66. | 80. | 88. | 87. | 94. | 82. |
| PCT SUN | 30. | 30. | 32. | 38. | 54. | 65. | 66. | 64. | 50. | 38. | 40. | 27. | 44. |
| MEAN RAD. | 388. | 388. | 393. | 395. | 432. | 448. | 462. | 494. | 475. | 434. | 447. | 366. | 427. |
| PRECIP. | 341. | 308. | 344. | 265. | 135. | 48. | 26. | 39. | 104. | 186. | 222. | 295. | 2317. |
| POT ET | 120. | 109. | 122. | 119. | 135. | 134. | 143. | 157. | 146. | 138. | 137. | 115. | 1573. |
| DEF PREC | -221. | -199. | -226. | -146. | -0. | 86. | 117. | 118. | 42. | -48. | -85. | -180. | -743. |
| DEP PREC | 279. | 242. | 276. | 205. | 95. | 21. | 2. | 13. | 68. | 138. | 169. | 231. | |
| MAI | 2.25 | 2.23 | 2.26 | 1.73 | 0.70 | 0.16 | 0.02 | 0.09 | 0.47 | 1.00 | 1.24 | 2.01 | |

IAUARETE LAT 0 18 LON 68 54 122. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 25.2 | 25.2 | 25.3 | 25.1 | 24.9 | 24.4 | 24.1 | 24.5 | 25.1 | 25.3 | 25.5 | 25.3 | 25.0 |
| MEAN R.H. | 88. | 89. | 91. | 92. | 91. | 90. | 89. | 86. | 79. | 84. | 85. | 84. | 87. |
| PCT SUN | 38. | 37. | 34. | 30. | 32. | 35. | 36. | 41. | 50. | 44. | 43. | 45. | 39. |
| MEAN RAD. | 411. | 414. | 400. | 367. | 361. | 361. | 372. | 419. | 484. | 459. | 439. | 438. | 410. |
| PRECIP. | 259. | 246. | 295. | 364. | 389. | 356. | 350. | 278. | 266. | 237. | 227. | 237. | 3504. |
| POT ET | 127. | 116. | 124. | 110. | 111. | 106. | 112. | 127. | 144. | 142. | 133. | 136. | 1488. |
| DEF PREC | -132. | -131. | -171. | -254. | -278. | -250. | -238. | -151. | -122. | -95. | -95. | -101. | -2016. |
| DEP PREC | 200. | 189. | 231. | 289. | 310. | 283. | 277. | 216. | 206. | 181. | 173. | 181. | |
| MAI | 1.58 | 1.64 | 1.86 | 2.64 | 2.80 | 2.67 | 2.47 | 1.70 | 1.43 | 1.28 | 1.31 | 1.33 | |

IBIPETUBA LAT 11 1 LON 44 31 434. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 24.6 | 24.6 | 24.6 | 24.5 | 23.4 | 21.9 | 21.5 | 22.3 | 24.9 | 26.3 | 25.5 | 24.8 | 24.1 |
| MEAN R.H. | 56. | 65. | 73. | 56. | 46. | 44. | 45. | 38. | 52. | 59. | 69. | 74. | 56. |
| PCT SUN | 73. | 65. | 57. | 73. | 81. | 83. | 82. | 87. | 76. | 71. | 61. | 56. | 72. |
| MEAN RAD. | 621. | 578. | 520. | 535. | 503. | 478. | 489. | 557. | 579. | 596. | 568. | 546. | 547. |
| PRECIP. | 125. | 145. | 136. | 73. | 12. | 1. | 1. | 1. | 7. | 53. | 159. | 198. | 910. |
| POT ET | 149. | 159. | 158. | 157. | 149. | 132. | 138. | 160. | 172. | 139. | 171. | 167. | 1942. |
| DEF PREC | 64. | 14. | 23. | 84. | 137. | 131. | 137. | 159. | 165. | 136. | 13. | -31. | 1032. |
| DEP PREC | 72. | 86. | 80. | 38. | 0. | 0. | 0. | 0. | 0. | 25. | 94. | 121. | |
| MAI | 0.39 | 0.54 | 0.50 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 | 0.55 | 0.72 | |

IMPERATRIZ LAT 5 32 LON 47 30 39. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 25.2 | 25.1 | 25.2 | 25.4 | 25.4 | 24.8 | 24.5 | 25.3 | 26.3 | 26.4 | 26.1 | 25.6 | 25.4 |
| MEAN R.H. | 86. | 87. | 89. | 81. | 69. | 56. | 51. | 51. | 67. | 72. | 80. | 83. | 73. |
| PCT SUN | 41. | 39. | 37. | 49. | 61. | 73. | 77. | 77. | 63. | 58. | 49. | 46. | 56. |
| MEAN RAD. | 449. | 439. | 418. | 453. | 469. | 487. | 512. | 553. | 538. | 533. | 490. | 468. | 484. |
| PRECIP. | 241. | 256. | 309. | 219. | 89. | 19. | 10. | 7. | 40. | 92. | 152. | 198. | 1632. |
| POT ET | 139. | 122. | 129. | 13[illegible]. | 146. | 144. | 156. | 171. | 165. | 170. | 150. | 146. | 1774. |
| DEF PREC | -102. | -134. | -180. | -83. | 57. | 125. | 146. | 164. | 125. | 78. | -2. | -52. | 142. |
| DEP PREC | 195. | 193. | 243. | 166. | 56. | 0. | 0. | 0. | 14. | 58. | 109. | 148. | |
| MAI | 1.33 | 1.62 | 1.5[illegible] | 1.[illegible]2 | 0.38 | 0.00 | 0.00 | 0.00 | 0.09 | 0.34 | 0.73 | 1.02 | |

IQUITOS LAT 3 45 LON 73 15 117. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 24.9 | 25.9 | 26.1 | 26.6 | 22.5 | 20.4 | 19.3 | 19.0 | 19.6 | 20.1 | 21.0 | 22.7 | 22.2 |
| MEAN R.H. | 99. | 99. | 98. | 99. | 99. | 99. | 99. | 98. | 98. | 98. | 98. | 99. | 98. |
| PCT SUN | 17. | 14. | 13. | 11. | 11. | 11. | 11. | 12. | 13. | 12. | 13. | 11. | 12. |
| MEAN RAD. | -415. | 420. | 402. | 390. | 380. | 370. | 375. | 390. | 404. | 408. | 412. | 395. | 229. |
| PRECIP. | 260. | 200. | 270. | 314. | 257. | 172. | 177. | 138. | 204. | 219. | 270. | 246. | 2727. |
| POT ET | 125. | 128. | 119. | 118. | 116. | 112. | 114. | 118. | 119. | 119. | 125. | 119. | 1433. |
| DEF PREC | -135. | - 72. | -151. | -196. | -141. | - 59. | -63. | - 20. | - 85. | -100. | -145. | -127. | -1294. |
| DEP PREC | 179. | 135. | 196. | 217. | 177. | 116. | 120. | 92. | 139. | 150. | 186. | 169. | |
| MAI | 1.43 | 1.06 | 1.56 | 1.84 | 1.53 | 1.03 | 1.05 | 0.78 | 1.17 | 1.26 | 1.49 | 1.42 | |

JUANJUI CORPAC LAT 7 6 LON 76 44 500. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 27.2 | 26.6 | 26.5 | 26.2 | 26.0 | 25.6 | 25.6 | 26.3 | 26.6 | 26.7 | 26.9 | 26.9 | 26.4 |
| MEAN R.H. | 75. | 73. | 79. | 80. | 79. | 76. | 73. | 74. | 76. | 76. | 76. | 75. | 76. |
| MEAN RAD. | 445. | 434. | 364. | 380. | 364. | 382. | 410. | 453. | 460. | 445. | 427. | 443. | 410. |
| PRECIP. | 108. | 136. | 146. | 195. | 120. | 64. | 57. | 54. | 98. | 157. | 143. | 116. | 1394. |
| POT ET | 141. | 129. | 115. | 116. | 114. | 11[illegible]. | 128. | 143. | 141. | 137. | 132. | 142.. | 1556. |
| DEF PREC | 35. | -7. | -31. | -79. | -6. | 51. | 71. | 89. | 43. | -20. | -11. | 26. | 126. |
| DEP PREC | 49. | 83. | 101. | 154. | 65. | 18. | 28. | 14. | 58. | 103. | 108. | 64. | |
| MAI | 0.34 | 0.65 | 0.88 | 1.33 | 0.57 | 0.16 | 0.22 | 0.09 | 0.41 | 0.75 | 0.82 | 0.45 | |

JUSEPIN LAT 9 45 LON 67 27 120. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 25.0 | 25.1 | 25.5 | 26.2 | 26.6 | 26.3 | 26.4 | 26.7 | 27.1 | 26.7 | 26.2 | 25.6 | 26.1 |
| MEAN R.H. | 75. | 67. | 67. | 79. | 78. | 80. | 75. | 73. | 76. | 74. | 75. | 75. | 74. |
| PCT SUN | 64. | 73. | 73. | 50. | 59. | 57. | 63. | 66. | 63. | 65. | 64. | 64. | 64. |
| MEAN RAD. | 476. | 530. | 518. | 483. | 439. | 404. | 438. | 490. | 479. | 510. | 475. | 474. | 476. |
| PRECIP. | 42. | 22. | 14. | 28. | 114. | 184. | 172. | 158. | 91. | 86. | 78. | 63. | 1052. |
| POT ET | 177. | 170. | 183. | 148. | 141. | 124. | 139. | 157. | 165. | 183. | 176. | 179. | 1943. |
| DEF PREC | 135. | 148. | 169. | 120. | 27. | -60. | -33. | -1. | 74. | 97. | 99. | 116. | 891. |
| DEP PREC | 19. | 3. | 0. | 8. | 75. | 129. | 119. | 109. | 57. | 53. | 47. | 35. | |
| MAI | 0.11 | 0.02 | 0.00 | [illegible] 05 | 0.53 | 1.04 | 0.86 | 0.69 | 0.34 | 0.29 | 0.26 | 0.29 | |

LUZIANIA LAT 16 15 LON 47 56 958. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 21.9 | 22.0 | 21.7 | 21.1 | 19.4 | 18.3 | 18.1 | 20.0 | 22.1 | 22.3 | 21.9 | 21.6 | 20.9 |
| MEAN R.H. | 72. | 78. | 79. | 61. | 52. | 41. | 38. | 43. | 63. | 75. | 79. | 87. | 64. |
| PCT SUN | 59. | 52. | 51. | 69. | 76. | 84. | 87. | 83. | 67. | 55. | 50. | 40. | 64. |
| MEAN RAD. | 574. | 523. | 481. | 495. | 452. | 440. | 461. | 512. | 526. | 529. | 527. | 475. | 500. |
| PRECIP. | 228. | 201. | 229. | 96. | 16. | 7. | 4. | 5. | 27. | 130. | 215. | 317. | 1475. |
| POT ET | 164. | 135. | 136. | 134. | 120. | 110. | 118. | 139. | 146. | 152. | 145. | 134. | 1632. |
| DEF PREC | -65. | -66. | -93. | 38. | 104. | 103. | 114. | 133. | 119. | 22. | -70. | -183. | 157. |
| DEP PREC | 141. | 123. | 142. | 53. | 0. | 0. | 0. | 0. | 7. | 76. | 132. | 200. | |
| MAI | 0.86 | 0.91 | 1.04 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.50 | 0.91 | 1.49 | |

MANAUS LAT 3 8 LON 60 1 48. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 25.9 | 25.8 | 25.8 | 25.8 | 26.4 | 26.6 | 26.9 | 27.5 | 27.9 | 27.7 | 27.3 | 26.7 | 26.7 |
| MEAN R.H. | 88. | 89. | 89. | 88. | 81. | 74. | 71. | 63. | 67. | 76. | 78. | 85. | 79. |
| PCT SUN | 38. | 36. | 37. | 33. | 48. | 56. | 59. | 67. | 63. | 54. | 51. | 43. | 49. |
| MEAN RAD. | 420. | 415. | 413. | 404. | 426. | 441. | 462. | 525. | 541. | 509. | 491. | 443. | 458. |
| PRECIP. | 276. | 277. | 301. | 287. | 193. | 99. | 61. | 41. | 62. | 112. | 165. | 228. | 2102. |
| POT ET | 132. | 118. | 131. | 123. | 135. | 136. | 149. | 172. | 173. | 167. | 155. | 142. | 1732. |
| DEF PREC | -144. | -160. | -170. | -164. | -58. | 37. | 88. | 131. | 111. | 55. | -11. | -86. | -370. |
| DEP PREC | [illegible] | 215. | 236. | 224. | 144. | 64. | 32. | 15. | 33. | 75. | 120. | 174. | |
| MAI | [illegible] | 1.83 | 1.80 | 1.82 | 1.06 | 0.47 | 0.22 | 0.09 | 0.19 | 0.45 | 0.78 | 1.22 | |

MARACAY LAT 10 15 LON 67 36 445. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 23.7 | 24.3 | 25.1 | 26.2 | 25.9 | 24.8 | 24.3 | 24.4 | 24.6 | 24.7 | 24.6 | 24.0 | 24.7 |
| MEAN R.H. | 69. | 68. | 65. | 79. | 79. | 79. | 76. | 75. | 73. | 75. | 76. | 71. | 74. |
| PCT SUN | 71. | 72. | 75. | 58. | 58. | 58. | 63. | 64. | 59. | 63. | 62. | 69. | 64. |
| MEAN RAD. | 508. | 527. | 524. | 479. | 432. | 405. | 433. | 430. | 461. | 502. | 470. | 500. | 477. |
| PRECIP. | 4. | 5. | 8. | 39. | 115. | 140. | 142. | 160. | 125. | 98. | 65. | 17. | 917. |
| POT ET | 191. | 166. | 183. | 147. | 136. | 120. | 131. | 146. | 151. | 172. | 168. | 180. | 1880. |
| DEF PREC | 177. | 161. | 175. | 106. | 21. | -20. | -11. | -14. | 26. | 74. | 103. | 163. | 963. |
| DEP PREC | 0. | 0. | 0. | 17. | 75. | 95. | 96. | 110. | 83. | 62. | 37. | 0. | |
| MAI | 0.00 | 0.00 | 0.00 | 0.11 | 0.55 | 0.79 | 0.73 | 0.76 | 0.55 | 0.36 | 0.22 | 0.00 | |

MATURIN LAT 9 45 LON 63 11 75. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 24.3 | 24.6 | 25.6 | 26.8 | 26.7 | 25.7 | 25.6 | 26.0 | 26.1 | 26.4 | 25.8 | 24.6 | 25.7 |
| MEAN R.H. | 76. | 67. | 64. | 71. | 77. | 81. | 76. | 73. | 74. | 72. | 76. | 80. | 74. |
| PCT SUN | 62. | 73. | 76. | 68. | 61. | 55. | 62. | 65. | 64. | 68. | 62. | 56. | 64. |
| MEAN RAD. | 466. | 530. | 530. | 522. | 445. | 399. | 435. | 489. | 485. | 522. | 469. | 441. | 478. |
| PRECIP. | 52. | 27. | 20. | 46. | 121. | 209. | 191. | 165. | 123. | 106. | [illegible] | 110. | 1274. |
| POT ET | 171. | 168. | 187. | 162. | 143. | 121. | 136. | 154. | 164. | 185. | 173. | [illegible] | 1929. |
| DEF PREC | 119. | 141. | 167. | 116. | 22. | -88. | -55. | -10. | 41. | 79. | 69. | 55. | 655. |
| DEP PREC | 27. | 7. | 2. | 22. | 80. | 148. | 134. | 114. | 81. | 68. | 67. | 71. | |
| MAI | 0.16 | 0.04 | 0.01 | 0.14 | 0.56 | 1.23 | 0.98 | 0.74 | 0.50 | 0.37 | 0.39 | 0.43 | |

294

MERURI LAT 15 43 LON 51 44 416. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 24.2 | 24.3 | 24.3 | 23.6 | 21.8 | 20.0 | 19.6 | 21.7 | 24.3 | 25.2 | 24.7 | 24.3 | 23.2 |
| MEAN R.H. | 84. | 87. | 81. | 69. | 61. | 52. | 47. | 52. | 71. | 79. | 83. | 87. | 71. |
| PCT SUN | 45. | 39. | 48. | 61. | 69. | 76. | 80. | 76. | 59. | 51. | 46. | 40. | 57. |
| MEAN RAD. | 499. | 455. | 470. | 467. | 434. | 421. | 447. | 494. | 497. | 507. | 501. | 476. | 472. |
| PRECIP. | 290. | 253. | 214. | 95. | 32. | 9. | 4. | 5. | 53. | 130. | 212. | 273. | 1570. |
| POT ET | 151. | 124. | 142. | 135. | 123. | 110. | 119. | 140. | 145. | 157. | 148. | 144. | 1639. |
| DEF PREC | -139. | -129. | -72. | 40. | 91. | 101. | 115. | 135. | 92. | 27. | -64. | -129. | 69. |
| DEP PREC | 206. | 177. | 145. | 52. | 3. | 0. | 0. | 0. | 19. | 80. | 145. | 193. | |
| MAI | 1.37 | 1.43 | 1.03 | 0.39 | 0.02 | 0.00 | 0.00 | 0.00 | 0.13 | 0.51 | 0.98 | 1.34 | |

MIRANDA LAT 10 9 LON 68 23 629. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 23.4 | 23.5 | 23.9 | 24.7 | 25.1 | 24.7 | 24.8 | 25.2 | 25.5 | 25.2 | 24.6 | 24.0 | 24.6 |
| MEAN R.H. | 70. | 69. | 67. | 82. | 86. | 81. | 78. | 75. | 77. | 77. | 78. | 73. | 76. |
| PCT SUN | 69. | 70. | 73. | 54. | 48. | 55. | 60. | 64. | 60. | 61. | 59. | 66. | 62. |
| MEAN RAD. | 500. | 521. | 519. | 463. | 392. | 394. | 423. | 480. | 468. | 492. | 455. | 485. | 466. |
| PRECIP. | 9. | 10. | 8. | 101. | 216. | 170. | 156. | 142. | 89. | 115. | 93. | 34. | 1147. |
| POT ET | 177. | 161. | 176. | 137. | 121. | 117. | 130. | 148. | 156. | 170. | 164. | 176. | 1833. |
| DEF PREC | 169. | 151. | 168. | 36. | -95. | -53. | -27. | 7. | 67. | 56. | 66. | 142. | 687. |
| DEP PREC | 0. | 0. | 0. | 64. | 153. | 118. | 107. | 96. | 56. | 75. | 62. | 13. | |
| MAI | 0.00 | 0.00 | 0.00 | 0.47 | 1.27 | 1.01 | 0.83 | 0.65 | 0.36 | 0.44 | 0.38 | 0.07 | |

MONTE ALEGRE MINAS LAT 18 52 LON 48 52 756. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 23.4 | 23.3 | 22.8 | 21.5 | 19.4 | 17.7 | 17.7 | 20.1 | 22.5 | 23.4 | 23.1 | 23.1 | 21.5 |
| MEAN R.H. | 81. | 75. | 72. | 62. | 53. | 46. | 43. | 47. | 71. | 79. | 81. | 86. | 66. |
| PCT SUN | 48. | 55. | 58. | 68. | 75. | 81. | 83. | 80. | 60. | 51. | 48. | 41. | 62. |
| MEAN RAD. | 528. | 541. | 508. | 479. | 431. | 409. | 430. | 487. | 489. | 506. | 523. | 489. | 485. |
| PRECIP. | 237. | 182. | 185. | 73. | 36. | 11. | 10. | 9. | 44. | 126. | 167. | 231. | 1310. |
| POT ET | 156. | 144. | 148. | 130. | 115. | 100. | 109. | 132. | 137. | 149. | 149. | 143. | 1612. |
| DEF PREC | -61. | -38. | -37. | 58. | 78. | 89. | 99. | 123. | 93. | 23. | -18. | -88. | 302. |
| DEP PREC | 165. | 121. | 123. | 35. | 6. | 0. | 0. | 0. | 12. | 77. | 109. | 160. | |
| MAI | 1.05 | 0.84 | 0.83 | 0.27 | 0.05 | 0.00 | 0.00 | 0.00 | 0.09 | 0.51 | 0.73 | 1.11 | |

MOYOBAMBA LAT 6 2 LON 76 58 860. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 22.8 | 22.1 | 22.4 | 22.3 | 22.4 | 21.8 | 22.0 | 22.6 | 22.5 | 22.8 | 23.3 | 23.4 | 22.5 |
| MEAN R.H. | 97. | 97. | 98. | 97. | 98. | 97. | 98. | 98. | 97. | 97. | 97. | 97. | 97. |
| PCT SUN | 16. | 16. | 15. | 15. | 14. | 15. | 14. | 14. | 15. | 17. | 17. | 16. | 15. |
| MEAN RAD. | 278. | 280. | 265. | 255. | 221. | 220. | 215. | 236. | 265. | 287. | 293. | 276. | 258. |
| PRECIP. | 148. | 149. | 174. | 185. | 154. | 76. | 78. | 79. | 140. | 180. | 142. | 96. | 1601. |
| POT ET | 81. | 72. | 76. | 71. | 64. | 60. | 61. | 68. | 74. | 84. | 84. | 81. | 878. |
| DEF PREC | -67. | -77. | -98. | -114. | -90. | -16. | -16. | -11. | -66. | -96. | -58. | -15. | -723. |
| DEP PREC | 99. | 100. | 118. | 125. | 103. | 48. | 49. | 50. | 93. | 122. | 95. | 62. | |
| MAI | 1.23 | 1.38 | 1.54 | 1.77 | 1.62 | .79 | .80 | .73 | 1.26 | 1.46 | 1.19 | .76 | |

PARACATU LAT 17 13 LON 46 52 698. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 23.6 | 23.4 | 23.3 | 22.4 | 20.1 | 18.7 | 18.8 | 20.8 | 23.2 | 24.2 | 23.4 | 22.9 | 22.1 |
| MEAN R.H. | 78. | 85. | 78. | 63. | 58. | 47. | 45. | 48. | 67. | 82. | 92. | 95. | 70. |
| PCT SUN | 52. | 43. | 51. | 67. | 71. | 80. | 82. | 79. | 63. | 47. | 32. | 26. | 58. |
| MEAN RAD. | 542. | 476. | 482. | 483. | 432. | 420. | 440. | 493. | 509. | 489. | 423. | 384. | 464. |
| PRECIP. | 502. | 440. | 329. | 171. | 32. | 26. | 3. | 4. | 52. | 196. | 438. | 658. | 2851. |
| POT ET | 161. | 127. | 142. | 135. | 117. | 106. | 115. | 136. | 145. | 148. | 121. | 112. | 1565. |
| DEF PREC | -341. | -313. | -187. | -36. | 85. | 80. | 112. | 132. | 93. | -48. | -317. | -546. | -1285. |
| DEP PREC | 323. | 282. | 208. | 103. | 11. | 6. | 0. | 0. | 24. | 120. | 280. | 427. | |
| MAI | 2.00 | 2.22 | 1.46 | 0.76 | 0.09 | 0.06 | 0.00 | 0.00 | 0.16 | 0.81 | 2.32 | 3.81 | |

PARANA LAT 12 33 LON 47 47 275. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 25.8 | 25.8 | 25.3 | 23.1 | 20.2 | 18.9 | 18.5 | 21.1 | 23.2 | 24.6 | 25.5 | 25.8 | 23.1 |
| MEAN R.H. | 82. | 81. | 74. | 69. | 54. | 38. | 36. | 41. | 68. | 69. | 83. | 85. | 65. |
| PCT SUN | 46. | 48. | 56. | 61. | 74. | 87. | 88. | 85. | 62. | 61. | 45. | 42. | 63. |
| MEAN RAD. | 500. | 502. | 510. | 481. | 473. | 476. | 495. | 541. | 518. | 554. | 491. | 477. | 502. |
| PRECIP. | 218. | 214. | 184. | 84. | 8. | 1. | 2. | 2. | 29. | 108. | 227. | 261. | 1338. |
| POT ET | 157. | 142. | 158. | 137. | 129. | 121. | 128. | 151. | 148. | 169. | 147. | 150. | 1736. |
| DEF PREC | -61. | -72. | -26. | 53. | 121. | 120. | 126. | 149. | 119. | 61. | -80. | -111. | 398. |
| DEP PREC | 149. | 146. | 123. | 44. | 0. | 0. | 0. | 0. | 0. | 63. | 157. | 184. | |
| MAI | 0.95 | 1.03 | 0.77 | 0.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.37 | 1.06 | 1.23 | |

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PARATINGA LAT 12 41 LON 43 11 422. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 25.8 | 25.7 | 25.8 | 25.9 | 25.1 | 24.4 | 24.3 | 25.6 | 27.5 | 28.3 | 26.4 | 25.6 | 25.9 |
| MEAN R.H. | 57. | 65. | 67. | 58. | 52. | 48. | 48. | 45. | 58. | 62. | 72. | 74. | 59. |
| PCT SUN | 72. | 65. | 63. | 72. | 76. | 79. | 79. | 82. | 72. | 68. | 58. | 56. | 70. |
| MEAN RAD. | 623. | 584. | 542. | 521. | 477. | 455. | 468. | 530. | 557. | 585. | 560. | 552. | 538. |
| PRECIP. | 107. | 129. | 115. | 41. | 12. | 0. | 1. | 0. | 8. | 42. | 149. | 153. | 757. |
| POT ET | 195. | 165. | 170. | 159. | 147. | 134. | 141. | 166. | 176. | 194. | 172. | 172. | 1992. |
| DEF PREC | 88. | 36. | 55. | 118. | 135. | 134. | 140. | 166. | 168. | 152. | 23. | 20. | 1236. |
| DEP PREC | 60. | 75. | 66. | 16. | 0. | 0. | 0. | 0. | 0. | 17. | 88. | 91. | |
| MAI | 0.31 | 0.45 | 0.39 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.51 | 0.53 | |

PARIAGUAN LAT 8 46 LON 64 44 126. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 26.2 | 26.9 | 27.3 | 27.6 | 26.9 | 26.1 | 25.7 | 25.5 | 25.3 | 26.3 | 26.2 | 26.0 | 26.3 |
| MEAN R.H. | 68. | 68. | 67. | 76. | 76. | 80. | 78. | 80. | 78. | 74. | 76. | 69. | 74. |
| PCT SUN | 72. | 72. | 73. | 62. | 63. | 56. | 60. | 57. | 59. | 65. | 63. | 70. | 64. |
| MEAN RAD. | 506. | 525. | 517. | 502. | 456. | 409. | 433. | 460. | 465. | 508. | 467. | 499. | 479. |
| PRECIP. | 7. | 3. | 7. | 45. | 95. | 170. | 200. | 280. | 170. | 130. | 101. | 27. | 1235. |
| POT ET | 192. | 176. | 191. | 159. | 147. | 125. | 136. | 143. | 154. | 180. | 174. | 189. | 1966. |
| DEF PREC | 185. | 173. | 183. | 114. | 52. | -45. | -64. | -136. | -15. | 51. | 73. | 162. | 732. |
| DEP PREC | 0. | 0. | 0. | 21. | 60. | 118. | 141. | 203. | 118. | 87. | 65. | 7. | |
| MAI | 0.00 | 0.00 | 0.00 | 0.13 | 0.41 | 0.94 | 1.04 | 1.41 | 0.76 | 0.48 | 0.37 | 0.04 | |

PARINTINS LAT 2 38 LON 56 44 29. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 27.3 | 27.0 | 27.0 | 27.2 | 27.4 | 27.4 | 27.6 | 28.3 | 28.7 | 28.9 | 29.1 | 28.3 | 27.8 |
| MEAN R.H. | 87. | 90. | 89. | 90. | 83. | 76. | 72. | 63. | 61. | 69. | 75. | 80. | 78. |
| PCT SUN | 39. | 35. | 37. | 35. | 46. | 54. | 58. | 67. | 69. | 61. | 55. | 49. | 51. |
| MEAN RAD. | 426. | 411. | 420. | 391. | 417. | 437. | 462. | 528. | 567. | 543. | 509. | 471. | 465. |
| PRECIP. | 232. | 310. | 386. | 344. | 264. | 165. | 117. | 63. | 52. | 58. | 104. | 166. | 2312. |
| POT ET | 139. | 120. | 135. | 123. | 136. | 138. | 151. | 175. | 184. | 183. | 167. | 156. | 1808. |
| DEF PREC | -144. | -190. | -251. | -221. | -128. | -27. | 35. | 113. | 132. | 125. | 63. | -10. | -504. |
| DEP PREC | 220. | 243. | 308. | 272. | 205. | 120. | 79. | 34. | 24. | 30. | 68. | 121. | |
| MAI | 1.59 | 2.03 | 2.27 | 2.22 | 1.50 | 0.87 | 0.52 | 0.19 | 0.13 | 0.16 | 0.41 | 0.78 | |

PIRAPORA LAT 17 21 LON 44 57 412. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 24.7 | 24.9 | 24.7 | 23.5 | 21.3 | 19.9 | 19.7 | 21.5 | 24.1 | 25.3 | 24.9 | 24.4 | 23.2 |
| MEAN R.H. | 69. | 73. | 73. | 66. | 61. | 55. | 53. | 54. | 71. | 76. | 82. | 85. | 68. |
| PCT SUN | 62. | 58. | 57. | 64. | 69. | 74. | 75. | 75. | 60. | 54. | 46. | 42. | 61. |
| MEAN RAD. | 592. | 554. | 510. | 471. | 423. | 403. | 421. | 479. | 495. | 520. | 509. | 493. | 489. |
| PRECIP. | 220. | 143. | 127. | 63. | 11. | 3. | 3. | 1. | 19. | 75. | 202. | 278. | 1145. |
| POT ET | 181. | 153. | 156. | 135. | 113. | 105. | 113. | 135. | 144. | 161. | 151. | 149. | 1703. |
| DEF PREC | -39. | 10. | 29. | 72. | 107. | 102. | 110. | 134. | 125. | 86. | -51. | -129. | 558. |
| DEP PREC | 135. | 84. | 74. | 31. | 0. | 0. | 0. | 0. | 2. | 39. | 123. | 174. | |
| MAI | 0.75 | 0.55 | 0.47 | 0.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.24 | 0.82 | 1.16 | |

PIRENPOLIS LAT 15 51 LON 48 58 740. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 22.6 | 22.5 | 22.5 | 22.2 | 20.7 | 19.4 | 19.4 | 21.6 | 23.4 | 23.4 | 22.6 | 22.3 | 21.9 |
| MEAN R.H. | 84. | 85. | 80. | 66. | 55. | 44. | 41. | 45. | 69. | 77. | 86. | 90. | 68. |
| PCT SUN | 44. | 43. | 49. | 64. | 74. | 83. | 85. | 81. | 61. | 53. | 41. | 36. | 59. |
| MEAN RAD. | 498. | 476. | 472. | 479. | 449. | 438. | 459. | 509. | 506. | 518. | 478. | 449. | 478. |
| PRECIP. | 245. | 250. | 241. | 135. | 28. | 5. | 2. | 5. | 45. | 164. | 238. | 337. | 1695. |
| POT ET | 144. | 124. | 137. | 133. | 124. | 113. | 122. | 144. | 145. | 153. | 134. | 129. | 1602. |
| DEF PREC | -101. | -126. | -104. | -2. | 96. | 108. | 120. | 139. | 100. | -11. | -104. | -208. | -93. |
| DEP PREC | 171. | 175. | 168. | 84. | 0. | 0. | 0. | 0. | 13. | 107. | 165. | 244. | |
| MAI | 1.18 | 1.41 | 1.23 | 0.63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.70 | 1.23 | 1.89 | |

PITANGUI LAT 19 41 LON 44 46 704. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 23.3 | 23.3 | 22.8 | 21.0 | 18.9 | 17.7 | 17.7 | 19.4 | 21.4 | 22.9 | 22.9 | 22.7 | 21.2 |
| MEAN R.H. | 74. | 79. | 77. | 73. | 67. | 63. | 60. | 60. | 78. | 82. | 84. | 89. | 74. |
| PCT SUN | 56. | 50. | 52. | 57. | 63. | 67. | 70. | 70. | 52. | 47. | 43. | 36. | 55. |
| MEAN RAD. | 568. | 517. | 481. | 435. | 389. | 366. | 387. | 447. | 455. | 486. | 497. | 460. | 457. |
| PRECIP. | 251. | 193. | 182. | 75. | 33. | 10. | 6. | 8. | 44. | 97. | 181. | 310. | 1390. |
| POT ET | 167. | 138. | 140. | 117. | 102. | 90. | 98. | 119. | 124. | 142. | 141. | 134. | 1511. |
| DEF PREC | -83. | -56 | -42. | 42. | 69. | 80. | 92. | 111. | 80. | 45. | -41. | -176. | 121. |
| DEP PREC | 156. | 119. | 110. | 39. | 11. | 0. | 0. | 0. | 13. | 54. | 110. | 195. | |
| MAI | 0.93 | 0.85 | 0.79 | 0.33 | 0.11 | 0.00 | 0.00 | 0.00 | 0.15 | 0.38 | 0.78 | 1.46 | |

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PORTO NACIONAL LAT 10 31 LON 48 43 237. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 25.3 | 25.3 | 25.4 | 26.0 | 25.8 | 24.8 | 24.8 | 26.4 | 27.9 | 27.0 | 25.9 | 25.5 | 25.8 |
| MEAN R.H. | 85. | 84. | 85. | 73. | 54. | 41. | 38. | 42. | 68. | 81. | 87. | 88. | 69. |
| PCT SUN | 43. | 44. | 42. | 57. | 75. | 85. | 86. | 84. | 63. | 48. | 40. | 39. | 59. |
| MEAN RAD. | 475. | 477. | 445. | 473. | 488. | 488. | 506. | 549. | 526. | 490. | 459. | 450. | 485. |
| PRECIP. | 274. | 229. | 273. | 150. | 36. | 1. | 2. | 3. | 35. | 142. | 233. | 284. | 1662. |
| POT ET | 147. | 133. | 138. | 144. | 153. | 144. | 155. | 175. | 168. | 158. | 140. | 140. | 1796. |
| DEF PREC | -127. | -96. | -135. | -6. | 117. | 143. | 153. | 172. | 133. | 16. | -93. | -144. | 133. |
| DEP PREC | 194. | 158. | 193. | 96. | 6. | 0. | 0. | 0. | 5. | 89. | 161. | 202. | |
| MAI | 1.32 | 1.19 | 1.40 | 0.66 | 0.04 | 0.00 | 0.00 | 0.00 | 0.03 | 0.57 | 1.16 | 1.44 | |

PORTO VELHO LAT 8 46 LON 63 55 128. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 26.2 | 26.2 | 26.2 | 26.4 | 25.9 | 25.6 | 25.4 | 26.2 | 26.8 | 26.6 | 26.8 | 26.3 | 26.2 |
| MEAN R.H. | 94. | 93. | 89. | 88. | 73. | 62. | 62. | 67. | 80. | 90. | 87. | 95. | 82. |
| PCT SUN | 27. | 29. | 36. | 38. | 57. | 68. | 68. | 63. | 49. | 36. | 40. | 24. | 45. |
| MEAN RAD. | 369. | 354. | 415. | 394. | 435. | 450. | 460. | 486. | 471. | 421. | 450. | 346. | 424. |
| PRECIP. | 389. | 303. | 320. | 233. | 106. | 36. | 13. | 33. | 120. | 188. | 205. | 285. | 2232. |
| POT ET | 117. | 110. | 131. | 121. | 137. | 136. | 143. | 154. | 146. | 135. | 140. | 110. | 1581. |
| DEF PREC | -272. | -193. | -188. | -112. | 31. | 100. | 130. | 122. | 26. | -53. | -65. | -176. | -651. |
| DEP PREC | 310. | 238. | 251. | 178. | 70. | 11. | 0. | 8. | 82. | 140. | 154. | 223. | |
| MAI | 2.65 | 2.16 | 1.91 | 1.47 | 0.51 | 0.08 | 0.00 | 0.05 | 0.56 | 1.04 | 1.10 | 2.02 | |

PRESIDENTE HURTINHO LAT 15 38 LON 53 55 552. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 23.2 | 23.3 | 23.4 | 22.8 | 20.8 | 18.8 | 18.4 | 20.6 | 22.9 | 23.8 | 23.4 | 23.3 | 22.0 |
| MEAN R.H. | 86. | 91. | 87. | 72. | 65. | 59. | 53. | 57. | 74. | 74. | 87. | 90. | 74. |
| PCT SUN | 40. | 34. | 39. | 58. | 65. | 71. | 76. | 72. | 56. | 56. | 40. | 34. | 54. |
| MEAN RAD. | 476. | 423. | 424. | 458. | 423. | 407. | 436. | 480. | 487. | 533. | 471. | 441. | 455. |
| PRECIP. | 311. | 271. | 261. | 127. | 43. | 9. | 6. | 7. | 55. | 161. | 250. | 276. | 1777. |
| POT ET | 140. | 113. | 125. | 123. | 117. | 103. | 113. | 132. | 137. | 159. | 135. | 130. | 1533. |
| DEF PREC | -171. | -158. | -136. | 2. | 74. | 94. | 107. | 125. | 82. | -2. | -115. | -146. | -244. |
| DEP PREC | 223. | 191. | 186. | 78. | 11. | 0. | 0. | 0. | 21. | 105. | 175. | 195. | |
| MAI | 1.59 | 1.70 | 1.47 | 0.60 | 0.10 | 0.00 | 0.00 | 0.00 | 0.15 | 0.66 | 1.30 | 1.50 | |

PUCALLPA LAT 8 25 LON 74 37 148. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 27.6 | 26.8 | 26.7 | 26.4 | 26.8 | 26.0 | 26.0 | 27.1 | 27.5 | 27.3 | 27.3 | 27.7 | 26.9 |
| MEAN R.H. | 98. | 97. | 98. | 98. | 98. | 98. | 98. | 98. | 98. | 98. | 98. | 98. | 98. |
| PCT SUN | 13. | 15. | 14. | 14. | 12. | 14. | 13. | 12. | 14. | 15. | 14. | 13. | 14. |
| MEAN RAD. | 260. | 277. | 260. | 240. | 205. | 206. | 205. | 216. | 251. | 269. | 270. | 256. | 243. |
| PRECIP. | 142. | 166. | 190. | 190. | 148. | 102. | 36. | 74. | 109. | 190. | 229. | 132. | 1708. |
| POT ET | 85. | 80. | 83. | 74. | 66. | 63. | 65. | 70. | 79. | 88. | 85. | 84. | 921. |
| DEF PREC | -57. | -86. | -107. | -116. | -82. | -39. | 29. | -4. | -30. | -102. | -144. | -48. | -787. |
| DEP PREC | 99. | 112. | 129. | 129. | 99. | 66. | 19. | 46. | 71. | 129. | 157. | 88. | |
| MAI | 1.12 | 1.40 | 1.55 | 1.75 | 1.51 | 1.06 | .30 | .66 | .90 | 1.47 | 1.85 | 1.05 | |

PUERTO MALDONADO LAT 12 36 LON 69 12 200. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 26.8 | 26.7 | 26.3 | 26.5 | 25.8 | 25.0 | 24.2 | 27.2 | 28.0 | 27.2 | 27.2 | 26.8 | 26.5 |
| MEAN R.H. | 98. | 97. | 98. | 98. | 98. | 98. | 99. | 99. | 98. | 98. | 98. | 98. | 98. |
| PCT SUN | 14. | 15. | 13. | 13. | 12. | 12. | 11. | 11. | 14. | 13. | 15. | 13. | 13. |
| MEAN RAD. | 272. | 279. | 250. | 226. | 189. | 180. | 178. | 198. | 246. | 257. | 279. | 265. | 235. |
| PRECIP. | 287. | 248. | 287. | 176. | 143. | 37. | 60. | 54. | 80. | 112. | 137. | 304. | 1925. |
| POT ET | 87. | 91. | 79. | 70. | 59. | 54. | 54. | 64. | 79. | 84. | 88. | 85. | 883. |
| DEF PREC | -200. | -167. | -208. | 106. | -84. | 17. | -6. | 10. | -1. | -28. | -49. | -219. | -1042. |
| DEP PREC | 198. | 170. | 198. | 119. | 96. | 20. | 36. | 32. | 51. | 73. | 91. | 210. | |
| MAI | 2.27 | 2.11 | 2.50 | 1.71 | 1.61 | .38 | .68 | .50 | .64 | .88 | 1.04 | 2.48 | |

QUINCEMIL LAT 13 16 LON 70 40 620. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 22.8 | 22.1 | 22.4 | 22.3 | 22.4 | 21.8 | 22.0 | 22.6 | 22.5 | 22.8 | 23.3 | 23.4 | 22.5 |
| MEAN R.H. | 98. | 97. | 98. | 98. | 98. | 98. | 99. | 99. | 98. | 98. | 98. | 98. | 98. |
| PCT SUN | 14. | 15. | 13. | 13. | 12. | 12. | 11. | 11. | 14. | 13. | 15. | 13. | 13. |
| MEAN RAD. | 273. | 279. | 249. | 224. | 187. | 179. | 176. | 197. | 245. | 257. | 280. | 265. | 234. |
| PRECIP. | 739. | 301. | 472. | 430. | 406. | 424. | 326. | 240. | 252. | 529. | 531. | 668. | 5368. |
| POT ET | 80. | 72. | 72. | 62. | 54. | 49. | 50. | 57. | 69. | 75. | 80. | 78. | 799. |
| DEF PREC | -659. | -229. | -400. | -418. | -352. | -375. | -276. | -183. | -183. | -454. | -451. | -590. | -4569. |
| DEP PREC | 520. | 208. | 330. | 336. | 283. | 296. | 226. | 165. | 173. | 370. | 372. | 469. | |
| MAI | 6.54 | 2.88 | 4.59 | 5.37 | 5.24 | 6.02 | 4.49 | 2.89 | 2.52 | 4.94 | 4.66 | 5.98 | |

RIBERALTA LAT 11 0 LON 66 5 172. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 26.8 | 26.7 | 26.8 | 26.6 | 26.1 | 25.6 | 25.6 | 27.5 | 28.6 | 27.9 | 27.6 | 27.0 | 26.9 |
| PCT SUN | 22. | 31. | 29. | 22. | 36. | 54. | 49. | 49. | 33. | 29. | 26. | 23. | 34. |
| MEAN RAD. | 340. | 400. | 370. | 295. | 345. | 385. | 380. | 420. | 380. | 385. | 370. | 350. | 368. |
| PRECIP. | 242. | 247. | 256. | 148. | 81. | 30. | 13. | 20. | 59. | 131. | 157. | 265. | 1649. |
| POT ET | 109. | 116. | 119. | 91. | 109. | 116. | 119. | 137. | 123. | 127. | 117. | 113. | 1397. |
| DEF PREC | -133. | -131. | -137. | -57. | 28. | 86. | 106. | 117. | 64. | -4. | -40. | -152. | -252. |
| DEP PREC | 157. | 160. | 167. | 92. | 46. | 11. | 0. | 4. | 31. | 81. | 98. | 173. | |
| MAI | 1.44 | 1.39 | 1.40 | 1.01 | 0.42 | 0.09 | 0.00 | 0.03 | 0.25 | 0.63 | 0.84 | 1.53 | |

RURRENABAQUE LAT 14 25 LON 67 35 227. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 26.8 | 26.9 | 26.5 | 24.0 | 24.6 | 23.0 | 22.6 | 24.6 | 26.8 | 27.3 | 27.5 | 27.2 | 25.6 |
| PCT SUN | 30. | 47. | 35. | 29. | 42. | 53. | 54. | 50. | 38. | 37. | 35. | 38. | 41. |
| MEAN RAD. | 410. | 495. | 405. | 325. | 345. | 360. | 375. | 405. | 400. | 435. | 440. | 460. | 405. |
| PRECIP. | 275. | 279. | 206. | 111. | 104. | 120. | 93. | 56. | 73. | 112. | 150. | 228. | 1807. |
| POT ET | 132. | 144. | 129. | 94. | 105. | 102. | 109. | 123. | 124. | 141. | 139. | 149. | 1493. |
| DEF PREC | -143. | -135. | -77. | -17. | 1. | -18. | 16. | 68. | 51. | 29. | -11. | -79. | -314. |
| DEP PREC | 180. | 183. | 132. | 67. | 62. | 73. | 54. | 29. | 40. | 67. | 94. | 147. | |
| MAI | 1.37 | 1.27 | 1.02 | 0.71 | 0.59 | 0.71 | 0.50 | 0.23 | 0.33 | 0.48 | 0.67 | 0.99 | |

SAN BORJA LAT 14 49 LON 66 35 226. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 26.8 | 26.5 | 23.7 | 26.1 | 22.1 | 23.0 | 22.7 | 24.9 | 26.9 | 27.9 | 25.3 | 27.1 | 25.3 |
| PCT SUN | 29. | 40. | 40. | 38. | 45. | 63. | 57. | 39. | 40. | 39. | 40. | 40. | 42. |
| MEAN RAD. | 400. | 460. | 430. | 375. | 355. | 390. | 385. | 355. | 410. | 445. | 470. | 470. | 412. |
| PRECIP. | 298. | 258. | 209. | 123. | 98. | 79. | 65. | 46. | 63. | 128. | 134. | 225. | 1726. |
| POT ET | 128. | 133. | 128. | 115. | 102. | 110. | 112. | 109. | 128. | 147. | 141. | 152. | 1504. |
| DEF PREC | -170. | -126. | -81. | -8. | 4. | 31. | 47. | 63. | 65. | 19. | 7. | -73. | -222. |
| DEP PREC | 196. | 168. | 134. | 75. | 58. | 45. | 35. | 22. | 34. | 78. | 83. | 145. | |
| MAI | 1.52 | 1.27 | 1.05 | 0.65 | 0.57 | 0.40 | 0.31 | 0.20 | 0.26 | 0.53 | 0.59 | 0.95 | |

SAN CARLOS RIO NEG LAT 1 54 LON 67 3 65. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 27.2 | 27.5 | 27.9 | 27.0 | 26.8 | 26.4 | 26.2 | 26.6 | 27.5 | 27.5 | 27.7 | 27.2 | 27.1 |
| MEAN R.H. | 94. | 81. | 83. | 93. | 93. | 93. | 88. | 84. | 84. | 81. | 82. | 85. | 87. |
| PCT SUN | 32. | 55. | 52. | 32. | 33. | 34. | 44. | 50. | 51. | 55. | 53. | 47. | 45. |
| MEAN RAD. | 279. | 431. | 430. | 378. | 358. | 350. | 405. | 458. | 437. | 455. | 396. | 359. | 395. |
| PRECIP. | 207. | 225. | 216. | 379. | 399. | 391. | 338. | 327. | 249. | 257. | 313. | 219. | 3520. |
| POT ET | 123. | 151. | 165. | 118. | 115. | 108. | 128. | 147. | 154. | 158. | 153. | 149. | 1683. |
| DEF PREC | -83. | -74. | -52. | -261. | -284. | -284. | -210. | -181. | -95. | -99. | -156. | -70. | -1837. |
| DEP PREC | 146. | 160. | 154. | 279. | 295. | 289. | 248. | 239. | 179. | 185. | 229. | 155. | |
| MAI | 1.19 | 1.06 | 0.93 | 2.37 | 2.57 | 2.68 | 1.93 | 1.63 | 1.16 | 1.10 | 1.45 | 1.04 | |

SAN FERNANDO LAT 7 54 LON 67 28 73. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 27.1 | 27.7 | 28.6 | 28.7 | 27.2 | 26.3 | 26.3 | 26.6 | 27.3 | 27.8 | 27.7 | 27.3 | 27.4 |
| MEAN R.H. | 66. | 69. | 71. | 83. | 82. | 84. | 82. | 80. | 79. | 76. | 72. | 66. | 76. |
| PCT SUN | 74. | 71. | 68. | 53. | 54. | 51. | 54. | 56. | 58. | 62. | 67. | 74. | 62. |
| MEAN RAD. | 510. | 519. | 499. | 464. | 430. | 394. | 415. | 461. | 460. | 496. | 482. | 509. | 470. |
| PRECIP. | 1. | 4. | 21. | 80. | 171. | 240. | 280. | 237. | 158. | 133. | 45. | 11. | 1432. |
| POT ET | 198. | 178. | 190. | 151. | 140. | 121. | 132. | 148. | 160. | 183. | 185. | 198. | 1983. |
| DEF PREC | 197. | 174. | 169. | 71. | -31. | -118. | -148. | -140. | 2. | 50. | 140. | 187. | 551. |
| DEP PREC | 0. | 0. | 3. | 48. | 119. | 172. | 203. | 208. | 109. | 89. | 21. | 0. | |
| MAI | 0.00 | 0.00 | 0.02 | 0.32 | 0.85 | 1.42 | 1.54 | 1.41 | 0.68 | 0.49 | 0.11 | 0.00 | |

SAN IGNACIO LAT 16 22 LON 60 58 335. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 25.6 | 25.4 | 24.9 | 23.4 | 21.6 | 20.0 | 19.6 | 22.0 | 25.2 | 26.3 | 26.6 | 26.2 | 23.9 |
| PCT SUN | 28. | 37. | 36. | 36. | 47. | 57. | 58. | 52. | 38. | 37. | 33. | 36. | 41. |
| MEAN RAD. | 400. | 440. | 405. | 355. | 355. | 360. | 375. | 405. | 395. | 435. | 430. | 450. | 400. |
| PRECIP. | 196. | 208. | 156. | 69. | 66. | 34. | 19. | 24. | 53. | 93. | 121. | 149. | 1188. |
| POT ET | 125. | 124. | 124. | 102. | 100. | 94. | 100. | 116. | 118. | 138. | 133. | 143. | 1417. |
| DEF PREC | -71. | -84. | -32. | 32. | 34. | 60. | 81. | 92. | 65. | 45. | 12. | -6. | 229. |
| DEP PREC | 125. | 134. | 98. | 38. | 36. | 14. | 3. | 7. | 27. | 54. | 74. | 93. | |
| MAI | 1.00 | 1.08 | 0.79 | 0.37 | 0.36 | 0.14 | 0.03 | 0.06 | 0.23 | 0.39 | 0.55 | 0.65 | |

SAN JOQUIN LAT 13 4 LON 64 48 202. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 26.5 | 26.8 | 27.1 | 27.5 | 26.2 | 24.5 | 24.8 | 24.4 | 26.5 | 26.8 | 27.2 | 27.3 | 26.3 |
| PCT SUN | 25. | 34. | 33. | 26. | 40. | 53. | 51. | 49. | 35. | 34. | 33. | 36. | 37. |
| MEAN RAD. | 370. | 420. | 390. | 315. | 345. | 370. | 375. | 410. | 390. | 415. | 420. | 440. | 388. |
| PRECIP. | 173. | 223. | 184. | 121. | 64. | 47. | 12. | 0. | 130. | 134. | 185. | 213. | 1487. |
| POT ET | 118. | 122. | 126. | 100. | 109. | 109. | 115. | 124. | 120. | 133. | 132. | 143. | 1452. |
| DEF PREC | -55. | -101. | -58. | -21. | 46. | 61. | 102. | 124. | -9. | -1. | -55. | -70. | -35. |
| DEP PREC | 109. | 144. | 117. | 74. | 34. | 23. | 0. | 0. | 79. | 83. | 118. | 137. | |
| MAI | 0.93 | 1.18 | 0.93 | 0.74 | 0.31 | 0.21 | 0.00 | 0.00 | 0.66 | 0.62 | 0.89 | 0.96 | |

SAN JOSE LAT 17 47 LON 60 47 297. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 27.0 | 26.7 | 26.3 | 25.1 | 23.1 | 21.0 | 21.3 | 23.7 | 26.3 | 27.2 | 27.5 | 27.4 | 25.2 |
| PCT SUN | 28. | 36. | 36. | 37. | 49. | 60. | 61. | 54. | 38. | 37. | 33. | 35. | 42. |
| MEAN RAD. | 400. | 440. | 405. | 355. | 355. | 360. | 375. | 405. | 395. | 435. | 430. | 450. | 400. |
| PRECIP. | 157. | 157. | 114. | 48. | 56. | 26. | 14. | 12. | 30. | 62. | 92. | 121. | 909. |
| POT ET | 129. | 127. | 129. | 106. | 104. | 97. | 105. | 121. | 121. | 141. | 136. | 147. | 1463. |
| DEF PREC | -26. | -30. | 14. | 58. | 48. | 51. | 91. | 109. | 91. | 79. | 44. | 26. | 554. |
| DEP PREC | 98. | 98. | 69. | 23. | 29. | 22. | 0. | 0. | 11. | 33. | 54. | 74. | |
| MAI | 0.76 | 0.77 | 0.54 | 0.22 | 0.27 | 0.23 | 0.00 | 0.00 | 0.09 | 0.23 | 0.39 | 0.50 | |

SAN TOME LAT 8 57 LON 64 8 269. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 26.3 | 26.1 | 27.4 | 28.3 | 27.4 | 26.8 | 26.8 | 27.1 | 27.6 | 27.9 | 27.2 | 26.5 | 27.1 |
| MEAN R.H. | 71. | 69. | 68. | 76. | 77. | 83. | 79. | 79. | 79. | 74. | 76. | 72. | 75. |
| PCT SUN | 68. | 71. | 72. | 62. | 61. | 52. | 58. | 58. | 58. | 65. | 63. | 67. | 63. |
| MEAN RAD. | 491. | 520. | 515. | 500. | 450. | 393. | 425. | 465. | 460. | 509. | 469. | 495. | 473. |
| PRECIP. | 22. | 16. | 7. | 25. | 110. | 217. | 211. | 247. | 181. | 132. | 84. | 46. | 1298. |
| POT ET | 189. | 171. | 191. | 161. | 147. | 122. | 136. | 151. | 162. | 187. | 178. | 196. | 1980. |
| DEF PREC | 166. | 155. | 184. | 136. | 37. | -95. | -75. | -96. | -20. | 55. | 95. | 140. | 682. |
| DEP PREC | 3. | 0. | 0. | 6. | 71. | 154. | 150. | 177. | 127. | 89. | 51. | 22. | |
| MAI | 0.02 | 0.00 | 0.00 | 0.04 | 0.49 | 1.26 | 1.10 | 1.18 | 0.78 | 0.47 | 0.29 | 0.12 | |

SANTA ANA LAT 13 45 LON 65 35 220. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 27.1 | 27.5 | 27.7 | 27.6 | 25.6 | 23.9 | 23.9 | 25.5 | 27.6 | 27.7 | 27.6 | 25.3 | 26.4 |
| PCT SUN | 25. | 34. | 33. | 27. | 41. | 54. | 53. | 50. | 35. | 34. | 33. | 35. | 38. |
| MEAN RAD. | 370. | 420. | 390. | 315. | 345. | 370. | 375. | 410. | 390. | 415. | 420. | 440. | 388. |
| PRECIP. | 241. | 226. | 214. | 141. | 77. | 38. | 25. | 39. | 75. | 151. | 176. | 230. | 1633. |
| POT ET | 129. | 124. | 128. | 110. | 108. | 107. | 112. | 126. | 124. | 136. | 133. | 136. | 1456. |
| DEF PREC | -121. | -102. | -86. | -41. | 31. | 69. | 87. | 89. | 49. | -15. | -43. | -94. | -177. |
| DEP PREC | 156. | 146. | 138. | 87. | 43. | 16. | 7. | 17. | 42. | 94. | 112. | 149. | |
| MAI | 1.31 | 1.18 | 1.08 | 0.87 | 0.40 | 0.15 | 0.06 | 0.13 | 0.34 | 0.69 | 0.84 | 1.09 | |

SANTA CRUZ LAT 17 47 LON 63 11 437. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 26.7 | 26.7 | 26.1 | 24.3 | 22.1 | 20.2 | 20.4 | 23.1 | 25.5 | 26.4 | 27.2 | 27.3 | 24.7 |
| PCT SUN | 29. | 40. | 39. | 41. | 47. | 62. | 57. | 53. | 51. | 38. | 41. | 37. | 45. |
| MEAN RAD. | 410. | 460. | 420. | 375. | 345. | 365. | 365. | 400. | 455. | 440. | 480. | 465. | 415. |
| PRECIP. | 175. | 126. | 99. | 101. | 67. | 67. | 45. | 30. | 61. | 93. | 118. | 146. | 1128. |
| PUT ET | 131. | 133. | 133. | 110. | 99. | 96. | 100. | 117. | 137. | 140. | 151. | 151. | 1499. |
| DEF PREC | -44. | 7. | 34. | 9. | 32. | 29. | 55. | 87. | 76. | 47. | 33. | 5. | 370. |
| DEP PREC | 111. | 77. | 58. | 60. | 36. | 36. | 21. | 11. | 32. | 54. | 72. | 91. | |
| MAI | 0.84 | 0.58 | 0.44 | 0.55 | 0.37 | 0.38 | 0.21 | 0.09 | 0.23 | 0.39 | 0.47 | 0.60 | |

SANTA ELENA LAT 4 36 LON 61 7 907. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 21.6 | 21.9 | 22.4 | 22.3 | 22.0 | 21.4 | 21.1 | 21.5 | 21.9 | 22.1 | 22.0 | 21.7 | 21.8 |
| MEAN R.H. | 79. | 79. | 76. | 84. | 85. | 89. | 86. | 80. | 75. | 72. | 78. | 79. | 80. |
| PCT SUN | 58. | 59. | 62. | 50. | 49. | 42. | 47. | 57. | 64. | .67. | 59. | 55. | 56. |
| MEAN RAD. | 425. | 456. | 473. | 464. | 425. | 373. | 405. | 479. | 493. | 511. | 434. | 421. | 447. |
| PRECIP. | 68. | 72. | 79. | 131. | 229. | 242. | 216. | 165. | 116. | 108. | 106. | 117. | 1649. |
| POT ET | 148. | 138. | 157. | 129. | 121. | 101. | 113. | 135. | 150. | 163. | 147. | 148. | 1651. |
| DEF PREC | 80. | 66. | 78. | -2. | -103. | -141. | -103. | -30. | 33. | 56. | 42. | 31. | 1. |
| DEP PREC | 39. | 42. | 47. | 88. | 164. | 174. | 153. | 114. | 76. | 70. | 68. | 77. | |
| MAI | 0.26 | 0.30 | 0.30 | 0.68 | 1.35 | 1.71 | 1.36 | 0.85 | 0.51 | 0.43 | 0.46 | 0.52 | |

SAO GABRIEL RIO NC LAT 0 8 LON 67 5 85. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 25.5 | 25.8 | 25.6 | 25.4 | 25.1 | 24.7 | 24.3 | 25.0 | 25.5 | 25.8 | 26.1 | 25.7 | 25.4 |
| MEAN R.H. | 88. | 87. | 89. | 90. | 90. | 87. | 86. | 79. | 77. | 78. | 80. | 83. | 85. |
| PCT SUN | 38. | 39. | 36. | 35. | 35. | 39. | 41. | 51. | 53. | 51. | 49. | 45. | 43. |
| MEAN RAD. | 409. | 427. | 412. | 398. | 376. | 383. | 398. | 466. | 498. | 492. | 469. | 430. | 431. |
| PRECIP. | 284. | 216. | 283. | 263. | 329. | 245. | 234. | 186. | 160. | 164. | 190. | 270. | 2823. |
| POT ET | 128. | 121. | 129. | 120. | 116. | 113. | 120. | 143. | 150. | 154. | 143. | 137. | 1575. |
| DEF PREC | -156. | -95. | -155. | -143. | -213. | -131. | -113. | -43. | -10. | -9. | -47. | -133. | -1248. |
| DEP PREC | 221. | 163. | 221. | 203. | 259. | 198. | 179. | 138. | 116. | 119. | 142. | 209. | |
| MAI | 1.73 | 1.35 | 1.72 | 1.70 | 2.24 | 1.66 | 1.48 | 0.96 | 0.77 | 0.77 | 0.99 | 1.53 | |

SENA MADUREIRA LAT 9 8 LON 68 40 135. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 25.4 | 25.3 | 25.2 | 24.9 | 24.0 | 23.3 | 23.1 | 23.7 | 25.7 | 25.2 | 24.5 | 25.5 | 24.6 |
| MEAN R.H. | 94. | 93. | 90. | 88. | 75. | 64. | 65. | 71. | 86. | 91. | 83. | 97. | 83. |
| PCT SUN | 27. | 28. | 35. | 38. | 55. | 66. | 65. | 59. | 42. | 33. | 46. | 20. | 43. |
| MEAN RAD. | 376. | 389. | 405. | 389. | 426. | 440. | 447. | 468. | 432. | 408. | 485. | 322. | 415. |
| PRECIP. | 316. | 285. | 266. | 231. | 125. | 66. | 36. | 45. | 126. | 173. | 193. | 274. | 2139. |
| POT ET | 117. | 106. | 125. | 116. | 128. | 125. | 131. | 140. | 131. | 126. | 143. | 100. | 1488. |
| DEF PREC | -200. | -179. | -141. | -116. | 3. | 59. | 95. | 94. | 5. | -47. | -51. | -174. | -651. |
| DEP PREC | 249. | 223. | 206. | 176. | 86. | 36. | 11. | 19. | 87. | 127. | 144. | 213. | |
| MAI | 2.13 | 2.09 | 1.65 | 1.53 | 0.67 | 0.29 | 0.08 | 0.13 | 0.67 | 1.01 | 1.01 | 2.12 | |

SOURE LAT 0 40 LON 48 33 11. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 26.8 | 25.9 | 26.0 | 26.3 | 26.6 | 26.7 | 26.6 | 27.1 | 27.5 | 27.9 | 28.0 | 27.7 | 26.9 |
| MEAN R.H. | 84. | 95. | 95. | 93. | 82. | 75. | 69. | 58. | 56. | 57. | 63. | 68. | 75. |
| PCT SUN | 44. | 24. | 24. | 30. | 46. | 55. | 61. | 71. | 73. | 72. | 67. | 62. | 52. |
| MEAN RAD. | 440. | 335. | 335. | 363. | 428. | 450. | 482. | 551. | 583. | 586. | 550. | 521. | 469. |
| PRECIP. | 300. | 579. | 627. | 556. | 288. | 170. | 150. | 84. | 35. | 17. | 16. | 95. | 2918. |
| POT ET | 141. | 95. | 106. | 111. | 137. | 140. | 154. | 178. | 184. | 193. | 177. | 171. | 1787. |
| DEF PREC | -159. | -484. | -522. | -445. | -151. | -31. | 4. | 94. | 150. | 176. | 160. | 76. | -1131. |
| DEP PREC | 235. | 472. | 513. | 452. | 225. | 125. | 107. | 52. | 10. | 0. | 0. | 61. | |
| MAI | 1.66 | 4.95 | 4.85 | 4.06 | 1.64 | 0.89 | 0.70 | 0.29 | 0.05 | 0.00 | 0.00 | 0.36 | |

TAPERINHA-SANTAREM LAT 2 25 LON 54 42 20. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 25.8 | 25.5 | 25.5 | 25.6 | 25.6 | 25.4 | 25.4 | 26.2 | 26.7 | 27.0 | 26.9 | 26.5 | 26.0 |
| MEAN R.H. | 84. | 88. | 91. | 89. | 83. | 75. | 70. | 60. | 67. | 67. | 71. | 77. | 77. |
| PCT SUN | 45. | 38. | 34. | 37. | 46. | 55. | 60. | 70. | 63. | 63. | 59. | 53. | 52. |
| MEAN RAD. | 452. | 426. | 402. | 403. | 419. | 442. | 471. | 539. | 543. | 553. | 526. | 487. | 472. |
| PRECIP. | 179. | 275. | 358. | 362. | 293. | 174. | 112. | 50. | 39. | 46. | 85. | 123. | 2096. |
| POT ET | 142. | 120. | 125. | 122. | 131. | 133. | 147. | 171. | 168. | 178. | 164. | 155. | 1756. |
| DEF PREC | -37. | -155. | -233. | -240. | -162. | -41. | 35. | 121. | 129. | 132. | 79. | 32. | -340. |
| DEP PREC | 132. | 214. | 284. | 287. | 229. | 128. | 75. | 23. | 13. | 19. | 52. | 85. | |
| MAI | 0.93 | 1.78 | 2.27 | 2.36 | 1.75 | 0.96 | 0.51 | 0.13 | 0.08 | 0.11 | 0.32 | 0.54 | |

TARACUA LAT 0 4 LON 68 14 105. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 25.2 | 25.3 | 25.3 | 25.2 | 24.9 | 24.5 | 24.1 | 24.7 | 25.3 | 25.4 | 25.4 | 25.2 | 25.0 |
| MEAN R.H. | 89. | 89. | 91. | 94. | 92. | 90. | 88. | 84. | 78. | 82. | 85. | 84. | 87. |
| PCT SUN | 36. | 36. | 32. | 27. | 31. | 35. | 38. | 44. | 51. | 47. | 42. | 44. | 39. |
| MEAN RAD. | 399. | 409. | 392. | 349. | 353. | 363. | 381. | 435. | 491. | 470. | 435. | 434. | 409. |
| PRECIP. | 320. | 268. | 326. | 422. | 429. | 350. | 315. | 250. | 237. | 215. | 247. | 275. | 3654. |
| POT ET | 123. | 114. | 122. | 104. | 108. | 107. | 115. | 133. | 147. | 146. | 131. | 134. | 1485. |
| DEF PREC | -197. | -154. | -204. | -318. | -321. | -243. | -200. | -117. | -90. | -69. | -116. | -141. | -2169. |
| DEP PREC | 252. | 208. | 257. | 338. | 344. | 277. | 248. | 192. | 181. | 163. | 190. | 214. | |
| MAI | 2.04 | 1.82 | 2.11 | 3.24 | 3.18 | 2.60 | 2.16 | 1.45 | 1.23 | 1.11 | 1.45 | 1.59 | |

TINGO MARIA LAT 9 8 LON 75 57 685. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 22.8 | 22.1 | 22.4 | 22.3 | 22.4 | 21.8 | 22.0 | 22.6 | 22.5 | 22.8 | 23.3 | 23.4 | 22.5 |
| MEAN R.H. | 97. | 97. | 99. | 97. | 98. | 97. | 98. | 98. | 97. | 97. | 97. | 97. | 97. |
| PCT SUN | 16. | 16. | 15. | 16. | 14. | 15. | 14. | 14. | 15. | 17. | 17. | 15. | 15. |
| MEAN RAD. | 283. | 293. | 264. | 250. | 214. | 212. | 208. | 230. | 262. | 289. | 297. | 292. | 256. |
| PRECIP. | 424. | 403. | 469. | 351. | 217. | 175. | 157. | 112. | 184. | 341. | 289. | 289. | 3411. |
| POT ET | 82. | 73. | 76. | 70. | 62. | 58. | 59. | 67. | 73. | 84. | 85. | 83. | 873. |
| DEF PREC | -342. | -330. | -393. | -282. | -155. | -117. | -97. | -45. | -110. | -257. | -204. | -206. | -2538. |
| DEP PREC | 296. | 281. | 328. | 244. | 148. | 119. | 105. | 73. | 124. | 236. | 199. | 200. | |
| MAI | 3.59 | 3.84 | 4.31 | 3.50 | 2.39 | 2.04 | 1.77 | 1.10 | 1.70 | 2.81 | 2.35 | 2.40 | |

300

TIPUTINI LAT 0 45S LON 75 32 220. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 26.4 | 26.1 | 25.3 | 25.2 | 25.2 | 25.0 | 24.5 | 24.7 | 25.6 | 25.6 | 25.8 | 25.5 | 25.4 |
| MEAN R.H. | 84. | 85. | 88. | 89. | 89. | 89. | 89. | 88. | 86. | 87. | 86. | 86. | 87. |
| PCT SUN | 24. | 23. | 14. | 17. | 21. | 20. | 20. | 24. | 26. | 25. | 30. | 22. | 22. |
| MEAN RAD. | 321. | 327. | 256. | 274. | 291. | 276. | 280. | 325. | 351. | 344. | 363. | 307. | 310. |
| PRECIP. | 109. | 115. | 229. | 234. | 298. | 316. | 261. | 214. | 217. | 205. | 114. | 137. | 2449. |
| POT ET | 102. | 93. | 79. | 82. | 80. | 82. | 85. | 99. | 106. | 107. | 110. | 96. | 1133. |
| DEF PREC | -7. | -22. | -150. | -152. | -208. | -234. | -176. | -115. | -111. | -97. | -4. | -41. | -1316. |
| DEP PREC | 65. | 69. | 142. | 145. | 186. | 197. | 162. | 132. | 134. | 126. | 68. | 83. | |
| MAI | .63 | .74 | 1.78 | 1.77 | 2.06 | 2.40 | 1.91 | 1.33 | 1.26 | 1.17 | .62 | .86 | |

TODOS SANTOS LAT 16 48 LON 65 8 300. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 26.3 | 26.7 | 26.1 | 24.6 | 22.4 | 21.9 | 20.2 | 22.4 | 24.2 | 26.3 | 26.7 | 27.1 | 24.6 |
| PCT SUN | 33. | 43. | 45. | 47. | 53. | 58. | 62. | 51. | 45. | 41. | 43. | 40. | 47. |
| MEAN RAD. | 430. | 480. | 450. | 405. | 375. | 360. | 385. | 400. | 430. | 455. | 490. | 480. | 428. |
| PRECIP. | 491. | 357. | 382. | 247. | 175. | 126. | 122. | 86. | 103. | 215. | 206. | 400. | 2910. |
| POT ET | 136. | 139. | 142. | 119. | 108. | 99. | 105. | 115. | 126. | 144. | 152. | 155. | 1542. |
| DEF PREC | -355. | -218. | -240. | -127. | -67. | -27. | -17. | 29. | 23. | -70. | -54. | -245. | -1368. |
| DEP PREC | 329. | 236. | 254. | 160. | 111. | 77. | 74. | 49. | 61. | 138. | 132. | 266. | |
| MAI | 2.41 | 1.70 | 1.78 | 1.34 | 1.03 | 0.78 | 0.71 | 0.43 | 0.49 | 0.96 | 0.87 | 1.71 | |

TRINIDAD LAT 14 45 LON 64 48 236. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 27.3 | 27.3 | 27.4 | 26.4 | 25.2 | 23.9 | 23.7 | 25.7 | 27.7 | 27.9 | 28.0 | 27.9 | 26.5 |
| PCT SUN | 29. | 40. | 38. | 37. | 42. | 56. | 54. | 49. | 39. | 37. | 40. | 38. | 42. |
| MEAN RAD. | 400. | 460. | 420. | 370. | 345. | 370. | 375. | 400. | 405. | 435. | 470. | 460. | 409. |
| PRECIP. | 307. | 269. | 192. | 139. | 83. | 69. | 51. | 39. | 85. | 142. | 178. | 249. | 1803. |
| POT ET | 130. | 135. | 137. | 114. | 107. | 107. | 112. | 125. | 129. | 143. | 150. | 152. | 1541. |
| DEF PREC | -177. | -134. | -55. | -25. | 24. | 38. | 61. | 86. | 44. | 1. | -28. | -97. | -262. |
| DEP PREC | 202. | 176. | 123. | 86. | 47. | 38. | 25. | 17. | 49. | 88. | 113. | 162. | |
| MAI | 1.55 | 1.30 | 0.90 | 0.75 | 0.44 | 0.35 | 0.23 | 0.14 | 0.38 | 0.61 | 0.75 | 1.07 | |

TUCUPITA LAT 9 3 LON 62 3 30. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 25.2 | 25.4 | 25.7 | 26.5 | 26.9 | 26.6 | 26.6 | 27.0 | 27.4 | 27.0 | 26.5 | 25.9 | 26.4 |
| MEAN R.H. | 81. | 68. | 63. | 71. | 77. | 80. | 76. | 74. | 72. | 70. | 76. | 79. | 74. |
| PCT SUN | 55. | 72. | 77. | 69. | 61. | 56. | 62. | 65. | 67. | 69. | 62. | 58. | 64. |
| MEAN RAD. | 432. | 524. | 534. | 526. | 449. | 407. | 437. | 492. | 454. | 527. | 466. | 443. | 478. |
| PRECIP. | 84. | 37. | 46. | 54. | 133. | 187. | 194. | 168. | . | 103. | 119. | 103. | 1325. |
| POT ET | 165. | 170. | 189. | 162. | 144. | 126. | 140. | 159. | 173. | 190. | 174. | 171. | 1962. |
| DEF PREC | 81. | 133. | 143. | 109. | 11. | -61. | -54. | -9. | 76. | 87. | 56. | 67. | 637. |
| DEP PREC | 51. | 15. | 22. | 28. | 89. | 131. | 137. | 116. | 62. | 66. | 78. | 66. | |
| MAI | 0.31 | 0.09 | 0.12 | 0.17 | 0.62 | 1.04 | 0.93 | 0.73 | 0.36 | 0.35 | 0.45 | 0.39 | |

TUMEREMO LAT 7 18 LON 61 27 177. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 24.1 | 24.2 | 24.9 | 25.5 | 25.7 | 25.1 | 25.2 | 25.7 | 26.0 | 26.1 | 25.8 | 24.8 | 25.3 |
| MEAN R.H. | 84. | 72. | 69. | 74. | 78. | 83. | 78. | 74. | 69. | 69. | 74. | 79. | 75. |
| PCT SUN | 51. | 67. | 72. | 64. | 59. | 53. | 60. | 65. | 71. | 71. | 64. | 59. | 63. |
| MEAN RAD. | 407. | 500. | 515. | 515. | 451. | 404. | 440. | 498. | 517. | 533. | 469. | 440. | 474. |
| PRECIP. | 103. | 74. | 65. | 100. | 149. | 196. | 180. | 147. | 55. | 72. | 76. | 106. | 1321. |
| POT ET | 153. | 158. | 180. | 155. | 141. | 121. | 136. | 156. | 173. | 188. | 173. | 165. | 1898. |
| DEF PREC | 50. | 84. | 115 | 56. | -7. | -76. | -44. | 9. | 118. | 116. | 97. | 60. | 578. |
| DEP PREC | 66. | 44. | 36 | 63. | 101. | 138. | 125. | 100. | 29. | 42. | 45. | 68. | |
| MAI | 0.43 | 0.26 | 0.2 | 0.41 | 0.72 | 1.14 | 0.92 | 0.64 | 0.17 | 0.22 | 0.26 | 0.41 | |

UBERABA LAT 19 44 LON 47 55 739. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 22.8 | 23.0 | 22.8 | 22.2 | 20.4 | 18.9 | 18.8 | 21.2 | 23.2 | 23.6 | 23.0 | 22.7 | 21.9 |
| MEAN R.H. | 79. | 81. | 75. | 59. | 50. | 43. | 42. | 45. | 66. | 80. | 78. | 84. | 65. |
| PCT SUN | 51. | 47. | 57. | 70. | 78. | 83. | 84. | 82. | 64. | 49. | 52. | 44. | 63. |
| MEAN RAD. | 543. | 503. | 505. | 482. | 430. | 405. | 425. | 485. | 506. | 498. | 543. | 509. | 486. |
| PRECIP. | 274. | 240. | 202. | 107. | 38. | 30. | 13. | 10. | 70. | 130. | 218. | 292. | 1623. |
| POT ET | 158. | 133. | 147. | 134. | 118. | 103. | 111. | 136. | 144. | 148. | 154. | 148. | 1633. |
| DEF PREC | -116. | -107. | -55. | 27. | 80. | 73. | 98. | 125. | 74. | 18. | -64. | -144. | 9. |
| DEP PREC | 194. | 167. | 137. | 62. | 7. | 1. | 0. | 0. | 32. | 80. | 149. | 208. | |
| MAI | 1.23 | 1.26 | 0.93 | 0.46 | 0.06 | 0.01 | 0.00 | 0.00 | 0.22 | 0.54 | 0.97 | 1.41 | |

UPATA LAT 8 1 LON 62 25 340. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 24.3 | 24.4 | 24.8 | 25.6 | 26.0 | 25.6 | 25.7 | 26.1 | 26.4 | 26.1 | 25.5 | 24.9 | 25.4 |
| MEAN R.H. | 78. | 72. | 67. | 75. | 74. | 80. | 77. | 76. | 74. | 71. | 76. | 76. | 75. |
| PCT SUN | 60. | 68. | 73. | 63. | 64. | 56. | 61. | 62. | 65. | 69. | 62. | 62. | 64. |
| MEAN RAD. | 451. | 505. | 520. | 508. | 467. | 414. | 440. | 484. | 493. | 525. | 462. | 457. | 477. |
| PRECIP. | 59. | 51. | 24. | 55. | 81. | 135. | 153. | 178. | 106. | 87. | 91. | 77. | 1097. |
| POT ET | 167. | 160. | 181. | 154. | 147. | 125. | 138. | 153. | 167. | 185. | 170. | 171. | 1916. |
| DEF PREC | 108. | 110. | 157. | 99. | 66. | -10. | -15. | -25. | 61. | 98. | 78. | 94. | 820. |
| DEP PREC | 32. | 25. | 5. | 29. | 49. | 91. | 105. | 124. | 69. | 53. | 57. | 46. | |
| MAI | 0.19 | 0.16 | 0.03 | 0.19 | 0.33 | 0.72 | 0.76 | 0.81 | 0.41 | 0.29 | 0.34 | 0.27 | |

VALLE DE LA PASCUA LAT 9 13 LON 66 3 200. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 24.7 | 24.8 | 25.2 | 26.0 | 25.4 | 26.1 | 26.1 | 26.5 | 26.8 | 26.5 | 25.7 | 25.3 | 25.9 |
| MEAN R.H. | 68. | 68. | 66. | 79. | 77. | 81. | 78. | 76. | 77. | 74. | 73. | 69. | 74. |
| PCT SUN | 72. | 72. | 74. | 59. | 61. | 55. | 59. | 63. | 61. | 65. | 67. | 71. | 65. |
| MEAN RAD. | 507. | 527. | 520. | 485. | 448. | 402. | 426. | 481. | 471. | 510. | 486. | 505. | 481. |
| PRECIP. | 5. | 1. | 6. | 51. | 104. | 189. | 213. | 191. | 130. | 101. | 25. | 13. | 1024. |
| POT ET | 186. | 168. | 183. | 148. | 142. | 123. | 135. | 153. | 162. | 182. | 178. | 188. | 1948. |
| DEF PREC | 180. | 167. | 177. | 98. | 38. | -66. | -78. | -37. | 32. | 81. | 153. | 175. | 920. |
| DEP PREC | 0. | 0. | 0. | 25. | 67. | 132. | 151. | 134. | 87. | 64. | 6. | 0. | |
| MAI | 0.00 | 0.00 | 0.00 | 0.17 | 0.47 | 1.08 | 1.12 | 0.07 | 0.54 | 0.35 | 0.03 | 0.00 | |

VILLAVO LAT 4 9 LON 73 34 423. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 26.9 | 26.7 | 26.7 | 26.8 | 26.6 | 26.4 | 26.5 | 26.7 | 26.7 | 26.2 | 26.1 | 26.2 | 26.5 |
| MEAN R.H. | 68. | 73. | 82. | 88. | 86. | 82. | 80. | 82. | 83. | 90. | 83. | 79. | 81. |
| PCT SUN | 51. | 46. | 39. | 31. | 33. | 38. | 40. | 38. | 37. | 29. | 37. | 42. | 38. |
| MEAN RAD. | 450. | 450. | 420. | 380. | 380. | 395. | 410. | 415. | 420. | 360. | 390. | 400. | 406. |
| PRECIP. | 32. | 119. | 205. | 456. | 625. | 426. | 393. | 265. | 259. | 472. | 381. | 211. | 3843. |
| POT ET | 145. | 130. | 134. | 118. | 121. | 122. | 131. | 133. | 130. | 114. | 119. | 127. | 1525. |
| DEF PREC | 113. | 12. | -71. | -338. | -504. | -304. | -262. | -132. | -129. | -358. | -262. | -85. | -2318. |
| DEP PREC | 2. | 74. | 147. | 358. | 500. | 333. | 305. | 198. | 193. | 371. | 295. | 152. | |
| MAI | 0.01 | 0.57 | 1.09 | 3.03 | 4.12 | 2.73 | 2.33 | 1.49 | 1.48 | 3.26 | 2.47 | 1.20 | |

YURIMAGUAS LAT 5 54 LON 76 5 179. METERS

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN TEMP | 24.8 | 25.9 | 26.1 | 24.6 | 22.5 | 20.4 | 19.3 | 19.0 | 19.6 | 20.1 | 21.0 | 22.7 | 22.2 |
| MEAN R.H. | 98. | 98. | 98. | 98. | 98. | 98. | 98. | 98. | 98. | 98. | 98. | 98. | 98. |
| PCT SUN | 13. | 14. | 13. | 13. | 12. | 13. | 12. | 12. | 14. | 13. | 13. | 12. | 13. |
| MEAN RAD. | 253. | 267. | 245. | 231. | 210. | 201. | 205. | 220. | 250. | 256. | 252. | 241. | 236. |
| PRECIP. | 206. | 198. | 220. | 223. | 194. | 110. | 79. | 93. | 150. | 190. | 175. | 164. | 2002. |
| POT ET | 77. | 76. | 78. | 68. | 61. | 53. | 54. | 59. | 65. | 70. | 68. | 70. | 797. |
| DEF PREC | -129. | -122. | -142. | -155. | -133. | -57. | -25. | -35. | -85. | -120. | -107. | -94. | -1205. |
| DEP PREC | 140. | 135. | 150. | 153. | 132. | 72. | 50. | 60. | 101. | 129. | 118. | 111. | |
| MAI | 1.81 | 1.78 | 1.94 | 2.24 | 2.17 | 1.35 | .92 | 1.04 | 1.56 | 1.86 | 1.75 | 1.58 | |

PART
PARTE
PARTE 3

# A Selection of Soil Profile Descriptions

# Selección de Descripciones de Perfiles de Suelos

# Seleção de Descrições dos Perfis de Solos

## LAND SYSTEM 1, Facet 1.

Classification: Latosol Vermelho Amarelo Distrófico-Acrustox.

Location: Area of Experimental Station, Brasilia, Federal District, Brazil.

Physiography: Middle portion of a slope a dissected plateau surface.

Topography: Gently sloping, 8%.

Drainage: Well drained.

Vegetation: Cerrado.

Parent material: Shales, siltstones and limestones of Bambui Serie; Paleozoic.

Source: Ministerio de Agricultura, Bol. Téc. No. 3, profile 4, pp 46-9.

$A_1$ : 0-12 cm. 5YR 4.5/4; clay; moderate fine to coarse granular structure; slightly hard, very friable; clear smooth boundary.

$A_3$ : 12-30 cm. 5YR 4/4; clay; moderate fine to coarse granular structure; hard, very friable; clear smooth boundary.

$B_1$ : 30-50 cm. 5YR 5/7; clay; weak fine to coarse granular structure; slightly hard, friable; gradual smooth boundary.

$B_{21}$ : 50-85 cm. 5YR 4.5/8; clay; massive, with pores; very friable; diffuse smooth boundary.

$B_{22}$ : 85-125 cm. 5YR 4/8; few mottles 7.5YR 6/8; clay; massive with pores; very friable; diffuse smooth boundary.

$B_3$ : 125-160 cm. 5YR 5/8; few mottles 7.5YR 6/8; clay; massive with pores; very friable; gradual smooth boundary.

$C_1$ : 160-200 cm. 5YR 5/7; gravelly clay; plastic and sticky; gradual smooth boundary.

$C_2$ : 200-220 cm+. 5YR 4/6; gravelly clay; plastic and sticky.

NOTE : Many roots in $A_1$, $A_3$, $B_1$, $B_{21}$, $B_{22}$, $B_3$, and few in $C_1$. Intense biological activity up to $B_{21}$. Horizons $C_1$ and $C_2$ are mixtures of the fine earth, stones and gravel.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S % | Al.S % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.1 | 4.2 | 1.87 | 0.13 | 1 | 3 | 86 |
| $A_3$ | 5.0 | 4.4 | 1.40 | 0.09 | 1 | 5 | 82 |
| $B_1$ | 5.2 | 4.4 | 1.04 | 0.07 | - | 6 | 67 |
| $B_{21}$ | 4.9 | 4.9 | 0.77 | 0.08 | - | 6 | 0 |
| $B_{22}$ | 5.3 | 5.7 | 0.50 | 0.08 | - | 11 | 0 |
| $B_3$ | 5.3 | 6.1 | 0 44 | 0.04 | - | 21 | 0 |
| $C_1$ | 5.9 | 6.1 | 0.49 | 0.04 | - | 17 | 0 |
| $C_2$ | 5.7 | 6.1 | 0.26 | 0.02 | - | 40 | 0 |

EXCHANGE COMPLEX (meq/100 g )

| Ca + Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 0.2 | 0.08 | 0.03 | 6.5 | 1.8 | 0.3 | 8.6 |
| 0.2 | 0.05 | 0.02 | 4.9 | 1.4 | 0.3 | 6.6 |
| 0.2 | 0.03 | 0.02 | 4.3 | 0.6 | 0.3 | 5.2 |
| 0.2 | 0.02 | 0.02 | 3.2 | 0 | 0.2 | 3.4 |
| 0.2 | 0.01 | 0.02 | 1.7 | 0 | 0.2 | 1.9 |
| 0.3 | 0.02 | 0.02 | 1.1 | 0 | 0.3 | 1.4 |
| 0.2 | 0.01 | 0.02 | 1.0 | 0 | 0.2 | 1.2 |
| 0.3 | 0.02 | 0.03 | 0.6 | 0 | 0.4 | 1.0 |

Size class and particle diameter (mm)

| HOR | coarse fragments >20 | coarse sand 2-20 | fine sand 2-0.20 | 0.20-0.05 | Silt 0.05-0.02 | Clay <0.02 |
|---|---|---|---|---|---|---|
| $A_1$ | 0 | 2 | 9 | 19 | 27 | 45 |
| $A_3$ | 0 | 2 | 9 | 17 | 30 | 44 |
| $B_1$ | 0 | 3 | 8 | 17 | 27 | 48 |
| $B_{21}$ | 0 | 5 | 7 | 17 | 28 | 48 |
| $B_{22}$ | 0 | 5 | 5 | 17 | 28 | 50 |
| $B_3$ | 0 | 4 | 5 | 17 | 28 | 50 |
| $C_1$ | 2 | 24 | 5 | 17 | 30 | 48 |
| $C_2$ | 4 | 51 | 17 | 14 | 29 | 40 |

Mineralogical analysis:

$A_1$ : Sands: 84% quartz; 6% ferruginous concretions;6% magnetite, 4% detritus.

Gravel: 99% ferruginous concretions; 1% magnetite; traces of quartz.

$A_3$ : Sands: 54% quartz; 30% magnetite; 10% ferruginous concretions; 3% clay concretions; 3% detritus.

Gravel: 90% ferruginous concretions; 1% magnetite.

$B_1$ : Sands: 83% quartz; 8% ferruginous concretions; 8% magnetite; 1% detritus.

Gravel: 98% ferruginous concretions; 1% quartz; 1% magnetite.

$B_{21}$ : Sands: 85% quartz; 10% magnetite; 4% ferruginous and Fe-clay concretions; 1% detritus.

Gravel: 99% ferruginous and Fe-clay concretions; 1% quartz.

$B_{22}$ : Sands: 83% quartz; 10% ferruginous concretions; 6% magnetite; 2% detritus.

Gravel: 99% ferruginous concretions; 1% magnetite.

$B_3$ : Sands: 83% quartz; 10% ferruginous concretions; 5% magnetite; 2% detritus; traces of zirconium.

Gravel: 99% ferruginous concretions; 1% quartz; traces of feldspar and magnetite.

$C_1$ : Sands: 84% quartz; 10% ferruginous concretions;5% magnetite; 1% detritus.

Gravel: 99% ferruginous concretions; 1% quartz; traces of magnetite.

$C_2$ : Sands: 84% quartz; 10% ferruginous concretions; 5% magnetite; 1% detritus.

Boulders: 100% ferruginous concretions.

Gravel: 99% ferruginous concretions; 1% quartz; traces of magnetite.

## LAND SYSTEM 1, Facet 2 (inclusion)

Classification: Latosol Vermelho Escuro Distrófico-Acrustox.

Location: Area of Experimental Station , Brazilia, Federal District, Brazil.

Physiography: Footslope in a dissected plateau surface.

Topography: Gently sloping.

Drainage: Well drained.

Vegetation: Cerrado.

Parent material: Sandstones, siltstones and limestones of Bambui Serie, Paleozoic.

Source: Ministerio de Agricultura, Téc. Bol. No. 8, profile 2, pp 32-35.

$A_p$ : 0-15 cm. 2.5YR 3/4; sandy clay; weak, very fine to medium granular structure; slightly hard, very friable; slightly plastic and sticky; clear smooth boundary.

$A_3$ : 15-40 cm. 10R 3/4; clay; weak fine to coarse granular structure; slightly hard, very friable;slightly plastic and sticky; gradual smooth boundary.

$B_1$ : 40-65 cm. 10R 3/6; clay; weak fine to coarse blocky structure; very friable; plastic, sticky; diffuse smooth boundary.

$B_{21}$ : 65-105 cm. 10R 3/6; clay; weak fine to coarse blocky structure; very friable; plastic and sticky; diffuse smooth boundary.

$B_{22}$ : 105-165 cm. 10R 3/6; clay; massive; porous; very friable; plastic, sticky; diffuse smooth boundary.

$B_{23}$ : 165-270 cm+. 10R 4/6; clay; massive; porous, very friable; plastic and sticky.

NOTE : Many roots in $A_p$, $A_3$, $B_1$ and $B_{21}$; few in $B_{22}$and

$B_{23}$ Biological activity throughout the profile.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_p$ | 4.5 | 4.3 | 2.12 | 0.27 | 2 | 5 | 76 |
| $A_3$ | 4.8 | 4.4 | 1.28 | 0.09 | 1 | 5 | 77 |
| $B_1$ | 5.1 | 4.5 | 0.91 | 0.05 | - | 4 | 82 |
| $B_{21}$ | 5.2 | 4.5 | 0.68 | 0.05 | - | 4 | 78 |
| $B_{22}$ | 5.3 | 4.8 | 0.48 | 0.04 | - | 6 | 50 |
| $B_{23}$ | 5.7 | 5.5 | 0.31 | 0.03 | - | 10 | 0 |

Exchange complex (meq/100 g)

| Ca + Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 0.4 | 0.08 | 0.03 | 7.5 | 1.6 | 0.5 | 9.6 |
| 0.2 | 0.03 | 0.02 | 5.2 | 1.0 | 0.3 | 6.5 |
| 0.2 | 0.01 | 0.02 | 3.9 | 0.9 | 0.2 | 5.0 |
| 0.2 | 0.01 | 0.01 | 3.6 | 0.7 | 0.2 | 4.5 |
| 0.2 | 0.01 | 0.01 | 3.1 | 0.2 | 0.2 | 3.5 |
| 0.2 | 0.01 | 0.02 | 1.9 | 0 | 0.2 | 2.1 |

Size class and particle diameter (mm)

| HOR | coarse fragments >20 | coarse sand 2-20 | fine sand 2-0.20 | Silt 0.20-0.05 | Clay 0.05-0.02 | <0.02 |
|---|---|---|---|---|---|---|
| $A_p$ | 0 | - | 23 | 24 | 16 | 37 |
| $A_3$ | 0 | 1 | 19 | 24 | 12 | 45 |
| $B_1$ | 0 | 1 | 19 | 23 | 11 | 47 |
| $B_{21}$ | 0 | 1 | 16 | 24 | 12 | 48 |
| $B_{22}$ | 0 | 1 | 17 | 23 | 12 | 48 |
| $B_{23}$ | 0 | 1 | 19 | 24 | 14 | 43 |

Mineralogical analysis:

$A_p$ Sands: 70% quartz, with ferruginous coatings; 6% ferruginous concretions; 5% Fe-clay concretions; 5% detritus; 3% magnetite; 2% light clay concretions; 1% charcoal.

Gravel: 98% ferruginous and Fe-clay concretions; 1% quartz; 1% magnetite.

$A_3$ Sands: 86% hyaline quartz, with ferruginous coatings; 5% magnetite; 5% ferruginous concretions; 3% Fe-clay concretions; 1% detritus.

Gravel: 58% ferruginous concretions; 40% Fe-clay concretions; 1% quartz; 1% magnetite.

$B_1$ Sands: 85% quartz, with ferruginous coatings; 6% magnetite; 4% ferruginous concretions; 4% Fe-clay concretions; 1% detritus.

Gravel: 66% ferruginous concretions; 33% light clay concretions; 1% hyaline quartz; traces of magnetite.

$B_{21}$ Sands: 85% hyaline quartz; 5% magnetite; 5% ferruginous concretions; 4% Fe-clay concretions; 1% detritus; traces of charcoal.

Gravel: 63% ferruginous concretions; 3[illegible] Fe-clay concretions; 1% quartz; 1% magnetite; traces of detritus.

$B_{22}$ Sands: 79% hyaline quartz; with ferruginous coatings; 10% Fe-clay concretions; 5% ferruginous concretions; 4% magnetite; 2% detritus.

Gravel: 60% ferruginous concretions; 38% Fe-clay concretions; 2% quartz; traces of magnetite and detritus.

$B_{23}$ Sands: 77% quartz; 10% clay and Fe-clay concretions; 7% ferruginous concretions; 3% magnetite; 2% detritus; 1% charcoal.

Gravel: 68% ferruginous concretions; 30% Fe-clay concretions; 2% quartz; traces of magnetite and charcoal.

## LAND SYSTEM 3, Facet 1.

Classification: Latosol Vermelho Escuro-Acrustox.

Location: Belem-Brazilia road; 3 km from Anápolis. Anápolis municipality; Goias State, Brazil.

Physiography: Hills with flattened tops and open "V" shaped valleys.

Topography: Gently undulating, 1% slope.

Drainage: Somewhat excessively drained.

Vegetation: Cerrado.

Parent material: Pre-Cambrian rocks underlying clay materials from Chapadas Formation (Tertiary).

Source: Embrapa, Bol. Téc. No. 17, profile 55, pp 304-6.

$A_1$ : 0-16 cm; 1YR 3/3; clay; weak, very fine to medium granular structure; slightly hard, friable; slightly plastic and sticky; gradual smooth boundary.

$A_3$ : 16-30 cm; 10R 3/4; clay; weak; fine granular structure; slightly hard, friable; plastic and very sticky; gradual smooth boundary.

$B_{11}$ : 30-75 cm; 10R 3/5; clay; fine granular with massive appearance, very porous; plastic, very sticky; diffuse smooth boundary.

$B_{12}$ : 75-135; 10R 3/5; clay; very fine granular structure with massive appearance, very porous; very friable; plastic and very sticky; diffuse smooth boundary.

$B_{21}$ : 135-250 cm; 10R 3/6; clay; very fine granular structure with massive appearance, very porous; very friable; plastic and very sticky.

$B_{22}$ : 250-320 cm+; 10R 3/6; very plastic and very sticky.

NOTE : Common roots in $A_1$ and $A_3$, few in $B_{11}$, $B_{12}$ and $B_{21}$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.5 | 4.6 | 1.61 | 0.10 | 1 | 10 | 40 |
| $A_3$ | 5.3 | 4.8 | 1.30 | 0.08 | 1 | 8 | 33 |
| $B_{11}$ | 5.7 | 5.6 | 0.80 | 0.04 | 1 | 13 | 0 |
| $B_{12}$ | 6.1 | 6.1 | 0.59 | 0.03 | 1 | 18 | 0 |
| $B_{21}$ | 6.2 | 6.7 | 0.44 | 0.02 | 1 | 40 | 0 |
| $B_{22}$ | 6.1 | 6.9 | 0.23 | 0.01 | 1 | 67 | 0 |

EXCHANGE COMPLEX (meq/100 )

| Ca + Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 0.5 | 0.06 | 0.03 | 5.2 | 0.4 | 0.6 | 6.2 |
| 0.3 | 0.05 | 0.03 | 4.6 | 0.2 | 0.4 | 5.2 |
| 0.3 | 0.03 | 0.04 | 2.8 | 0 | 0.4 | 3.2 |
| 0.3 | 0.02 | 0.05 | 1.8 | 0 | 0.4 | 2.2 |
| 0.3 | 0.03 | 0.04 | 0.6 | 0 | 0.4 | 1.0 |
| 0.3 | 0.02 | 0.03 | 0.2 | 0 | 0.4 | 0.6 |

Mineralogical analysis:

$A_1$ Sands: 80% quartz, with Fe-oxide coatings, 20% ferruginous magnetic concretions; traces of detritus.

$A_3$ Sands: 80% quartz; with Fe-oxide coatings; 20% ferruginous magnetic concretions.

$B_{11}$ Sands: 80% quartz, with Fe-oxide coatings; 20% ferruginous concretions; traces of detritus.

$B_{12}$ Sands: 70% quartz, with Fe-oxide coatings; 30% ferruginous concretions.

$B_{21}$ Sands: 70% quartz, with Fe-oxide coatings; 30% magnetic concretions and magnetite.

$B_{22}$ Sands: 70% quartz, with Fe-oxide coatings; 30% ferruginous concretions.

## LAND SYSTEM 5, Facet 1.

Classification: Latossolo Vermelho Escuro Alico-Acrustox.

Location: 1 km from "corrego" Dois Irmaos, on DF-2 road, Federal District, Brazil.

Physiography: Eroded and dissected surface.

Topography: Gently undulating, 4% slope.

Drainage: Somewhat excessively drained.

Vegetation: Cerrado.

Parent material: Tertiary clay sediments.

Source: Embrapa, Téc. Bol. No. 53, 1977, profile DF-13, pp 86-7.

$A_1$ 0-20 cm. 2.5YR 3/6;very clayey;weak fine to medium granular structure.

$B_2$ 100-120 cm+. 1.5YR 3/6;very clayey;weak very fine granular structure with massive appearance slightly coherent "in situ".

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.1 | 4.2 | 1.39 | 0.15 | 1 | 24 | 39 |
| $B_2$ | 4.6 | 4.3 | 0.47 | 0.07 | 1 | 17 | 50 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.5 | 0.7 | 0.44 | 0.08 | 4.3 | 1.1 | 1.7 | 7.1 |
| 0.6 | | 0.09 | 0.03 | 2.7 | 0.7 | 0.7 | 4.1 |

## LAND SYSTEM 10, Facet 1 (inclusion)

Classification: Lateritico Bruno Avermelhado Eutrófico-Plinthustalf.

Location: Belem-Brazilia road; 4 km from the bridge over das Almas river, towards Anápolis, Rialma Municipality, Goias State, Brazil.

Physiography: Top rounded hills and open "V" shaped valleys.

Topography: Gently undulating, 4 slope.

Drainage: Well drained.

Vegetation: Presently grassland; originally deciduous forests (caatinga).

Parent material: Metamorito - Pre-Cambrian.

Source. Embrapa, Téc. Bol. No. 38, 1976, profile 23, pp 196-9.

$A_1$ 0-14 cm; 10R 3/3; clay; strong fine granular structure; very hard, firm; very plastic, very sticky; clear smooth boundary.

$A_3$ 14-30 cm; 10R 3/4; heavy clay; moderate fine blocky structure, very hard, firm; very plastic, very sticky; clear smooth boundary.

$B_{21}t$ 30-70 cm; 1YR 3/4; heavy clay; strong medium blocky structure;firm; very plastic, very sticky; gradual smooth boundary.

$B_{22}t$ 70-100 cm; 1YR 3/6; heavy clay; strong fine blocky structure;firm; diffuse smooth boundary.

$IIB_{21}t$ 100-150 cm; 1YR 3/6; heavy clay; many strong clay skins; firm; gradual smooth boundary.

$IIIB_1t$ 150-260 cm; 2.5YR 3/7; silty clay; strong fine blocky structure; moderate clay skins; friable; gradual boundary.

IIIC 260-290 cm; 2.5YR 4/6; silty loam; slightly plastic and slightly sticky.

NOTE: Stoniness in $IIB_{21}t$ and $B_{22}t$ horizons. Many roots in $A_1$, common in $A_3$, $B_{21}t$ and $B_{22}t$, and few in $IIB_{21}t$ and $IIIB_1t$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.7 | 5.3 | 2.16 | 0.19 | 29 | 68 | 0 |
| $A_3$ | 5.8 | 5.2 | 1.00 | 0.08 | 35 | 55 | 0 |
| $B_{21}t$ | 5.7 | 5.1 | 0.52 | 0.06 | 58 | 66 | 0 |
| $B_{22}t$ | 5.8 | 5.3 | 0.49 | 0.07 | 26 | 71 | 0 |
| $IIB_{21}t$ | 6.0 | 5.8 | 0.29 | 0.05 | 7 | 82 | 0 |
| $IIIB_1t$ | 6.3 | 6.1 | 0.11 | 0.03 | 1 | 92 | 0 |
| IIIC | 5.6 | 4.5 | 0.07 | 0.02 | 1 | 83 | 4 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 9.1 | 2.0 | 0.16 | 0.08 | 5.2 | 0 | 11.3 | 16.5 |
| 6.1 | 1.7 | 0.22 | 0.06 | 6.7 | 0 | 8.1 | 14.8 |
| 4.2 | 1.2 | 0.22 | 0.04 | 3.0 | 0 | 5.7 | 8.7 |
| 4.1 | 1.2 | 0.18 | 0.04 | 2.2 | 0 | 5.5 | 7.7 |
| 4.0 | 1.2 | 0.15 | 0.05 | 1.2 | 0 | 5.4 | 6.6 |
| 4.2 | 1.3 | 0.05 | 0.04 | 0.5 | 0 | 5.6 | 6.1 |
| 4.7 | 1.7 | 0.03 | 0.04 | 1.0 | 0.3 | 6.5 | 7.8 |

Size class and particle diameter (mm)%

| HOR | coarse fragments >20 | coarse fragments 20-2 | coarse sand 2-2.0 | fine sand 0.2-0.05 | Silt 0.05-0.02 | Clay <0.02 |
|---|---|---|---|---|---|---|
| $A_1$ | 0 | - | 7 | 13 | 32 | 48 |
| $A_3$ | 0 | - | 6 | 9 | 23 | 62 |
| $B_{21}t$ | 0 | 2 | 4 | 6 | 16 | 74 |
| $B_{22}t$ | 0 | 1 | 3 | 6 | 17 | 74 |
| $B_{21}t$ | 16 | 3 | 2 | 4 | 19 | 75 |
| $B_1t$ | 0 | 0 | 1 | 3 | 56 | 40 |
| IIIC | 0 | 0 | 2 | 7 | 69 | 22 |

Mineralogical analysis:

$A_1$ Sands: 75% hyaline quartz; 10% ferruginous concretions and ilmenite; 15% magnetite; traces of turmaline and anphybol.

Gravel: 98% quartz; 2% ferruginous concretions; traces of clay concretions.

$A_3$ Sands: 60% hyaline quartz; 40% magnetite and ilmenite; traces of detritus.

Gravel: 70% quartz; 20% ferromanganous concretions; 10% Fe-clay concretions.

$B_{21}t$ Sands: 70% quartz; 30% magnetite, ferruginous concretions and ilmenite.

Gravel: 50% hyaline quartz; 50% sand-ferruginous concretions and manganous concretions.

$B_{22}t$ Sands: 60% hyaline quartz; 40% ilmenite, ferruginous concretions, magnetite, turmaline.

Gravel: 70% quartz; 15% ferromanganous and ferruginous concretions, with incipient silification. 15% ferruginous and ferromanganous concretions.

$IIB_{21}t$ Sands: 60% hyaline quartz; 40% magnetite, ilmenite and ferruginous concretions.

Gravel: 80% quartz; 10% ferruginous concretions with incipient silification ; 10% ferruginous concretions.

$IIIB_1t$ Sands: 70% quartz; 30% ilmenite and magnetite; traces of ferruginous concretions.

IIIC Sands: 97% hyaline quartz; 2% anphybol; 1% manganous concretions.

## LAND SYSTEM 12, Facet 1.

Classification: Terra Roxa Estruturada Similar Eutrôfica-Tropustalf.

Location: 47 Km from Posse, on the road towards Alvorada do Norte, Posse Municipality, Goias State, Brazil.

Physiography: Profile sited on a footslope.

Topography: Gently undulating, 4-8 slope.

Drainage: Well drained.

Vegetation: Semideciduous forests and cerrado

Parent material: Derived from limestone and siltstones

Source: Embrapa, Téc. Bol. No. 38, 1976.

$A_1$ : 0-15 cm; 5YR 2/2; clay; strong fine to medium granular structure; slightly hard, friable; clear smooth boundary.

$A_3$ : 15-40 cm; 5YR 3/2; clay; strong fine to medium blocky structure; many moderate clay skins; slightly hard, friable; clear smooth boundary.

$B_{1}t$ : 40-60 cm; 2.5YR 4/6; clay; strong fine to medium blocky structure; extremely hard, firm; clear smooth boundary.

$B_{21}t$ : 60-110 cm; 2.5YR 4/4; heavy clay; strong fine to medium blocky structure; extremely hard, firm; gradual smooth boundary.

$B_{22}t$ : 110-140 cm; 2.5YR 4/4; heavy clay; strong fine to coarse blocky structure; many strong clay skins; extremely hard, firm; diffuse smooth boundary.

$B_{3}t$ : 140-175 cm; 2.5YR 4/6; heavy clay; strong fine to coarse blocky structure; extremely hard, firm; clear smooth boundary.

$C_1$ : 175-225 cm; 2.5YR 5/8 and 2.5YR 4/8; heavy clay; hard, friable; clear smooth boundary.

$C_2$ : 225-300 cm; 2.5YR and 2.5YR 5/8; silty clay; hard, friable; plastic and sticky.

NOTE : Many roots in $A_1$, $A_3$ and $B_1t$; common in $B_{21}t$; few in $B_{22}t$ and rare in $B_3t$.

Biological activity throughout the profile.

| HOR | pH H2O | pH KCl | C | N | P ppm | B.S. | Al.S. |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.9 | 5.3 | 4.24 | 0.20 | 2 | 76 | 0 |
| $A_3$ | 5.9 | 4.7 | 1.79 | 0.15 | <1 | 66 | 0 |
| $B_1$ | 6.0 | 4.7 | 1.00 | 0.11 | <1 | 72 | 1 |
| $B_{21}t$ | 5.9 | 4.8 | 0.64 | 0.09 | <1 | 74 | 1 |
| $B_{22}t$ | 5.4 | 4.6 | 0.44 | 0.08 | <1 | 74 | 1 |
| $B_3t$ | 5.6 | 4.7 | 0.41 | 0.08 | <1 | 78 | 1 |
| $C_1$ | 5.8 | 4.4 | 0.20 | 0.05 | <1 | 79 | 2 |
| $C_2$ | 5.6 | 4.5 | 0.29 | 0.03 | <1 | 77 | 2 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 15.7 | 3.1 | 0.94 | 0.12 | 6.4 | 0 | 19.9 | 26.3 |
| 8.9 | 2.5 | 0.53 | 0.04 | 5.0 | 0 | 9.5 | 14.5 |
| 6.6 | 2.6 | 0.45 | 0.03 | 3.6 | 0.1 | 9.7 | 13.4 |
| 5.6 | 2.8 | 0.43 | 0.03 | 3.1 | 0.1 | 8.9 | 12.1 |
| 5.8 | 2.8 | 0.36 | 0.10 | 3.1 | 0.1 | 9.1 | 12.3 |
| 6.5 | 3.0 | 0.34 | 0.10 | 2.7 | 0.1 | 9.9 | 12.7 |
| 7.1 | 3.3 | 0.11 | 0.04 | 2.6 | 0.2 | 10.6 | 13.4 |
| 5.2 | 2.8 | 0.08 | 0.06 | 2.2 | 0.2 | 8.2 | 10.5 |

## LAND SYSTEM 12, Facet 2.

Classification: Latosol Vermelho Amarelo Distrófico intermediario para Cambisol-Haplustox.

Location: Alvorada Norte-Iaciara road, 30Km from Prata River, Posse Municipality, Goias State, Brazil.

Physiography: Midslope position of a hill.

Topography: Gently undulating, 3-5 slope.

Drainage: Well drained.

Vegetation: Cerradão.

Parent material: Derived from Sandstones of Barú Formation (Cretaceous)

Source: Embrapa, Téc. Bol. No. 38, 1976, profile 9, pp 123-6.

$A_{11}$ : 0-8 cm; 7.5YR 4/2; sandy; weak very fine granular structure and single grain; very friable; clear smooth boundary.

$A_{12}$ : 8-25 cm; 7.5YR 4.5/2; loamy sand; weak fine granular structure to single grain; gradual smooth boundary.

$A_3$ : 25-48 cm; 7.5YR 4/2; loamy sand, weak fine blocky structure; friable; clear smooth boundary.

$B_1$ : 48-70 cm; 7.5YR 5/7; sandy loam; weak very fine granular structure with massive appearance; very friable; diffuse smooth boundary.

$B_{21}$ : 70-110 cm. 7.5YR 5/8; sandy loam; weak very fine granular structure with massive appearance; friable; diffuse smooth boundary.

$B_{22}$ : 110-180 cm. 7.5YR 5/7; sandy loam, weak very fine granular structure, with massive appearance; very friable; diffuse smooth boundary.

$B_{23}$ : 180-230 cm. 7.5YR 5/8; sandy loam; weak very fine granular structure with massive aspect.

$B_3$ : 230-290 cm; 5YR 5/8, 2.5YR 4/8; 10YR 5/6; sandy clay loam gravelly; plastic and sticky.

NOTE : The $B_3$ honzon is formed by fine earth and sandstones fragments. Many roots in $A_{11}$, $A_{12}$, and $A_3$, few in $B_1$ and $B_{21}$, and rare in $B_{22}$.

| HOR | pH H2O | pH KCl | C | N | P ppm | B.S. | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_{11}$ | 6.0 | 5.0 | 0.56 | 0.04 | <1 | 67 | 0 |
| $A_{12}$ | 6.1 | 5.1 | 0.49 | 0.04 | <1 | 66 | 0 |
| $A_3$ | 5.6 | 4.2 | 0.28 | 0.02 | <1 | 50 | 16 |
| $B_1$ | 5.3 | 3.9 | 0.22 | 0.02 | <1 | 37 | 42 |
| $B_{21}$ | 5.3 | 4.0 | 0.20 | 0.02 | <1 | 32 | 50 |
| $B_{22}$ | 5.3 | 4.0 | 0.14 | 0.02 | <1 | 33 | 50 |
| $B_{23}$ | 5.2 | 3.9 | 0.09 | 0.02 | <1 | 33 | 50 |
| $B_3$ | 5.3 | 4.0 | 0.09 | 0.02 | <1 | 29 | 52 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 1.8 | 1.0 | 0.06 | 0.06 | 1.4 | 0 | 2.9 | 4.3 |
| 1.5 | 0.9 | 0.06 | 0.02 | 1.3 | 0 | 2.5 | 3.8 |
| 0.7 | 0.8 | 0.11 | 0.02 | 1.3 | 0.3 | 1.6 | 3.2 |
| 0.2 | 0.8 | 0.10 | 0.02 | 1.1 | 0.3 | 1.1 | 3.0 |
| 0.8 | | 0.05 | 0.03 | 1.0 | 0.9 | 0.9 | 2.8 |
| 0.9 | | 0.03 | 0.02 | 1.0 | 1.0 | 1.0 | 3.0 |
| 0.9 | | 0.03 | 0.03 | 1.0 | 1.0 | 1.0 | 3.0 |
| 0.3 | 0.7 | 0.04 | 0.02 | 1.5 | 1.1 | 1.1 | 3.8 |

## LAND SYSTEM 14, Facet 1.

Classification: Latosol Vermelho Amarelo Distrófico -Quartzipsamment intergrade to Haplustox.

Location: Fortaleza-Brasilia road, portion Barreiras, Posse, 50Km to Barreiras, Municipio Barreiras, Brazil.

Physiography: Flat top of a "chapada" or plateau surface.

Topography: Flat.

Drainage: Somewhat excesively drained.

Vegetation: Cerrado.

Parent material: Products derived from sandstones; Cretaceous.

Source: Embrapa, Bol. Téc. No. 38, 1976, (21), profile 5, pp 115-7.

$A_1$ : 0-30 cm; 10YR 3/2.5; loamy sand; weak fine granular structure; very friable; non plastic, non sticky; gradual smooth boundary.

$A_3$ : 30-50 cm; 10YR 3/3; sandy loam; weak fine blocky structure; many fine pores; very friable, non plastic, non sticky; gradual smooth boundary.

$B_1$ : 50-90 cm; 7.5YR 4/4; sandy loam; fine blocky structure; very friable; slightly plastic and sticky; gradual smooth boundary.

$B_2$ : 90-165 cm; 6YR 5/6; sandy loam; fine granular structure; many fine pores; slightly hard, very friable; slightly plastic and slightly sticky; diffuse smooth boundary.

$B_{22}$ : 165-190 cm. 5YR 5/8; sandy loam; fine granular structure; slightly hard, slightly plastic and sticky.

NOTE : Roots common in $A_1$ and $A_3$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.8 | 3.8 | 0.64 | 0.05 | 1 | 5 | 78 |
| $A_3$ | 5.1 | 4.0 | 0.39 | 0.04 | <1 | 4 | 83 |
| $B_1$ | 5.0 | 4.1 | 0.25 | 0.03 | <1 | 14 | 50 |
| $B_2$ | 5.2 | 4.2 | 0.15 | 0.03 | <1 | 15 | 50 |
| $B_{22}$ | 5.4 | 4.3 | 0.13 | 0.02 | <1 | 23 | 25 |

EXCHANGE COMPLEX (meq/100 g)

| Ca + Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 9.2 | 0.02 | 0.02 | 3.2 | 0.7 | 0.2 | 4.1 |
| 0.1 | 0.02 | 0.02 | 2.2 | 0.5 | 0.1 | 2.8 |
| 0.2 | 0.02 | 0.03 | 1.6 | 0.3 | 0.3 | 2.2 |
| 0.2 | 0.01 | 0.02 | 0.9 | 0.2 | 0.2 | 1.3 |
| 0.2 | 0.02 | 0.03 | 0.9 | 0.1 | 0.3 | 0.3 |

## LAND SYSTEM 15, Facet 1.

Classification: Latosol Vermelho Escuro-Haplustox.

Location: Puesto Agropecuario Goiania, 6 km from Goiania-Anápolis road, State of Goias, Brazil.

Physiography: Middle portion of hillside.

Topography: Gently undulating, 3-4 slope.

Drainage: Well drained.

Vegetation: Cerradão.

Parent material: Transported material originating from gneissistic rocks.

Source: Embrapa. Bol. Téc. 17, 1975, profile 48, pp 277-80.

$O_1$ : 2-0 cm; roots, leaves and little branches in decomposition.

$A_1$ : 0-10 cm. 2.5YR 3/4;clay; moderate fine to coarse granular structure; slightly hard, very friable; clear smooth boundary.

$A_3$ : 10-30 cm. 2.5YR 3/6; clay; moderate fine granular and blocky structure; slightly hard, very friable gradual smooth boundary.

$B_1$ : 30-53 cm.2.5YR 3/6; clay; weak fine blocky structure; few weak clay skins; slightly hard, very friable; gradual smooth boundary.

$B_{21}$ : 53-130 cm. 1.5YR 3/6; clay; very fine granular structure to massive; very friable; diffuse smooth boundary.

$B_{22}$ : 130-210 cm+.-1.5YR 3/6; clay; very fine granular structure to massive; very friable.

NOTE : Many roots in $A_1$ and $A_3$ , few in the other horizons.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.9 | 4.6 | 2.17 | 0.21 | 2 | 24 | 17 |
| $A_3$ | 4.7 | 4.4 | 1.33 | 0.12 | 1 | 10 | 54 |
| $B_1$ | 5.0 | 4.6 | 0.98 | 0.08 | 1 | 10 | 43 |
| $B_{21}$ | 5.5 | 5.6 | 0.50 | 0.04 | 1 | 18 | 0 |
| $B_{22}$ | 5.9 | 6.0 | 0.39 | 0.03 | 1 | 21 | 0 |

Size class and particle diameter (mm)

| HOR | coarse fragments >20 | coarse fragments 20-2 | coarse sand 2-0.2 | fine sand 0.2-0.05 | Silt 0.05-0.02 | Clay <0.02 |
|---|---|---|---|---|---|---|
| $A_1$ | 0 | - | 20 | 22 | 13 | 45 |
| $A_3$ | 0 | - | 19 | 20 | 11 | 50 |
| $B_1$ | 0 | - | 18 | 18 | 12 | 52 |
| $B_{21}$ | 0 | 1 | 16 | 18 | 14 | 52 |
| $B_{22}$ | 0 | 1 | 15 | 20 | 13 | 52 |

EXCHANGE COMPLEX (meq/100)

| Ca + Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 2.1 | 0.35 | 0.02 | 7.3 | 17 | 2.5 | 10.3 |
| 0.5 | 0.12 | 0.02 | 5.0 | 54 | 0.6 | 6.3 |
| 0.3 | 0.05 | 0.02 | 3.4 | 43 | 0.4 | 4.1 |
| 0.3 | 0.05 | 0.02 | 1.8 | 0 | 0.4 | 2.2 |
| 0.2 | 0.07 | 0.02 | 1.1 | 0 | 0.3 | 1.4 |

## LAND SYSTEM 17, Facet 1.

Classification: Terra Roxa Estructurada similar Eutrófico-Rhodustalf.

Location: Campos Belos- Puerto Cubiculo road, 6Km after the turn-off to Valle de Pecuaria-Municipio Arraias, Goias, Brazil.

Physiography: Elevated plain surface.

Topography: Gently undulating; site upper slope 3 .

Drainage: Well drained.

Vegetation: Cerrado.

Parent material: Calcareous detritus of Bambou Group,Upper Eo-Cambrian.

Source: Ministerio de Agricultura, Boletín Técnico No. 8, profile 11 (complementary), pages 238-40.

A : 0-[illegible] cm; 5YR 3/2; clay with gravel; strong medium to fine granular structure, and blocky structure; plastic and sticky.

Bt : 50-70 cm; 2.5YR 3/3; clay with gravel; very plastic and very sticky.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S % |
|---|---|---|---|---|---|---|---|
| A | 6.4 | 5.5 | 2.61 | 0.25 | 2 | 83 | 0 |
| Bt | 6.6 | 5.4 | 0.84 | 0.10 | 2 | 84 | 0 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 13.0 | 2.6 | 0.28 | 0.05 | 3.3 | 0 | 15.9 | 19.2 |
| 7.0 | 2.9 | 0.11 | 0.03 | 1.9 | 0 | 10.0 | 11.9 |

## LAND SYSTEM 18, Facet 1.

Classification: Latosol Vermelho Amarelho distrófico-Haplustox.

Location: 4Km from Monte Alegre de Goias, towards Arraias, Goias State, Brazil.

Physiography: Elevated plain surface.

Topography: Gently undulating; site 2-4 ,upper slope.

Drainage: Somewhat excessivelly drained.

Vegetation: Cerrado.

Parent material: Quartzite of Tocantins Group; Pre-Cambrian.

Source: Ministerio de Agricultura, Boletín Técnico No. 8, profile 20, pages 117-20.

$A_1$ : 0-10cm;5YR 5/6 sandy clay loam with gravel; weak fine granular structure and single grain; slightly hard; friable; gradual smooth boundary.

$A_3$ : 10-25 cm; 5YR 5/4; sandy clay loam with gravel; medium fine blocky structure; slightly hard;friable; gradual smooth boundary.

$B_1$ : 25-40 cm; 5YR 4/8; sandy clay loam with gravel; massive, porous,few coherent; very friable; diffuse smooth boundary.

$B_{21}$ : 40-90 cm; 5YR 5/8; sandy clay loam with gravel; massive, porous, few coherent; loose, very friable; abrupt smooth boundary.

$B_{22}$ : 90-130 $cm^+$; 2.5YR 5/8; sandy clay loam with many gravel; massive, porous, few coherent; plastic and sticky.

NOTE : Many roots in $A_1$, many in $A_3$ and $B_1$, few in $B_{21}$ and scarce in $B_{22}$ .

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.3 | 4.2 | 0.83 | 0.06 | 1 | 10 | 82 |
| $A_3$ | 5.5 | 4.3 | 0.52 | 0.05 | <1 | 10 | 73 |
| $B_1$ | 5.5 | 4.3 | 0.46 | 0.05 | <1 | 11 | 73 |
| $B_{21}$ | 5.7 | 4.4 | 0.33 | 0.04 | <1 | 11 | 67 |
| $B_{22}$ | 5.9 | 4.7 | - | - | <1 | 12 | 40 |

EXCHANGE COMPLEX (meq/100 g)

| Ca + Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 0.3 | 0.11 | 0.02 | 1.9 | 1.3 | 0.4 | 4.1 |
| 0.2 | 0.08 | 0.02 | 2.0 | 0.8 | 0.3 | 3.1 |
| 0.2 | 0.06 | 0.02 | 1.7 | 0.8 | 0.3 | 2.8 |
| 0.2 | 0.05 | 0.02 | 1.9 | 0.6 | 0.3 | 2.8 |
| 0.2 | 0.05 | 0.02 | 2.1 | 0.2 | 0.3 | 2.6 |

## LAND SYSTEM 26, Facet 1.

Classification: Podzólico Vermelho Amarelo Eutrófico-Haplustalf.

Location: Concepção do Araguaia, Pará State,Brazil.

Physiography: Elevated plain surface.

Topography: Strong undulating to mountainous; site: upper 35% slope.

Drainage: Well drained.

Vegetation: Open forest.

Parent material: Granite and gneiss; Pre-Cambriam.

Source: Proj. Radambrasil, Vol. 4, 1974, profile 9, pages 42-3.

$A_1$ : 0-15 cm; 7.5YR 4/2; clay loam; moderate fine granular structure; friable; clear smooth boundary.

$A_3$ : 15-30 cm; 5YR 4/6; clay; weak fine blocky structure; friable to firm; clear smooth boundary.

$B_{11}$ : 30-50 cm; 3YR 4/6; clay; moderate fine blocky strucutre;few weak clay skins; firm, plastic and sticky; gradual smooth boundary.

$B_{12}$ : 50-70 cm; 2.5YR 4/8; clay; moderate fine blocky structure; firm; diffuse smooth boundary.

$B_{21}$ : 70-90 cm; 2.5YR 5/8; silty clay; moderate fine blocky structure, common weak clay skins; firm; diffuse smooth boundary.

$B_{22}$ : 90-120 $cm^+$ ; 2.5YR 5/8; clay; moderate fine blocky structure; common weak clay skins; firm; plastic and sticky.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 6.1 | 5.5 | 2.11 | 0.24 | 2 | 78 | 0 |
| $A_3$ | 5.9 | 5.2 | 1.23 | 0.12 | 2 | 76 | 0 |
| $B_{11}$ | 5.9 | 5.1 | 0.75 | 0.08 | 2 | 68 | 0 |
| $B_{12}$ | 6.1 | 5.3 | 0.67 | 0.05 | 2 | 70 | 0 |
| $B_{21}$ | 6.3 | 5.8 | 0.38 | 0.03 | 2 | 77 | 0 |
| $B_{22}$ | 6.3 | 5.9 | 0.35 | 0.02 | 3 | 82 | 0 |

ECHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 4.90 | 1.10 | 0.23 | 0.05 | 3.13 | 0 | 11.3 | 14.4 |
| 7.00 | 0.60 | 0.17 | 0.04 | 2.47 | 0 | 7.8 | 10.2 |
| 4.80 | 0.30 | 0.09 | 0.04 | 2.47 | 0 | 5.2 | 7.7 |
| 3.90 | 0.90 | 0.11 | 0.03 | 2.14 | 0 | 4.9 | 7.1 |
| 2.80 | 0.70 | 0.23 | 0.03 | 2.15 | 0 | 3.8 | 4.9 |
| 2.70 | 0.10 | 0.30 | 0.08 | 0.82 | 0 | 3.7 | 4.5 |

## LAND SYSTEM 28, Facet 1.

Classification: Latosol Vermelho Amarelo Distrófico-Acrustox.

Location: Porto Velho-Cuiabá Road. 3 Km from Semidouro (Pensão do Alemão), Mato Grosso State, Brazil.

Physiography: "Chapada" (upland plateau) Surface slightly dissected by "V" shaped valleys.

Topography: 1.5% slope.

Drainage: Somewhat excesively drained.

Vegetation: Cerrado.

Parent material: Sandstone of Parecis Serie; Mesozoic.

Source: Embrapa, Bol. Técnico No. 17, 1975, profile 42, pages 254-8.

$A_{11}$ : 0-6 cm; 10YR 3/2; sandy clay loam, moderate fine granular structure; slightly hard, friable; abrupt smooth boundary.

$A_{12}$ : 6-17 cm; 10YR 3/3; sandy clay loam; moderate fine granular structure; slightly hard, friable; abrupt smooth boundary.

$A_3$ : 17-31 cm. 5YR 3/4; sandy clay loam; weak fine to medium granular structure; slightly hard, friable; smooth clear boundary.

$B_1$ : 31-49 cm; 5YR 4/4; sandy clay loam; very fine granular structure with massive appearance and porous; slightly hard, very friable; clear smooth boundary.

$B_{21}$ : 49-84 cm; 5YR 4/8; sandy clay; very fine granular structure with massive appearance, very popous; slightly hard, very friable; diffuse smooth boundary.

$B_{22}$ : 84-225 cm; 5YR 4/8; sandy clay; fine granular structure with massive appearance, very porous; very friable.

$B_{23}$ : 225-305 $cm^+$; 3.5YR 5/8; sandy clay.

NOTE : Very fine common roots up to $B_{22}$; few coarse from $A_1$ to $B_1$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_{11}$ | 5.5 | 4.3 | 1.37 | 0.07 | 2 | 15 | 69 |
| $A_{12}$ | 5.5 | 4.4 | 1.10 | 0.06 | 1 | 6 | 75 |
| $A_3$ | 5.6 | 4.5 | 0.85 | 0.04 | 1 | 8 | 70 |
| $B_1$ | 5.5 | 4.6 | 0.73 | 0.04 | 1 | 8 | 63 |
| $B_{21}$ | 5.4 | 4.8 | 0.56 | 0.03 | 1 | 8 | 60 |
| $B_{22}$ | 5.7 | 5.4 | 0.44 | 0.02 | 1 | 12 | 0 |
| $B_{23}$ | 5.8 | 6.0 | 0.27 | 0.02 | 1 | 22 | 0 |

EXCHANGE COMPLEX (meq/100 g)

| Ca + Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 0.4 | 0.12 | 0.01 | 1.7 | 1.1 | 0.5 | 3.3. |
| 0.2 | 0.10 | 0.02 | 3.7 | 0.9 | 0.3 | 4.9 |
| 0.2 | 0.04 | 0.01 | 3.0 | 0.7 | 0.3 | 4.0 |
| 0.2 | 0.05 | 0.01 | 2.8 | 0.5 | 0.3 | 3.6 |
| 0.1 | 0.04 | 0.01 | 2.0 | 0.3 | 0.2 | 2.5 |
| 0.1 | 0.04 | 0.01 | 1.5 | 0 | 0.2 | 1.7 |
| 0.1 | 0.05 | 0.01 | 0.7 | 0 | 0.2 | 0.9 |

Size class and particle diameter (mm)

| HOR | coarse fragments >20 | coarse fragments 20-2 | coarse sand 2-0.2 | fine sand 0.2-0.05 | Silt 0.05-0.02 | Clay <0.02 |
|---|---|---|---|---|---|---|
| $A_{11}$ | 0 | 0 | 46 | 21 | 5 | 28 |
| $A_{12}$ | 0 | 0 | 47 | 23 | 5 | 25 |
| $A_3$ | 0 | 0 | 47 | 23 | 4 | 26 |
| $B_1$ | 0 | 0 | 38 | 24 | 5 | 33 |
| $B_{21}$ | 0 | - | 35 | 22 | 4 | 39 |
| $B_{22}$ | 0 | - | 36 | 20 | 3 | 41 |
| $B_{23}$ | 0 | - | 34 | 20 | 3 | 43 |

Mineralogical analysis:

$A_{11}$ : Sands: 95% hyaline quartz; 2% ferruginous and Fe-clay concretions; 2% detritus; 1% charcoal.

$A_{12}$ : Sands: 97% hyaline quartz; 2% ferrugincus and Fe-clay concretions; 1% detritus; traces of magnetite and turmaline.

$A_3$ : Sands: 98% hyaline quartz; 1% ferruginous and Fe-clay concretions; 1% detritus; traces of magnetite.

$B_1$ : Sands: 99% hyaline quartz; 1% ferruginous and Fe-clay concretions; traces of magnetite and detritus.

$B_{21}$ : Sands: 100% hyaline quartz.

$B_{22}$ : Sands: 99% hyaline quartz; 2% ferruginous concretions; traces of turmaline and detritus.

$B_{23}$ : Sands: 98% hyaline quartz; 2% ferruginous concretions; traces of turmaline and detritus.

## LAND SYSTEM 34, Facet 1.

Classification: Latosol Vermelho Escuro-Haplustox.

Location: Rondonopolis-Jaciara road; 57Km from Rondonopolis, Municipio Jaicara, Mato Grosso, Brazil.

Physiography: Top of a hill in a landscape of hills with flat tops, and "V" shaped valleys.

Topography: Gently undulating, slope 1%.

Drainage: Somewhat excessively drained.

Vegetation: Campo cerrado and semi-evergreen seasonal forest with babaçu.

Parent material: Marine fine sediments of Chapada Serie; Lower Devonian, Neo-Paleozoic.

Source: Embrapa, Téc. Bol. No. 17, 1975, profile 49, pages 281-4.

$O_1$ : 5-0 cm Roots, leaves and little branches in the initial state of decomposition.

$A_{11}$ : 0-8 cm; 2.5YR 2/4; clay; moderate fine granular structure; slightly hard; very friable; abrupt smooth boundary.

$A_{12}$ : 8-17 cm; 2.5YR 2/3; clay; moderate fine granular structure; slightly hard, very friable; clear smooth boundary.

$A_3$ : 17-30 cm; 2.5YR 3/4; clay; moderate very fine blocky structure; slightly hard; very friable; clear smooth boundary

$B_1$ : 30-61 cm; 2.5YR 3/6; clay; weak very fine blocky structure; hard, friable; gradual smooth boundary.

$B_{22}$ : 88-255 cm; 1.5YR 3/6; clay; very fine granular structure with massive aspect, porous; very friable.

NOTES : At 255 cm depth there is a layer of rounded handened plinthite (laterite) concretions up to 1 cm diameter and sandstone fragments with ferruginous cement.
Many roots in $A_{11}$, common in $A_{12}$, and few in $A_3$. $B_1$, $B_{21}$ and $B_{22}$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_{11}$ | 5.8 | 5.3 | 3.16 | 0.32 | 4 | 70 | 0 |
| $A_{12}$ | 5.5 | 4.8 | 1.96 | 0.15 | 2 | 45 | 0 |
| $A_3$ | 5.1 | 4.2 | 1.36 | 0.12 | 2 | 25 | 40 |
| $B_1$ | 4.9 | 4.1 | 0.77 | 0.06 | 1 | 10 | 67 |
| $B_{21}$ | 5.4 | 4.2 | 0.45 | 0.04 | 1 | 8 | 63 |
| $B_{22}$ | 5.4 | 4.7 | 0.32 | 0.04 | 1 | 18 | 0 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 10.1 | 2.7 | 0.22 | 0.05 | 5.6 | 0 | 13.1 | 18.7 |
| 3.5 | 1.7 | 0.18 | 0.04 | 6.7 | 0 | 5.4 | 12.1 |
| 0.8 | 0.6 | 0.09 | 0.02 | 3.5 | 1.0 | 1.5 | 6.0 |
| 0.4 | | 0.03 | 0.02 | 3.7 | 1.0 | 0.5 | 5.2 |
| 0.3 | | 0.02 | 0.02 | 3.0 | 0.5 | 0.3 | 3.8 |
| 0.4 | | 0.03 | 0.02 | 2.3 | 0 | 0.5 | 2.8 |

Size class and particle diameter (mm)

| HOR | coarse fragments >20 | coarse fragments 20-2 | coarse sand 2-0.2 | fine sand 0.2-0.05 | Silt 0.05-0.02 | Clay <0.02 |
|---|---|---|---|---|---|---|
| $A_{11}$ | 0 | 1 | 16 | 24 | 17 | 43 |
| $A_{12}$ | 0 | 1 | 16 | 25 | 13 | 46 |
| $A_3$ | 0 | 1 | 14 | 23 | 14 | 49 |
| $B_1$ | 0 | 1 | 14 | 24 | 11 | 51 |
| $B_{21}$ | 0 | 1 | 13 | 23 | 11 | 53 |
| $B_{22}$ | 0 | 1 | 12 | 24 | 11 | 53 |

Mineralogical analysis:

$A_{11}$ : Sands: 47% quartz; 30% ferruginous concretions; 20% magnetite; 3% detritus and charcoal.

Gravel: 99% ferruginous and magnetitic concretions; 1% quartz.

$A_{12}$ : Sands: 60% quartz; 40% magnetite , ferruginous and Fe-clay concretions; traces of detritus.

Gravel: 98% ferruginous concretions and magnetite; 2% quartz.

$A_3$ : Sands: 70% quartz; 30% magnetite and ferruginous concretions; traces of detritus and coal.

Gravel: 99% magnetite , sandy-ferruginous, clay-ferruginous concretions; 1% quartz.

$B_{21}$ : Sands: 70% quartz; 30% ferruginous concretions, and sandy-ferruginous; traces of turmaline.

Gravel: 99% ferruginous, magnetite and sandy-ferruginous concretions; 1% quartz.

$B_{22}$ : Sands: 75% quartz;25% ferruginous and magnetite concretions.

Gravel: 99% ferruginous magnetite , sandy-ferruginous concretions; 1% quartz.

## LAND SYSTEM 34, Facet 2.

Classification: Areias Quartzosas Vermelhas e Amarelas-Quartzipsamment.

Location: Rondonopolis-Poxoreau road, 60Km from Rondonopolis, Municipio Poxoreau, State of Mato Grosso, Brazil.

Physiography: Midslope in a landscape of dissected surfaces with open "V" shaped valleys.

Topography: Gently undulating, site slope 1%.

Drainage: Excessively drained.

Vegetation: Cerrado.

Parent material: Sandstone of Aquidavana Series;Upper Carboniferous.

Source: Embrapa, Bol. Téc. No. 17, 1975, profile 8, pages 151-3.

$A_1$ : 0-7 cm; 5YR 3/2; sandy; weak fine granular structure, and single grain; very friable; abrupt smooth boundary.

AC : 7-35 cm. 5YR 3/3.5; sandy; weak fine granular structure, and single grain; very friable; clear smooth boundary.

$C_1$ : 35-67 cm. 2.5YR 4/6; sandy; single grain; loose; diffuse smooth boundary.

$C_2$ : 67-200 cm. 2.5YR 4/8; loamy sand; single grain; loose; nonplastic, nonsticky.

NOTE : Fine common roots in $A_1$, medium and coarse, throughout the profile.

| HOR | pH $H_2O$ | pH KCl | C | N | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.5 | 4.1 | 0.63 | 0.04 | 2 | 30 | 44 |
| AC | 5.4 | 4.3 | 0.37 | 0.03 | 2 | 7 | 71 |
| $C_1$ | 5.6 | 4.3 | 0.21 | 0.02 | 1 | 10 | 75 |
| $C_2$ | 5.6 | 4.4 | 0.11 | 0.01 | 1 | 18 | 60 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 12 | 0.2 | 0.08 | 0.03 | 2.3 | 1.2 | 1.5 | 5.0 |
| 0.2 | | 0.03 | 0.01 | 2.0 | 0.5 | 0.2 | 2.7 |
| 0.2 | | 0.03 | 0.01 | 1.3 | 0.6 | 0.2 | 2.1 |
| 0.2 | | 0.01 | 0.02 | 0.6 | 0.3 | 0.2 | 1.1 |

Size class and particle diameter (mm)

| HOR | coarse fragments >20 | coarse fragments 20-2 | coarse sand 2-0.2 | fine sand 0.2-0.05 | Silt 0.05-0.02 | Clay <0.02 |
|---|---|---|---|---|---|---|
| $A_1$ | 0 | 0 | 40 | 49 | 5 | 6 |
| AC | 0 | 0 | 43 | 47 | 4 | 6 |
| $C_1$ | 0 | 0 | 40 | 50 | 3 | 7 |
| $C_2$ | 0 | 0 | 40 | 45 | 6 | 9 |

Mineralogic analysis:

$A_1$ : Sands: 90% hyaline quartz; 1% detritus; traces of charcoal.

AC : Sands: 99% hyaline quartz; 1% detritus; traces of turmaline.

$C_1$ : Sands: 99% hyaline quartz; 1% detritus; traces of turmaline.

$C_2$ : Sands: 100% hyaline quartz; traces of turmaline and detritus.

## LAND SYSTEM 48, Facet 1.

Location: Areias Quartzosas Vermelhas e Amarelas-Quartzipsamment.

Location: Canal São Simão-Jatai route,122Km from C.São Simão, Municipio Jatai, Goias State, Brazil

Physiography: Top of a hill.Surrounding landscape is gently undulating with "V" shaped valleys with concave bottoms.

Topography: Level, 0.5% slope of a site.

Drainage: Excessively drained.

Vegetation: Cerradão.

Parent material: Baurú sandstone; Cretaceous.

Source: Embrapa, Bol. Téc. No. 17, 1975, profile 6, pages 143-6.

$A_1$ : 0-8 cm. 5YR 3/3; sandy loam; weak fine granular structure and single grain; slightly hard; friable; clear smooth boundary.

AC : 8-26 cm. 2.5YR 3/4; sandy loam; weak fine granular structure and single grain; slightly hard,friable, gradual smooth boundary.

$C_1$ : 26-75 cm. 2.5YR 3/5; loamy sand; weak, very fine granular structure and single grain; slightly hard, very friable; diffuse smooth boundary.

$C_2$ : 75-115 cm. 10YR 3/5; sandy loam; medium granular structure and single grain, with massive aspect; very porous; friable; diffuse smooth boundary.

$C_3$ : 115-240 cm. 10YR 3/6; sandy loam; fine granular structure and single grain, with massive aspect, very porous; very friable; diffuse smooth boundary.

$C_4$ : 240-280 cm+. 10YR 3/6; sandy loam, slightly plastic and slightly sticky.

NOTES : Many coarse, medium and fine roots in $A_1$, many medium in AC, few fine roots in $C_1$; from $C_2$ are scarce, some coarse roots.

| HOR | pH $H_2O$ | pH KCl | C | N | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.0 | 3.9 | 1.80 | 0.11 | 16 | 7 | 61 |
| AC | 4.4 | 4.2 | 0.47 | 0.04 | 11 | 7 | 73 |
| $C_1$ | 4.3 | 4.3 | 0.31 | 0.03 | 6 | 7 | 75 |
| $C_2$ | 5.1 | 4.5 | 0.17 | 0.02 | 4 | 13 | 67 |
| $C_3$ | 5.4 | 4.6 | 0.15 | 0.02 | 1 | 17 | 60 |
| $C_4$ | 5.6 | 4.8 | 0.16 | 0.02 | 1 | 20 | 50 |

ECHANGE COMPLEX (meq/100 g)

| Ca + Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 1.0 | 0.22 | 0.02 | 15.1 | 1.9 | 1.2 | 18.2 |
| 0.2 | 0.04 | 0.01 | 3.3 | 0.8 | 0.3 | 4.4 |
| 0.2 | 0.02 | 0.01 | 1.9 | 0.6 | 0.2 | 2.7 |
| 0.2 | 0.01 | 0.01 | 0.9 | 0.4 | 0.2 | 1.5 |
| 0.2 | 0.01 | 0.01 | 0.7 | 0.3 | 0.2 | 1.2 |
| 0.2 | 0.02 | 0.02 | 0.6 | 0.2 | 0.2 | 1.0 |

Mineralogical analysis:

$A_1$ : Sands : 97% quartz; 3% detritus; and charcoal.

AC : Sands : 98% quartz; 1% magnetite; 1% detritus; traces of turmaline.

$C_1$ : Sands : 100% quartz; traces of magnetite and charcoal.

$C_2$ : Sands : 100% quartz; traces of magnetite.

$C_3$ : Sands : 100% quartz; traces of magnetite concretions.

$C_4$ : Sands : 100% quartz; traces of magnetite and turmaline.

## LAND SYSTEM 49, Facet 1.

Classification: Latosol Roxo-Eutrustox.

Location: Rio Verde-Jatai road; 4Km from Rio Verde, near the airport, Goias State, Brazil.

Physiography: Upper slope in a landscape of flat top hills with open "V" shaped valleys.

Topography: Gently undulating, site slope 1%.

Drainage: Somewhat excessivelly drained.

Vegetation: Cerrado.

Parent material: Basalt.

Source: Embrapa, Bol. Téc. No. 17, 1975, profile 37, pages 236-8.

$A_1$ : 0-17 cm. 10YR 3/3; clay; moderate fine granular structure; slightly hard, friable; diffuse smooth boundary.

$A_3$ : 17-37 cm. 10R 3/3; clay; weak fine granular structure; slightly hard; friable; diffuse smooth boundary.

$B_1$ : 37-78 cm. 10YR 3/4; clay; fine granular structure with very porous aspect; very friable; gradual and smooth boundary.

$B_{21}$ : 78-250 cm. 10YR 3/4; clay; very fine granular structure with massive aspect very porous ; very fraible; diffuse smooth boundary.

$B_{22}$ : 250-320 cm$^+$. 10R 3/5; very clay; very plastic and very sticky.

NOTE : Many fine roots in $A_1$; common fine in $A_3$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.6 | 4.5 | 1.55 | 0.10 | 4 | 7 | 50 |
| $A_3$ | 4.9 | 4.8 | 1.19 | 0.07 | 1 | 8 | 33 |
| $B_1$ | 5.1 | 5.3 | 0.68 | 0.05 | - | 8 | 0 |
| $B_{21}$ | 5.4 | 5.7 | 0.57 | 0.03 | - | 10 | 0 |
| $B_{22}$ | 5.5 | 6.5 | 0.24 | 0.02 | 0 | 18 | 0 |

EXCHANGE COMPLEX (meq/100 g)

| Ca + Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 0.4 | 0.07 | 0.03 | 5.9 | 0.5 | 0.5 | 6.9 |
| 0.3 | 0.04 | 0.03 | 4.3 | 0.2 | 0.4 | 4.9 |
| 0.2 | 0.03 | 0.03 | 3.3 | 0 | 0.3 | 3.6 |
| 0.3 | 0.02 | 0.03 | 2.8 | 0 | 0.3 | 3.1 |
| 0.3 | 0.01 | 0.03 | 1.4 | 0 | 0.3 | 1.7 |

Mineralogical analysis:

$A_1$ : Sands: 85% quartz; 15% magnetic ilmenite; ferruginous concretions and magnetite.

$A_3$ : Sands: 80% quartz; 20% magnetite, ferruginous concretions and ilmenite.

$B_1$ : Sands: 90% quartz; 10% ferruginous concretions and magnetite.

$B_{21}$ : Sands: 70% quartz; 30% ferruginous concretions and magnetite.

$B_{22}$ : Sands: 60% quartz; 40% ferruginous concretions, magnetic ilmenite and magnetite.

## LAND SYSTEM 54, Facet ..

Classification: Latosol Vermelho Escuro-Haplustox.

Location: Rondonopolis-Coxim road, 17Km from Rio Poguba, Mato Grosso State, Brazil.

Physiography: Flat surface of a "chapada" landscape (upland plateau).

Topography: Gently undulating; site slope 1.5%.

Drainage: Excessivelly drained.

Vegetation: Cerrado.

Parent material: Fine grain marine sediments of Chapadas Serie; Paleozoic.

Source: Embrapa, Bol. Téc. No. 17, 1975, profile 51, pages 289-92.

$A_{11}$ : 0-5 cm. 2.5YR 3/3; clay; strong fine granular structure slightly hard; very friable; clear smooth boundary.

$A_{12}$ : 5-15 cm. 2.5YR 3/4; clay; moderate fine granular structure; slightly hard; very friable; clear smooth boundary .

$A_3$ : 15-29 cm. 2.5YR 3/6; clay; moderate fine granular structure; slightly hard; friable; clear smooth boundary.

$B_1$ : 29-51 cm. 2.5YR 3/6; clay; weak fine granular structure; slightly hard; very friable; diffuse smooth boundary.

$B_{21}$ : 51-103 cm. 10YR 3/6; clay; fine granular structure with massive aspect little porous; hard, friable; diffuse smooth boundary.

$B_{22}$ : 103-300 cm$^+$. 1.5YR 3.5/6; clay; fine granular structure with massive aspect very porous; slightly hard, very friable; plastic and sticky.

NOTE : Many fine roots in $A_{11}$; few coarse and medium roots throughtout the profile.

Mineralogical analysis:

$A_{11}$ : Sands: 58% quartz; 38% ferruginous and Fe-clay concretions; 4% detritus; traces of turmaline and magnetite.

$A_{12}$ : Sands: 60% quartz; 36% ferruginous concretions; 3% detritus; 1% charcoal; traces of muscovite, turmaline and magnetite.

$A_3$ : Sands: 58% quartz; 38% ferruginous and Fe-clay concretions; 4% detriuts; traces of magnetite and charcoal.

$B_1$ : Sands: 56% quartz; 40% ferruginous and Fe-clay concretions; 4% detritus; traces of magnetite and charcoal.

$B_{21}$ : Sands: 58% hyaline quartz; 40% ferruginous and Fe-clay concretions; traces of detritus, charcoal and magnetite.

$B_{22}$ : Sands. 64% quartz; 35% ferruginous and Fe-clay concretions; 1% detritus; traces of magnetite and charcoal.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_{11}$ | 5.1 | 4.1 | 1.85 | 0.11 | 1 | 15 | 54 |
| $A_{12}$ | 5.0 | 4.1 | 1.89 | 0.11 | 1 | [illegible] | 78 |
| $A_3$ | 5.1 | 4.2 | 1.65 | 0.09 | 1 | 8 | 75 |
| $B_1$ | 5.3 | 4.3 | 1.03 | 0.06 | 1 | 7 | 73 |
| $B_{21}$ | 5.5 | 4.5 | 0.67 | 0.04 | 1 | 9 | 63 |
| $B_{22}$ | 5.9 | 4.7 | 0.44 | 0.03 | 1 | 12 | 40 |

EXCHANGE COMPLEX (meq/100 g)

| Ca + Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 1.1 | 0.11 | 0.03 | 5.5 | 54 | 1.2 | 8.1 |
| 0.3 | 0.10 | 0.01 | 4.5 | 78 | 0.4 | 6.3 |
| 0.3 | 0.08 | 0.02 | 3.3 | 75 | 0.4 | 4.9 |
| 0.3 | 0.03 | 0.01 | 3.4 | 73 | 0.3 | 4.5 |
| 0.2 | 0.09 | 0.02 | 2.6 | 63 | 0.3 | 3.4 |
| 0.3 | 0.01 | 0.01 | 2.0 | 40 | 0.3 | 2.5 |

## LAND SYSTEM 57, Facet 1 (stony fase)

Classification: Solos Indiscriminados Concrecionarios-Tropicales, con B latosólico-Eutrustox.

Location: Cuiabá-Cáceres road, 34Km from Cuiabá, Mato Grosso State, Brazil.

Physiography: Small hills with "V" shaped valleys. Profile

located in upper slope.

Topography: Gently undulating, site slope 1.5-2%.

Vegetation: Cerrado.

Parent material: Quartzite, micacite of Cuiabá Serie, Pre-Cambrian.

Source: Embrapa, Bol. Téc. No. 17, 1975, profile 89, pages 418-22.

$A_1cn$ : 0-9 cm. 10YR 4/2.5; loam with gravel; weak fine granular structure; slightly hard, very friable; lateritic concretions; clear smooth boundary.

$A_3cn$ : 9-19 cm. 10YR 5/4; clay loam with gravel;weak fine granular structure; slightly hard, very friable; lateritic concretions; clear smooth boundary.

$B_1cn$ : 19-33 cm. 10YR 5/5; clay loam with gravel; fine granular with massive porous aspect; slightly hard very friable; lateritic concretions; clear smooth boundary.

$B_{21}cn$ : 33-49 cm. 10YR 5/4; clay loam; fine granular with porous and massive aspect; slightly hard, very friable; lateritic concretions; clear smooth boundary.

$B_{22}cn$ : 49-67 cm. 10YR 5/4; clay loam; fine granular with porous massive aspect; slightly hard; very friable lateritic concretions; gradual smooth boundary.

$B_3$ : 67-85 cm. 8.5YR 5/ ; common medium prominent mottles 1YR 4/6; clay; very fine granular structure with few pores and massive aspect; hard, friable; abrupt wavy boundary.

C : 85-120 cm+. yellow, red and purple colours mixed; clay.

NOTES : Many roots in $A_1cn$, few in $A_3cn$ and $B_1cn$; scarce in $B_{21}cn$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1cn$ | 5.9 | 4.6 | 1.61 | 0.12 | 5 | 45 | 10 |
| $A_3cn$ | 5.2 | 4.1 | 0.79 | 0.07 | 2 | 18 | 59 |
| $B_1cn$ | 5.3 | 4.1 | 0.69 | 0.06 | 1 | 17 | 65 |
| $B_{21}cn$ | 5.7 | 4.3 | 0.30 | 0.05 | 10 | 21 | 53 |
| $B_{22}cn$ | 5.8 | 4.3 | 0.12 | 0.03 | 1 | 19 | 50 |
| $B_3$ | 5.6 | 4.2 | 0.20 | 0.03 | 1 | 22 | 60 |
| C | 5.7 | 4.1 | 0.09 | 0.02 | 1 | 24 | 67 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 3.4 | | 0.27 | 0.03 | 4.1 | 0.4 | 3.7 | 8.2 |
| 0.7 | | 0.15 | 0.03 | 2.7 | 1.3 | 0.9 | 4.9 |
| 0.6 | | 0.12 | 0.03 | 2.5 | 1.5 | 0.8 | 4.8 |
| 0.6 | | 0.08 | 0.04 | 1.9 | 0.8 | 0.7 | 3.4 |
| 0.5 | | 0.06 | 0.04 | 1.9 | 0.6 | 0.6 | 3.1 |
| 0.7 | | 0.07 | 0.03 | 1.6 | 1.2 | 0.8 | 3.6 |
| 0.8 | | 0.06 | 0.04 | 1.1 | 1.8 | 0.9 | 3.8 |

Size class and particle diameter (mm)

| HOR | coarse fragments >20 | coarse fragments 20-2 | coarse sand 2-0.2 | fine sand 0.2-0.05 | Silt 0.05-0.02 | Clay <0.02 |
|---|---|---|---|---|---|---|
| $A_1cn$ | 6 | 73 | 19 | 23 | 33 | 25 |
| $A_3cn$ | 5 | 72 | 13 | 26 | 29 | 32 |
| $B_1cn$ | 7 | 70 | 12 | 23 | 29 | 36 |
| $B_{21}cn$ | 0 | 46 | 16 | 18 | 31 | 35 |
| $B_{22}cn$ | 0 | 21 | 13 | 19 | 30 | 38 |
| $B_3$ | 0 | 6 | 5 | 18 | 35 | 42 |
| C | 0 | 0 | 1 | 13 | 41 | 45 |

Mineralogical analysis:

$A_1cn$ : Sands: 60% quartz; 40% ferruginous and magnetite concretions; traces of detritus. Gravels and boulders: 100% quartz fragments.

$A_3cn$ : Sands: 70% quartz; 30% ferruginous concretions. Boulders: 100% quartz fragments.

$B_1cn$ : Sands: 70% quartz; 30% ferruginous concretions; Gravel: 50% ferruginous and ferromanganous concretions; 50% quartz.

$B_{21}cn$ : Sands: 70% ferruginous and ferromanganous concretions; 30% quartz; traces of turmaline.

Gravel: 95% ferruginous and ferromanganous concretions, and fragments of heavy rocks; 5% quartz.

$B_{22}cn$ : Sands: 50% quartz; 50% ferruginous and ferromanganous concretions.

Gravel: 50% ferruginous concretions, weathered rock fragments and ferromanganous concretions; 50% quartz.

$B_3$ : Sands: 70% quartz; 30% ferruginous and ferromanganous concretions; traces of turmaline and detritus.

Gravel: 70% quartz; 30% ferruginous and ferromanganous concretions.

C : Sands: 90% quartz; 5% turmaline; 5% ferruginous concretions; traces of magnetite.

## LAND SYSTEM 58, Facet 2.

Classification: Brunizem Avermelhado-Rnodustalf.

Location: BR-29 between Rosario Oeste and Vilhena, 7Km from Nobres, Mato Grosso, Brazil.

Physiography: Footslope in intermontane valleys.

Topography: Gently undulating, site slope 5-10%

Drainage: Moderately drained.

Vegetation: Campo Cerrado.

Parent material: Limestones of Araras Group; Cambro-Ordovicic, Paleozoic.

Source: Embrapa, Bol. Téc. No. 17, 1975, profile 58, pages 160-2.

A : 0-25 cm. 2.5YR 2/1; clay loam; moderate fine granular struture; slightly hard, friable; clear smooth boundary.

$B_2t$ : 25-65 cm. 2.5YR 2/4; common fine diffuse mottles 2.5YR 3/4; clay; strong coarse prismatic structure; common strong clay skins; very hard; friable; gradual smooth boundary.

C : 65-80 cm. 2.5YR 3/4; slight reaction to HCl;clay; moderate coarse prismatic structure; common strong clay skins; very hard, friable; very plastic, very sticky.

NOTE : Common roots in A , disminishing up to $B_2t$. Calcareous out crops in the surrounding.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| A | 5.9 | 5.3 | 1.78 | 0.14 | 8 | 84 | 0 |
| $B_2t$ | 6.7 | 5.6 | 0.78 | 0.08 | 3 | 92 | 0 |
| C | 6.8 | 6.0 | 0.48 | 0.03 | 4 | 96 | 0 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 14.8 | 4.5 | 0.24 | 0.06 | 3.6 | 0 | 19.6 | 23.2 |
| 11.4 | 4.9 | 0.12 | 0.09 | 1.5 | 0 | 16.5 | 18.0 |
| 9.2 | 4.0 | 0.09 | 0.09 | 0.6 | 0 | 13.4 | 14.0 |

Mineralogical analysis:

A : Sands: 90% quartz; 5% ferruginous concretions; 5% charcoal and detritus.

Gravel: 50% ferruginous concretions; 40% Si-clay material ; 10% quartz; traces of calcedonian fragments.

$B_2t$ : Sands: 70% quartz; 15% Si-clay material; 15% ferruginous concretions and ferromanganous concretions.

Gravel: 40% quartz; 30% ferruginous and ferromanganous concretions; 30% Si-clay material.

C : Sands: 85% quartz; 5% ferruginous concretions; 10% Si-clay concretions.

Gravel: 60% quartz; 30% ferruginoous and ferromanganosu concretions; 10% Si-clay material.

## LAND SYSTEM 59, Facet 1.

Classifiction: Latosol Vermelho Escuro-Acrustox.

Location: Porto Velho-Cuiabá road, 69Km from Semidouro, Mato Grosso State, Brazil.

Physiography: "Chapada" (Upland plateau). Slightly dissected surfaces with very open "V" shaped valleys.

Topography: Gently undulating; site slope 0.5-1%.

Drainage: Somewhat excessively drained.

Vegetation: Cerrado.

Parent material: Sandstone of Parecis Serie; Mesozoic.

Source: Embrapa, Bol. Téc. No. 17, 1975, profile 53, pages 297-9.

$A_{11}$ : 0-6 cm. 2.5YR 3/3; sandy clay loam; moderate fine granular structure; slightly hard, friable; clear smooth boundary.

$A_{12}$ : 6-12 cm. 2.5YR 3/4; sandy clay loam; moderate fine granular structure; slightly hard, friable; clear smooth boundary.

$A_3$ : 12-24 cm. 2.5YR 3/4; sandy clay loam; moderate fine granular structure; slightly hard, friable; clear smooth boundary.

$B_1$ : 24-42 cm. 2.5YR 3/6; sandy clay; fine granular structure with massive aspect, very porous; clear smooth boundary.

$B_{21}$ : 42-64 cm. 2.5YR 3/4; sandy clay; fine granular structure with massive aspect, very porous; very friable; gradual smooth boundary.

$B_{22}$ : 64-310 cm. 2.5YR 4/7; sandy clay; fine granular structure with massive aspect, very porous;very friable; palstic and sticky.

NOTE : Common medium and coarse roots fron $A_{11}$ to $B_{22}$. Many fine roots diminishing up to $B_{21}$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_{11}$ | 5.2 | 4.2 | 1.35 | 0.08 | 2 | 8 | 71 |
| $A_{12}$ | 5.2 | 4.3 | 1.16 | 0.07 | 1 | 5 | 80 |
| $A_3$ | 5.2 | 4.3 | 0.89 | 0.05 | 1 | 6 | 75 |
| $B_1$ | 5.3 | 4.4 | 0.73 | 0.04 | 1 | 8 | 70 |
| $B_{21}$ | 5.5 | 4.7 | 0.43 | 0.03 | 1 | 12 | 57 |
| $B_{22}$ | 5.7 | 5.3 | 0.37 | 0.02 | 1 | 13 | 50 |

EXCHANGE COMPLEX (meq/100 g)

| Ca + Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 0.4 | 0.09 | 0.01 | 4.8 | 71 | 0.5 | 6.5 |
| 0.2 | 0.08 | 0.01 | 4.3 | 80 | 0.3 | 5.8 |
| 0.2 | 0.09 | 0.02 | 3.6 | 75 | 0.3 | 4.8 |
| 0.2 | 0.11 | 0.02 | 2.6 | 70 | 0.3 | 3.6 |
| 0.2 | 0.06 | 0.01 | 1.8 | 57 | 0.3 | 2.5 |
| 0.2 | 0.03 | 0.01 | 1.1 | 50 | 0.2 | 1.5 |

## LAND SYSTEM 70, Facet 1.

Classification: Regosol distrófico-Ustipsament.

Location: Aguidavana-Bonito road, 6.5Km before rio Miranda, Mato Grosso State, Brazil.

Physiography: Midslope in a landscape of convex hills about 100 meters high with rounded tops and open "V" shaped valleys.

Topography: Undulating, general slope 5-15%; site slope 70%.

Drainage: Somewhat excessively drained.

Vegetation: Semi-deciduous forest with some Cerrado species.

Parent material: Schist and other rocks from Cuibá Serie. Pre-Cambrian.

Source: Embrapa, Bol. Téc. No. 18, 1971, profile 84, pp 673-5.

$A_1$ : 0-10 cm. 10YR 3/2; sandy loam gravel;weak fine granular structure; clear wavy boundary.

AC : 10-35 cm. 7.5YR 3/2; gravelly sandy clay loam; weak fine granular structure; plastic and sticky, abrupt wavy boundary.

IIC : 35-100 cm+. 2.5YR 4/8; loam.

NOTE : Common roots in $A_1$, few in AC.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al. S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 6.0 | 4.6 | 1.26 | 0.13 | 4 | 57 | 7 |
| AC | 5.0 | 3.9 | 1.01 | 0.11 | 3 | 32 | 43 |
| IIC | 4.9 | 3.8 | 0.74 | 0.09 | 2 | 21 | 67 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 2.0 | 1.7 | 0.56 | 0.07 | 2.9 | 0.3 | 4.3 | 7.5 |
| 0.9 | 0.8 | 0.20 | 0.05 | 2.8 | 1.5 | 2.0 | 6.3 |
| 0.7 | 0.5 | 0.18 | 0.05 | 2.5 | 2.8 | 1.4 | 6.7 |

Size class and particle diameter (mm)

| HOR | coarse fragments >20 | coarse fragments 20-2 | coarse sand 2-0.2 | fine sand 0.2-0.05 | Silt 0.05-0.02 | Clay <0.02 |
|---|---|---|---|---|---|---|
| $A_1$ | 14 | 70 | 15 | 49 | 18 | 18 |
| AC | 6 | 68 | 12 | 43 | 21 | 24 |
| C | 0 | 0 | 8 | 26 | 43 | 23 |

Mineralogical analysis:

$A_1$ : Sands: 95% quartz; 5% magnetite and ferruginous concretions, traces of turmaline, muscovite, and detritus.
Gravel and boulder: quartz.

AC : Sands: 94% quartz; 3% hematite and magnetite; 3% felspar and biutite.
Gravel and boulder: quartz.

IIC : Sands: 85% quartz; 10% schist fragments; 5% magnetite and hematitic concretions; traces of biotite, hematite and turmaline.

## LAND SYSTEM 70, Facet 2.

Classification: Podzólico Vermelho Amarelo, equivalente eutrófico-Haplustalf.

Location: 500 mts from Fazenda Carrapatinho, Mato Grosso State, Brazil.

Physiography: Elevated plain surface.

Topography: Gently undulating.

Drainage: Well drained.

Vegetation: Semideciduous forest.

Parent material: Sandy deposits from sandstone of Aquidavana Serie.

Source: Embrapa, Bol. Téc. No. 18, 1971, profile 115, pp 287-90.

$A_1$ : 0-15 cm. 5YR 3/2; sandy loam; moderate fine granular structure; slightly hard, very friable; gradual smooth boundary.

$A_3$ : 15-35 cm. 2.5YR 3/4; sandy clay loam; moderate fine granular structure; slightly hard, very friable; abrupt smooth boundary.

$B_1t$ : 35-55 cm. 2.5YR 4/4; sandy clay; weak fine blocky structure; few clay skins, hard, friable; gradual smooth boundary.

$B_2t$ : 55-115 cm. 1.5YR 3/6; clay; strong fine blocky structure; common faint clay skins; hard, friable; abrupt smooth boundary.

$B_3t$ : 115-310 cm+. 10R 3/6; sandy clay; weak fine blocky structure; slightly hard, friable; plastic and sticky.

NOTE : Common roots in $A_1$ and $A_3$, few in $B_1t$ and $B_2t$. Intense biological activity to $B_3t$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 6.6 | 6.0 | 1.03 | 0.08 | 31 | 65 | 0 |
| $A_3$ | 5.5 | 3.9 | 0.52 | 0.05 | 4 | 44 | 19 |
| $B_1t$ | 5.5 | 4.0 | 0.46 | 0.05 | 1 | 51 | 13 |
| $B_2t$ | 5.4 | 4.0 | 0.28 | 0.04 | 1 | 51 | 15 |
| $B_3t$ | 5.4 | 3.8 | 0.16 | 0.04 | 1 | 41 | 27 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 3.2 | 1.4 | 0.29 | 0.04 | 2.6 | 0.0 | 4.9 | 7.5 |
| 1.1 | 0.9 | 0.18 | 0.04 | 2.4 | 0.4 | 2.2 | 5.0 |
| 1.7 | 0.9 | 0.13 | 0.04 | 2.3 | 0.4 | 2.8 | 5.5 |
| 1.8 | 0.9 | 0.08 | 0.04 | 2.0 | 0.5 | 2.8 | 5.3 |
| 0.7 | 0.7 | 0.11 | 0.05 | 1.7 | 0.6 | 1.6 | 3.9 |

Size class and particle diameter (mm)

| HOR | coarse fragments >20 | coarse sand 20-2 | fine sand 2-0.02 | Silt 0.02-0.05 | Clay 0.05-0.02 | <0.02 |
|---|---|---|---|---|---|---|
| $A_1$ | 0 | 1 | 22 | 48 | 15 | 15 |
| $A_3$ | 0 | 1 | 21 | 46 | 13 | 20 |
| $B_1t$ | 0 | 1 | 16 | 32 | 12 | 35 |
| $B_2t$ | 0 | 1 | 13 | 27 | 10 | 50 |
| $B_3t$ | 0 | 2 | 13 | 37 | 11 | 39 |

Mineralogical analysis:

$A_3$ : Sands : 100 incolore quartz; traces of sericite; turmaline, hematite, ilmenite, etc.

Gravel : Quartz predominating and ferruginous concretions.

$A_1$ : Sands : 100 quartz; traces of sericite, turmaline, hematite, ilmenite, ferruginous and humic-clay concretions.

Gravel : Clay and ferruginous concretions predominating.

The rest of the profile is similar to the last sample.

## LAND SYSTEM 72, Facet 1.

Classification: Areias Quartzosas distróficas.Ustipsamment.

Location: Campo Grande-Presidente Epitacio road, 73Km from Campo Grande, Mato Grosso State, Brazil.

Physiography: Elevated plain surface dissected by open "V" valleys.

Topography: Gently undulating, slope 0-3 .

Drainage: Excessively drained.

Vegetation: Cerrado.

Parent material: Caiavá Sandstone, Jurassic, Mesozoic.

Source: Embrapa, Bol. Téc. No.18, 1971, profile 13, pages 48-50.

$A_1$ : 0-16 cm. 5YR 4/4; sandy; weak, fine granular structure; very friable, diffuse smooth boundary.

AC : 16-56 cm. 5YR 4/4; sandy; weak fine granular structure; very friable; diffuse smooth boundary.

$C_1$ : 56-78 cm. 2.5YR 4/6; loamy sand; weak fine granular structure; very friable; gradual smooth boundary.

$C_2$ : 78-108 cm. 2.5YR 3/6; loamy sand; weak fine granular structure; very friable; diffuse smooth boundary.

$C_3$ : 108-168 cm(+). 2.5YR 3/6; loamy sand; weak fine granular structure; very friable; slightly plastic and nonsticky.

NOTES : Many roots in $A_1$ and AC, common roots in $C_1$, $C_2$ and $C_3$. Pores throughout the profile.

Mineralogic analysis:

$A_1$ : Sands: 97% quartz; 2% detritus; 1% magnetite.

AC : Sands: 98% quartz; 2% magnetite; traces of turmaline.

$C_1$ : Sands: 99% quartz; 1% magnetite; traces of turmaline.

$C_2$ : Sands: 99% quartz; 1% magnetite and ilmenite; traces of detritus and turmaline.

$C_3$ : Sands: 99% quartz; 1% magnetite and ilmenite; traces of turmaline.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.9 | 4.0 | 0.62 | 0.05 | <1 | 15 | 50 |
| AC | 5.3 | 4.2 | 0.31 | 0.03 | <1 | 10 | 67 |
| $C_1$ | 5.1 | 4.2 | 0.24 | 0.03 | <1 | 17 | 63 |
| $C_2$ | 5.2 | 4.2 | 0.21 | 0.03 | <1 | 12 | 67 |
| $C_3$ | 5.4 | 4.2 | 0.14 | 0.03 | <1 | 17 | 50 |

EXCHANGE COMPLEX (meq/100 g)

| Ca + Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 0.4 | 0.07 | 0.02 | 2.3 | 50 | 0.5 | 3.3 |
| 0.2 | 0.02 | 0.02 | 1.4 | 67 | 0.2 | 2.0 |
| 0.3 | 0.01 | 0.03 | 1.0 | 63 | 0.3 | 1.8 |
| 0.2 | 0.01 | 0.02 | 1.1 | 57 | 0.2 | 1.7 |
| 0.3 | 0.01 | 0.02 | 1.2 | 0 | 0.3 | 1.8 |

## LAND SYSTEM 73, Facet 1.

Classification: Latosol Roxo Distrófico.

Location: Dourados-Itaporã road, 5.5Km from Dourados, Mato Grosso State, Brazil.

Topography: Gently undulating; slope 2.5%.

Drainage: Somewhat excessively drained.

Vegetation: Semi-evergreen forest.

Parent material: Basic eruptive rocks.

Source: Embrapa, Bol. Téc. No. 18, 1971, profile 11, pages 208-11.

$O_1$ : 4-0 cm. Vegetable detritus in decomposition

$A_1$ : 0-10 cm. 10R 3/3; heavy clay; moderate fine granular structure; slightly hard, friable; clear smooth boundary.

$A_3$ : 10-21 cm. 10R 3/3; heavy clay; moderate medium granular structure; slightly hard; friable; clear smooth boundary.

$B_1$ : 21-43 cm. 10R 3/4; heavy clay; massive porous to blocky and granular structure; slightly hard, friable; gradual smooth boundary.

$B_{21}$ : 43-87 cm 10R 3/4; heavy clay; fine granular blocky with porous massive aspect; very friable; diffuse smooth boundary.

$B_{22}$ : 87-126 cm. 10R 3/4; heavy clay; very fine granular structure with porous massive aspect; very friable; diffuse smooth boundary.

$B_{23}$ : 126-252 cm (+), 10R 3/4; heavy clay; very fine granular structure with porous massive aspect; very friable; plastic and sticky.

NOTE : Primary and secondary roots 1-5 cm diameter, many in $A_1$ and $A_3$, common in $B_1$ and $B_{21}$, few in $B_{22}$, rare in $B_{23}$. Pores throughout the profile, in greater proportion in $A_1$ and $A_3$. Biological activity in $A_1$, $A_3$ and $B_1$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.4 | 5.0 | 3.76 | 0.44 | 7 | 65 | 1 |
| $A_3$ | 4.4 | 4.1 | 1.68 | 0.19 | 1 | 26 | 45 |
| $B_1$ | 4.5 | 4.0 | 1.14 | 0.12 | <1 | 14 | 69 |
| $B_{21}$ | 5.0 | 4.2 | 0.66 | 0.07 | <1 | 22 | 53 |
| $B_{22}$ | 4.9 | 4.2 | 0.50 | 0.05 | <1 | 20 | 58 |
| $B_{23}$ | 5.1 | 4.3 | 0.35 | 0.04 | <1 | 14 | 70 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 10.0 | 3.9 | 0.61 | 0.04 | 7.6 | 0.2 | 14.6 | 22.4 |
| 1.4 | 1.4 | 0.24 | 0.02 | 6.5 | 2.5 | 3.1 | 12.1 |
| 0.5 | 0.7 | 0.13 | 0.02 | 5.4 | 3.1 | 1.4 | 9.9 |
| 0.2 | 1.5 | 0.02 | 0.02 | 4.1 | 1.9 | 1.7 | 7.7 |
| 0.1 | 1.1 | 0.06 | 0.02 | 3.3 | 1.8 | 1.3 | 6.4 |
| 0.1 | 0.5 | 0.17 | 0.02 | 3.2 | 1.9 | 0.8 | 5.9 |

Mineralogical analysis:

$A_1$ : Sands: 64% detritus; 25% magnetite; 4% Fe-clay concretions; 4% ferruginous concretions; 2% quartz; 1% manganous concretions; traces of mica.

$A_3$ : Sands: 85% magnetite; 5% detritus; 5% Fe-clay and ferruginous concretions; 3% quartz; 2% manganous concretions; traces of mica and felspars.

$B_1$ : Sands: 86% magnetite; 7% Fe-clay and ferruginous concretions; 4% hyaline quartz; 2% detritus; 1% manganous concretions.

$B_{22}$ : Sands: 88% magnetite; 6% ferruginous concretions and Fe-clay concretions; 4% quartz; 1% detritus; 1% manganous concretions.

$B_{23}$ : Sands: 91% magnetite; 5% ferruginous concretions; 3% quartz; 1% manganous concretions.

## LAND SYSTEM 73, Facet 2 (poorly drained fase)

Classification: Laterita Hidromorfica Não Solódica Eutrófica - Tropaqualf.

Location: Rio Brilhante-Dourados road, 14Km from Rio Brilhante, Mato Grosso State, Brazil.

Physiography: "Varzea" or flood plain.

Topography: Flat.

Drainage: Poorly drained.

Vegetation: Poorly drained savanna.

Parent material: Sandy and clay sediments of fluvial origin.

Source: Embrapa, Bol. Téc. No. 18, 1971, profile 38, pages 607-10.

$A_{11}$ : 0-10 cm. 10YR 3/2; clay loam; weak fine granular structure; friable; clear wavy boundary.

$A_{12}$ : 10-22 cm. 10YR 4/2; sandy clay loam; weak fine granular structure; friable; abrupt wavy boundary.

$A_2$gcn : 22-40 cm. 10YR 5/2; sandy clay loam with gravel; weak fine blocky structure, hard, firm; abrupt smooth boundary.

$B_{21}$tgn: 40-110 cm. 10YR 5/1; many great prominent mottles 5YR 4/6; clay with gravel; moderate fine prismatic structure; very hard, very firm; abrupt smooth boundary.

$B_{22}$tg : 100-130 cm+. N 5/ ; common fine prominent mottles 2.5YR 4/8; to 10YR 5/6; clay; moderate fine prismatic structure; very hard, very firm; plastic and very sticky.

NOTE : Water-table to 130 cm depth. Common roots in $A_{11}$ and $A_{12}$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_{11}$ | 5.0 | 4.0 | 2.90 | 0.32 | 3 | 46 | 13 |
| $A_{12}$ | 5.2 | 4.0 | 0.75 | 0.10 | 2 | 44 | 21 |
| $A_2$gcn | 5.1 | 3.9 | 0.53 | 0.07 | 1 | 46 | 25 |
| $B_{21}$tgn | 5.0 | 3.9 | 0.32 | 0.04 | 4 | 53 | 26 |
| $B_{22}$tg | 4.9 | 3.9 | 0.21 | 0.03 | 9 | 72 | 12 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 7.3 | 2.1 | 0.29 | 0.11 | 10.2 | 1.4 | 9.8 | 21.4 |
| 3.1 | 1.0 | 0.05 | 0.06 | 4.3 | 1.1 | 4.2 | 9.6 |
| 2.9 | 1.0 | 0.05 | 0.05 | 3.4 | 1.3 | 4.0 | 8.7 |
| 5.5 | 1.8 | 0.03 | 0.07 | 4.0 | 2.6 | 7.4 | 14.0 |
| 10.9 | 3.9 | 0.08 | 0.10 | 3.9 | 2.0 | 15.0 | 20 .9 |

Mineralogical analysis:

$A_{11}$ : Sands: 78% quartz; 12% ilmenite; 10% detritus.

$A_{12}$ : Sands: 88% quartz; 4% ferruginous concretions; 4% ilmenite; 4% detritus.

$A_2$gcn: Sands: 60% quartz; 20% ferruginous concretions; 19% ilmenite; 1% detritus.

$B_{21}$tgcn: Sands: 69% ferruginous and Fe-clay concretions; 30% quartz; 1% ilmenite.

$B_{22}$tgcn: Sands: 60% ferruginous and Fe-clay concretions; 40% quartz.

## LAND SYSTEM 77, Facet 1.

Classification: Podzólico Vermelho Amarelo.

Location: Jardin-Vila Gaucha road, 4Km from Jardin, Mato Grosso State, Brazil.

Physiography: Elevated plain surface.

Topography: Gently undulating, slope 3-5%.

Drainage: Well drained.

Vegetation: "Campestre".

Parent material: Sandstones of Aguidavana Series, Upper Carboniferus; Paleozoic.

Source: Embrapa, Bol. Téc. No. 18, 1971, profile 100, pages 387-90.

$A_1$ : 0-10 cm. 2.5YR 4/2; loamy sand, weak fine granular structure; slightly hard, very friable; gradual smooth boundary.

$A_2$ : 10-35 cm. 2.5YR 4/4. loamy sand; weak fine blocky structure; slightly hard, very friable, abrupt smooth boundary.

$A_3$ : 35-65 cm. 2.5YR 3/4; sandy loam; moderate fine blocky structure; hard firm; gradual smooth bounary.

$B_{21}$t : 65-90 cm. 2.5YR 3/6; sandy clay loam; moderate fine to coarse blocky structure; few weak clay skins; hard, firm; clear smooth boundary.

$B_{22}$t : 90-125 cm. 2.5YR 3/6; sandy clay loam; moderate fine blocky structure; few weak clay skins; slightly hard, friable; diffuse smooth boundary.

$B_3$t : 125-300 cm+. 2.5YR 4/8; sandy clay loam; weak very fine granular structure; with porous massive aspect; very friable; slightly plastic and slightly sticky.

NOTE : Many roots in $A_1$ and $A_2$, common in $A_3$, $B_{21}t$, $B_{22}t$, few in $B_3t$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.9 | 4.8 | 0.57 | 0.05 | 2 | 66 | 0 |
| $A_2$ | 5.3 | 4.0 | 0.26 | 0.03 | 1 | 45 | 9 |
| $A_3$ | 4.8 | 3.9 | 0.25 | 0.03 | <1 | 28 | 46 |
| $B_{21}t$ | 4.7 | 3.7 | 0.32 | 0.04 | <1 | 24 | 57 |
| $B_{22}t$ | 4.8 | 3.7 | 0.20 | 0.02 | <1 | 19 | 71 |
| $B_3t$ | 5.0 | 3.8 | 0.15 | 0.02 | <1 | 18 | 74 |

EXCHANGE COMPLEX (meq/100 g)

| Ca + Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 1.4 | 0.12 | 0.03 | 1.2 | 0 | 2.3 | 3.5 |
| 0.9 | 0.05 | 0.02 | 1.1 | 0.1 | 1.0 | 2.2 |
| 0.6 | 0.05 | 0.03 | 1.2 | 0.6 | 0.7 | 2.5 |
| 0.8 | 0.04 | 0.03 | 1.7 | 1.2 | 0.9 | 3.8 |
| 0.5 | 0.03 | 0.03 | 1.0 | 1.5 | 0.6 | 3.1 |
| 0.4 | 0.04 | 0.04 | 0.9 | 1.4 | 0.5 | 2.8 |

Mineralogical analysis:

$A_1$ : Sands: 100% quartz; traces of ferruginous concretions, biotite, ilmenite, etc.

$B_{22}t$ : 99% quartz; 1% ilmenite.

The other horizons are similar to $A_1$ horizons.

## LAND SYSTEM 78, Facet 1.

Classification: Podzólico Vermelho Amarelo Eutrófico-Haplustalf.

Location: Bela Vista-Caieiri road, 5Km from Bela Vista, Mato Grosso State, Brazil.

Physiography: Landscape gently undulating, with open "V" valleys.

Topography: Flat.

Vegetation: Deciduous forest and subtropical savannas.

Drainage: Well drained.

Parent material: Sandstones of Aquidavana Serie, Upper Carboniferus.

Source: Embrapa, Bol. Téc. No. 18, 1971, profile 80, pages 319-22.

$A_{11}$ : 0-7 cm. 5YR 3/4; loamy sand; weak medium granular structure; and single grain; slightly hard, loose; clear wavy boundary.

$A_{12}$ : 7-18 cm. 5YR 3/4; loamy sand; weak fine granular structure; slightly hard, loose; clear wavy boundary.

$A_{21}$ : 18-35 cm. 5YR 4/4; loamy sand; weak medium granular structure; slightly hard; loose; gradual smooth boundary.

$A_{22}$ : 35-65 cm. 5YR 4/4; loamy sand; weak medium granular structure, and single grain; hard, loose; gradual smooth boundary.

$A_3$ : 65-95 cm 2.5YR 3/6; sandy loam; weak medium blocky structure; hard, friable; abrupt smooth boundary.

$B_{21}t$ : 95-120 cm. 2.5YR 3/6; sandy clay loam; weak medium blocky structure; many strong clay skins; hard, friable; diffuse smooth boundary.

$B_{22}t$ : 120-165 cm. 2.5YR 3/6; sandy clay loam; moderate medium and coarse blocky structure; common moderate clay skins; hard, very friable; diffuse smooth boundary.

$B_3t$ : 165-200 cm. 2.5YR 3/6; sandy clay loam; slightly plastic and slightly sticky.

$B_4t$ : 165-260 cm. 2.5YR 4/6; sandy loam; slightly plastic and slightly sticky.

IIC : 360 cm+. Layer of quartz gravel and material of the above horizon.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_{11}$ | 6.2 | 5.5 | 0.71 | 0.07 | 3 | 77 | 0 |
| $A_{12}$ | 6.2 | 5.1 | 0.35 | 0.04 | 2 | 64 | 0 |
| $A_{21}$ | 6.0 | 4.5 | 0.30 | 0.03 | 1 | 65 | 0 |
| $A_{22}$ | 5.8 | 4.6 | 0.17 | 0.02 | 1 | 62 | 0 |
| $A_3$ | 5.4 | 3.9 | 0.18 | 0.02 | <1 | 64 | 0 |
| $B_{21}t$ | 5.0 | 3.9 | 0.23 | 0.03 | <1 | 51 | 26 |
| $B_{22}t$ | 4.8 | 3.8 | 0.27 | 0.04 | <1 | 38 | 43 |
| $B_{23}t$ | 5.3 | 3.9 | 0.13 | 0.03 | <1 | 39 | 43 |
| $B_3t$ | 5.3 | 3.9 | 0.09 | 0.03 | <1 | 41 | 42 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 2.3 | 0.9 | 0.14 | 0.06 | 1.0 | 0 | 3.4 | 4.4 |
| 1.0 | 0.6 | 0.11 | 0.06 | 1.0 | 0 | 1.8 | 2.8 |
| 1.1 | 0.5 | 0.08 | 0.05 | 0.9 | 0 | 1.7 | 2.6 |
| 0.8 | 0.4 | 0.06 | 0.07 | 0.8 | 0 | 1.3 | 2.1 |
| 0.9 | 0.4 | 0.05 | 0.06 | 0.8 | 0 | 1.4 | 2.2 |
| 1.3 | 0.6 | 0.07 | 0.06 | 1.2 | 0.7 | 2.0 | 3.9 |
| 1.1 | 0.8 | 0.09 | 0.08 | 1.8 | 1.6 | 2.1 | 5.5 |
| 0.7 | 0.4 | 0.03 | 0.03 | 1.0 | 0.9 | 1.2 | 3.1 |
| 0.6 | 0.4 | 0.03 | 0.04 | 0.8 | 0.8 | 1.1 | 2.7 |

Mineralogical analysis:

$A_{11}$ : Sands: 99% hyaline quartz; 1% detritus; traces of ilmenite, turmaline, etc.

$A_{12}$ : Sands: 99% hyaline quartz; 1% ilmenite; traces of charcoal and detritus.

$A_{21}$ : Sands: 98% hyaline quartz; 1% ilmenite; 1% detritus.

$A_{22}$ : Sands: 99% hyaline quartz; 1% ilmenite.

$A_3$ : Sands: 100% hyaline quartz.

$B_{21}t$ : Sands: 99% hyaline quartz; 1% ilmenite.

$B_{22}t$ : Sands: 99% hyaline quartz; 1% ilmenite

$B_{23}t$ : Sands: 100% hyaline quartz.

$B_3t$ : Sands: 96% hyaline quartz; 3% ilmenite; 1% ferruginous concretions.
Gravel (1%); hyaline quartz, ferruginous concretions, felspars.

## LAND SYSTEM 82, Facet 1.

Classification: Solonetz Solodizado Eutrófico-Natrustalf.

Location: Porto Murtinho-Jardin road, 15Km before Puerto Murtinho, Mato Grosso State, Brazil.

Physiography: Plain with level 1-2% slope.

Drainage: Imperfectly drained.

Vegetation: Deciduous forest of the "Pantanal".

Parent material: Clay-sand sediments of Holocene age.

Source: Embrapa, Bol. Téc. No. 18, 1971, profile 70, pp 504-6.

$A_1$ : 0-7 cm 10YR 5/2; sandy loam; moderate fine granular structure, and single grain; very friable; gradual smooth boundary.

$A_3$ : 7-20 cm. 10YR 6/2; sandy loam; moderate fine structure, and single grain; very friable; clear smooth boundary.

$B_{21}t$ : 20-40 cm. 10YR 5/2; sandy clay loam; moderate fine blocky structure; slightly hard, friable; clear smooth boundary.

$B_{22}tx$ 40-110 cm. 10YR 6/3; clay loam; hard, firm, plastic and very sticky.

NOTE : Many rooots in $A_1$, common in $A_3$, rare in $B_{21}t$ and $B_{22}tx$. This latter horizon is very compact.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.7 | 4.8 | 1.22 | 0.12 | 58 | 69 | 0 |
| $A_2$ | 5.9 | 4.4 | 0.43 | 0.05 | 58 | 64 | 0 |
| $B_{21}t$ | 6.6 | 4.8 | 0.31 | 0.06 | 27 | 87 | 0 |
| $B_{22}tx$ | 7.9 | 5.7 | 0.18 | 0.04 | 27 | 100 | 0 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 3.7 | 1.0 | 0.48 | 0.08 | 2.4 | 0 | 5.3 | 7.7 |
| 2.2 | 0.9 | 0.16 | 0.20 | 2.0 | 0 | 5.5 | 6.4 |
| 5.9 | 1.3 | 0.05 | 0.74 | 1.2 | 0 | 8.0 | 9.2 |
| 5.6 | 2.0 | 0.33 | 4.70 | 0 | 0 | 12.6 | 12.6 |

Size class and particle diameter (mm)

| HOR | coarse fragments >20 | coarse fragments 20-2 | coarse sand 2-0.2 | fine sand 0.2-0.05 | Silt 0.05-0.02 | Clay <0.02 |
|---|---|---|---|---|---|---|
| $A_1$ | 0 | 0 | 42 | 27 | 23 | 8 |
| $A_2$ | 0 | 0 | 39 | 27 | 24 | 10 |
| $B_{21}t$ | 0 | 1 | 28 | 24 | 22 | 26 |
| $B_{22}tx$ | 0 | 1 | 18 | 23 | 27 | 32 |

Mineralogical analysis:

$A_1$ : Sands: 89% hyaline quartz;15% potash felspar, 4% detritus.

$A_2$ : Sands: 89% hyaline quartz; 10% potash felspar; 1% detritus.

$B_{21}t$ : Sands: 89% hyaline quartz; 10% potash felspar; 1% detritus.

Gravel: hyaline quartz; potash felspar, manganous concretions.

$B_{22}tx$ : Sands: 88% hyaline quartz; 1% manganous concretions 1% detritus.

Gravel: Hyaline quartz, potash felspar, manganous concretions.

## LAND SYSTEM 84, Facet 1.

Classification: Latosol Vermelho Escuro Distrófico intergrade to Areias Quartzosas-Tropopsamment.

Location: Aparecida-Iguatemi road, 6Km from Aparecida, Mato Grosso State, Brazil.

Physiography: Midslope in a plains landscape dissected by very open "V" shaped valleys.

Topography: Gently undulating slope, less than 3%.

Drainage: Excessively drained.

Vegetation: Cerrado.

Parent material: Caiva Sandstone, Jurassic, Mesozoic.

Source: Embrapa, Bol. Téc. No. 18, 1971, profile 41, pp 161-4.

$A_1$ : 0-15 cm. 2.5 YR 4/5; loamy sand; weak medium to coarse granular structure to single grain; very friable; clear smooth boundary.

$A_3$ : 15-41 cm. 2.5YR 2/4; loamy sand; weak medium granular to blocky structure; very friable; gradual smooth boundary.

$B_1$ : 41-94 cm. 2.5YR 3/4; sandy loam; weak very fine granular structure with porous massive appearance; slightly hard, friable; diffuse smooth boundary.

$B_{21}$ : 94-187 cm. 2.5YR 3/4; sandy loam; weak very fine granular structure with porous massive appearance; slightly hard, friable; diffuse smooth boundary.

$B_{22}$ : 187-327 cm. 2.5YR 3/4; sandy loam; weak very fine granular structure with porous massive appearance; slightly hard, friable; diffuse smooth boundary.

NOTE : Many roots in $A_1$, and $A_3$; common in $B_1$, and $B_{21}$. Many pores throughout the profile, with 0.5-2 mm diameter.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.8 | 4.0 | 0.66 | 0.05 | 1 | 22 | 44 |
| $A_3$ | 4.7 | 3.9 | 0.46 | 0.04 | <1 | 7 | 80 |
| $B_1$ | 4.9 | 4.1 | 0.38 | 0.03 | <1 | 14 | 71 |
| $B_{21}$ | 5.1 | 4.2 | 0.18 | 0.02 | 1 | 17 | 70 |
| $B_{22}$ | 5.3 | 4.3 | 0.11 | 0.02 | <1 | 13 | 75 |

EXCHANGE COMPLEX ( meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.6 | | 0.25 | 0.03 | 2.5 | 0.7 | 0.9 | 4.1 |
| 0.2 | | 0.02 | 0.02 | 2.0 | 0.8 | 0.2 | 3.0 |
| 0.2 | | 0.21 | 0.02 | 1.4 | 1.0 | 0.4 | 2.8 |
| 0.2 | | 0.07 | 0.02 | 0.8 | 0.7 | 0.3 | 1.8 |
| 0.2 | | 0.01 | 0.02 | 0.7 | 0.6 | 0.2 | 1.5 |

Mineralogical analysis:

$A_1$ : Sands: 99% quartz; 1% ferrugninous concretions, partialy, magnetite; traces of ilmenite and detritus.

The rest of the horizons are similar to this description.

## LAND SYSTEM 96, Facet 2.

Classification: Solo aluvial Eutrófico-Tropaquept.

Location: 4Km from the confluence of Grande and San Francisco rivers, in front of Barra, Bahía State, Brazil.

Physiography: Alluvial terrace.

Drainage: Moderately to imperfectly drained.

Vegetation: Caatinga.

Parent material: Sandy-clay sediments.

Source: Embrapa, Bol. Téc. No. 38, 1976, profile 46, pp 270-2.

$A_1$ : 0-8 cm; 10YR 5/6; mottles 10YR 5/8; sandy loam; weak medium blocky structure; many fine pores; very hard, firm;plastic and sticky; clear smooth boundary.

$IIC_1$ : 8-35 cm. 10YR 5/6; mottles 10YR 5/8; sandy loam; weak medium blocky structure; many fine pores; hard, very friable; nonplastic, nonsticky; clear smooth boundary.

$IIIC_2$ : 35-80 cm 10YR 5/6; mottles 10YR 5/8; loamy sand; weak medium blocky; hard, very friable; nonplastic, nonsticky; clear wavy boundary.

$IVC_3$ : 80-120 cm+. 10YR 5/6; mottles 10YR 6/6 and 5YR 4/8; sandy loam; moderate coarse prismatic structure;many fine pores; extremely hard; friable; slightly plastic and slightly sticky.

NOTES : Roots common in $A_1$ and few in the other horizons. Some ferruginous concretions are found in $IVC_3$ horizon.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| A | 6.4 | 5.5 | 1.15 | 0.13 | 3 | 78 | 0 |
| $IIC_1$ | 6.6 | 5.4 | 0.25 | 0.04 | 1 | 74 | 0 |
| $IIIC_2$ | 5.9 | 4.6 | 0.08 | 0.03 | 1 | 74 | 0 |
| $IVC_3$ | 5.2 | 3.9 | 0.08 | 0.03 | 1 | 70 | 4 |

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EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 4.5 | 1.7 | 0.27 | 0.02 | 1.8 | 0 | 6.5 | 8.3 |
| 1.5 | 0.7 | 0.09 | 0.03 | 0.8 | 0 | 2.3 | 3.1 |
| 0.9 | 0.4 | 0.05 | 0.03 | 0.5 | 0 | 1.4 | 1.9 |
| 1.8 | 0.7 | 0.08 | 0.04 | 1.0 | 0.1 | 2.6 | 3.7 |

## LAND SYSTEM 96, Facet 2. (inclusion)

Classification: Solonetz Solodizado (Natraqualf).

Location: 18Km from Barra, Bahia State, Brazil.

Physiography: Río San Francisco terrace.

Drainage: Imperfectly drained.

Vegetation: Deciduous "varzea"(flood plain) forest.

Parent material: Holocene sandy sediments.

Source: Embrapa, Bol. Téc. NA. 38, 1976, profile 34, pp 232-4.

A : 0-10 cm. 10YR 6/4; mottles 10YR 7/4; loamy sand; massive slightly coherent; many fine pores; very friable; nonplastic, nonsticky; abrupt smooth boundary.

$IIB_2t$ : 10-30 cm. 10YR 7/3; mottles 10YR 7/6; sandy loamy; many pores; extremely hard; very firm; nonplastic, slightly sticky; strong coarse columnar structure; diffuse smooth boundary.

$IIIB_1t$: 30-45 cm. 10YR 6/3; loamy sand; few very fine pores; extremely hard, very firm; slightly plastic and slightly sticky.

NOTE : Roots common to horizon $IIIB_1t$.

| HOR | pH $H_2O$ | pH KCl | C | N | P ppm | B.S. | Al.S. |
|---|---|---|---|---|---|---|---|
| A | 6.2 | 4.8 | 0.31 | 0.05 | 2 | 58 | 0 |
| $IIB_2t$ | 9.8 | 7.6 | 0.12 | 0.04 | 2 | 100 | 0 |
| $IIIB_1t$ | 9.9 | 7.8 | 0.05 | 0.03 | 2 | 100 | 0 |

EXHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0 | 9 | 0.11 | 0.08 | 0.8 | 0 | 1.1 | 1.9 |
| 1.4 | 0.4 | 0.09 | 2.10 | 0 | 0 | 4.0 | 4.0 |
| 1.3 | 0.3 | 0.09 | 2.29 | 0 | 0 | 4.0 | 4.0 |

## LAND SYSTEM 97, Facet 1.

Classification: Latosol Vermelho Amarelo-Eutrustox.

Location: 165Km from Barreiras, 14.9Km from Pirajiba road, State of Bahia, Brazil.

Topography: Level with microrelief due to termite mounds.

Drainage: Well drained.

Vegetation: Decidouos "grameal" forest. Cerradao.

Parent material: Sandy clay sediments over siltstones and mudstones.

Source: Embrapa, Bol. Téc. No. 38, 1976, profile 2, pp 101-3.

$A_1$ : 0-10 cm. 5YR 4/8; clay; weak medium granular structure; many pores; hard, very friable; plastic and sticky; diffuse smooth boundary.

$B_1$ : 10-35cm.5YR4/6 clay; weak fine granular structure; many pores; hard, very friable; plastic and sticky; diffuse smooth boundary.

$B_{21}$ : 35-90 cm. 2.5YR 4/8; clay; weak medium blocky structure; hard, very friable; plastic and sticky; diffuse smooth boundary.

$B_{22}$ : 90-160 cm. 2.5YR 4/8; clay; weak fine bloxky structure, many pores; slightly hard, gradual smooth boundary.

$B_{23}$ : 160-180 cm+ . 2.5YR 3.5/6; mottles 2.5YR 3/5; clay; weak fine blocky structure; many fine pores; hard, friable; plastic and sticky.

NOTES : Many roots in $A_1$, common in $B_1$ and $B_{21}$, few in the other horizons.

| HOR | pH $H_2O$ | pH KCl | C | N | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.7 | 3.8 | 1.78 | 0.17 | 2 | 27 | 33 |
| $B_1$ | 4.6 | 3.8 | 0.75 | 0.12 | <1 | 25 | 49 |
| $B_{21}$ | 4.9 | 3.8 | 0.37 | 0.09 | <1 | 35 | 39 |
| $B_{22}$ | 4.9 | 3.7 | 0.32 | 0.09 | <1 | 32 | 47 |
| $B_{23}$ | 4.8 | 3.7 | 0.22 | 0.09 | <1 | 35 | 45 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 1.7 | 0.6 | 0.30 | 0.02 | 5.7 | 1.3 | 2.6 | 9.6 |
| 0.9 | 0.9 | 0.11 | 0.03 | 3.8 | 1.8 | 1.9 | 7.5 |
| 1.2 | 0.9 | 0.07 | 0.05 | 2.7 | 1.4 | 2.2 | 6.3 |
| 0.7 | 1.0 | 0.07 | 0.08 | 2.4 | 1.7 | 1.9 | 6.0 |
| 1.2 | 0.9 | 0.09 | 0.07 | 2.3 | 1.9 | 2.3 | 6.5 |

## LAND SYSTEM 97, Facet 2.

Classification: Areia Quartzosa Distrófica-Quartzipsamment.

Location: 96Km from Barra, and 5.2Km before Bodogueirao, Bahia State, Brazil.

Physiography: Río Grande terrace.

Topography: Flat.

Drainage: Somewhat excessively drained.

Vegetation: Grasslands of "varzea" (seasonally flooded grasslands).

Parent material: Sandy sediments.

Source: Embrapa, Bol. Téc. No. 38, 1976, profile 51, pp 293-4

$A_1$ : 0-15 cm. 10YR 5/4; mottles 7.5YR 5/8; sandy; massive very slightly coherent; many fine pores; very friable; nonplastic, nonsticky; clear smooth boundary.

$C_1$ : 15-50 cm. 10YR 6/4; mottles 7.5YR 5/8; loamy sand, massive; very slightly coherent; many fine pores; slightly hard, very friable; nonplastic, nonsticky; diffuse smooth boundary.

$C_2$ : 50-75 cm. 10YR 6/4; mottles 7.5YR 5/8; loamy sand; massive slightly coherent; many fine pores; very friable; nonplastic, non sticky.

NOTE : Roots common in $A_1$, few in all the other horizons.

| HOR | pH $H_2O$ | pH KCl | C | N | P ppm | B.S. | Al.S. |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.2 | 3.9 | 0.30 | 0.05 | 2 | 28 | 29 |
| $C_1$ | 4.9 | 3.8 | 0.12 | 0.03 | 1 | 27 | 50 |
| $C_2$ | 5.5 | 4.0 | 0.06 | 0.02 | <1 | 33 | 25 |

EXCHANGE COMPLEX (meq/100 g)

| Ca + Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 0.4 | 0.05 | 0.02 | 1.1 | 0.2 | 0.5 | 1.8 |
| 0.4 | 0.02 | 0.02 | 0.7 | 0.4 | 0.4 | 1.5 |
| 0.3 | 0.02 | 0.02 | 0.5 | 0.1 | 0.1 | 0.9 |

## LAND SYSTEM 97, Facet 3.

Classification: Solo Litólico Distrófico-Ustorthent.

Location: 27.6Km from Ibipetuba, 14Km from Piauí frontier, Bahia State, Brazil.

Physiography: Foothills.

Topography: Strongly undulating, site slope 27%.

Drainage: Well drained.

Vegetation: Cerrado.

Parent material: Sericitic phylite; Pre-Cambrian.

Source: Embrapa, Bol. Téc. No. 38, 1976 , profile 49, pp 280-1.

$A_1$ : 0-10 cm. 10YR 4/3; gravely sandy loam; weak fine granular structure; many pores; slightly plastic, slightly sticky; clear smooth boundary.

$A_3$ : 10-30 cm. 10YR 5/6; gravely sandy loam; weak fine granular structure; many pores; plastic and sticky; abrupt wavy boundary.

R : 30-70 cm+

NOTE : Many roots in $A_1$, common in $A_3$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.1 | 3.8 | 1.36 | 0.14 | 2 | 19 | 38 |
| $A_3$ | 4.8 | 3.6 | 0.69 | 0.11 | 1 | 16 | 61 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.6 | 0.4 | 0.23 | 0.08 | 4.8 | 38 | 1.3 | 6.9 |
| 0.6 | | 0.21 | 0.09 | 3.4 | 61 | 0.9 | 5.7 |

## LAND SYSTEM 110, Facet 1.

Classification: Terra Roxa Estructurada similar eutrófica intermediano para Brunizem Avermelhado-Haplustalf.

Location: 15.5Km from Posse, on Iaciari road, Goias State, Brazil.

Physiography: Elevated plain surface.

Topography: Upper slope 8-12%.

Drainage: Moderately drained.

Vegetation: Caatinga-Deciduous forest.

Parent material: Limestones of Bambuí Group; Upper Eo-Cambrian.

Source: Embrapa, Solos Margen Dereita Río Paraná, 1975, profile 6, pp 213-6.

$A_1$ : 0-23 cm. N 2/ ; silty clay; moderate fine granular structure; slightly hard, friable; clear smooth boundary.

$A_3$ : 23-38 cm 2.5YR 2/2; clay; moderate to strong fine granular structure; slightly hard, friable; gradual smooth boundary.

$B_1t$ : 38-58 cm 5YR 3/3; clay; moderate fine blocky structure; hard, friable; diffuse smooth boundary.

$B_2t$ : 58-118 cm. 2.5YR 3/4; mottles 10YR 4/1; clay; strong fine blocky structure; clear smooth boundary.

$B_3t$ : 118-170 cm+. 2.5YR 4/6,10YR 6/6, 10YR 5/1; clay; hard.

NOTE : Many roots in $A_1$ and $A_3$, common in $B_1t$ and few in $B_2t$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 6.0 | 5.3 | 4.36 | 0.34 | 7 | 78 | 0 |
| $A_3$ | 5.8 | 4.9 | 1.64 | 0.16 | 1 | 78 | 0 |
| $B_1t$ | 6.0 | 5.0 | 1.03 | 0.14 | 1 | 81 | 0 |
| $B_2t$ | 6.2 | 5.1 | 0.67 | 0.10 | 1 | 85 | 0 |
| $B_3t$ | 6.3 | 5.4 | 0.36 | 0.06 | 2 | 90 | 0 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 20.3 | 1.3 | 0.55 | 0.09 | 6.1 | 0 | 22.2 | 28.3 |
| 12.2 | 1.8 | 0.13 | 0.06 | 4.0 | 0 | 14.2 | 18.2 |
| 11.3 | 1.7 | 0.17 | 0.10 | 3.2 | 0 | 13.2 | 16.5 |
| 10.9 | 1.8 | 0.14 | 0.06 | 2.2 | 0 | 12.9 | 15.1 |
| 11.2 | 1.9 | 0.08 | 0.12 | 1.5 | 0 | 13.3 | 14.8 |

## LAND SYSTEM 113, Facet 1.

Classification: Areias Quartzosas-Quartzipsamment.

Location: 6.9Km inland from São João do Piauí, Piauí State Brazil.

Physiography: Flat to gently undulating plain surface.

Drainage: Excessively drained.

Vegetation: Caatinga.

Parent material: Sandstones.

Source: Proj. Radambrasil, Vol. 1, 1973, profile 7, pp 40-1.

Ap : 0-10 cm. 10YR 6/3; loamy sand; massive porous; loose; very friable; nonplastic, nonsticky; clear smooth boundary.

$A_1$ : 10-19 cm. 10YR 6/3, 10YR 6/4; sandy; porous, massive; very friable; nonplastic, nonsticky; gradual smooth boundary.

$C_1$ : 19-36 cm. 10YR 5/4; sandy; massive; very friable; nonplastic, nonsticky; gradual smooth boundary.

$C_2$ : 36-81 cm. 10YR 5/6; sandy; massive, porous; very fraible; nonplastic, nonsticky; diffuse smooth boundary.

$C_3$ : 81-115 cm. 10YR 5/6; loamy sand; massive, porous; very friable; nonplastic, nonsticky.

NOTE : Many rotts in Ap, $A_1$, $C_1$; common in $C_2$, no roots in $C_3$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| Ap | 4.4 | 3.6 | 0.71 | 0.06 | 2 | 19 | 33 |
| $A_1$ | 4.4 | 3.6 | 0.34 | 0.03 | 3 | 9 | 59 |
| $C_1$ | 4.6 | 3.8 | 0.16 | 0.01 | 2 | 12 | 62 |
| $C_2$ | 4.8 | 4.0 | 0.18 | 0.01 | 2 | 14 | 62 |
| $C_3$ | 4.9 | 4.0 | 0.12 | 0.01 | 2 | 15 | 67 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.60 | 0.30 | 0.08 | 0.01 | 3.62 | 0.50 | 0.99 | 5.02 |
| 0.15 | 0.05 | 0.05 | 0.01 | 2.04 | 0.60 | 0.26 | 2.90 |
| 0.15 | 0.05 | 0.03 | 0.01 | 1.41 | 0.40 | 0.24 | 2.05 |
| 0.15 | 0.05 | 0.03 | 0.01 | 1.03 | 0.40 | 0.24 | 1.72 |
| 0.10 | 0.10 | 0.03 | 0.01 | 0.32 | 0.50 | 0.24 | 1.56 |

## LAND SYSTEM 117, Facet 1.

Classification: Podzólico Vermelho Amarelo equivalente eutrófico-Haplustalf.

Location: 3.5Km from Sta. Maria Victoria, Bahia State, Brazil.

Physiography: Gently undulating, sometimes level plain.

Topography: Midslope, slope 5%.

Vegetatio: Caatinga-Deciduous forest.

Parent material: Shales and limestones; Upper Eo-Cambrian.

Source: Embrapa, Bol. Téc. No. 38, 1976, profile 19, pp 180-1.

$A_1$ : 0-10 cm 2.5YR 3/3; silty clay loam; weak fine blocky structure; very plastic, very sticky; clear smooth boundary.

$B_1t$ : 10-25 cm. 2.5YR 3/5; silty clay; weak fine blocky structure; firm, very plastic, very sticky; gradual smooth boundary.

$B_2t$ : 25-70 cm. 2.5YR 3/7; clay; weak fine blocky structure;weak clay skins; firm; very plastic, very sticky.

C : 70-150 cm+. Shales mixed with rotting rock.

NOTE : Many roots in $A_1$, common in $B_1t$, few in the other horizons.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 6.0 | 5.7 | 2.30 | 0.28 | 0.6 | 81 | 0 |
| $B_1t$ | 6.2 | 5.3 | 0.89 | 0.14 | 0.3 | 79 | 0 |
| $B_2t$ | 5.8 | 4.6 | 0.47 | 0.10 | 0.2 | 80 | 2 |
| C | - | - | | | | | |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | NA | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 11.2 | 3.4 | 0.74 | 0.03 | 3.7 | 0 | 15.4 | 19.1 |
| 8.0 | 3.8 | 0.35 | 0.03 | 3.3 | 0 | 12.2 | 15.5 |
| 5.9 | 6.3 | 0.21 | 0.02 | 3.1 | 0.2 | 12.4 | 15.5 |

## LAND SYSTEM 201, Facet 1.

Classification: Haplustox.

Location: The ICA-CIAT Carimagua experimental station. Approximately 100 mts from the lake end of the airstrip.

Physiography: Well drained plain surface.

Topography: Flat to slightly convex. 0-1% slope.

Drainage: Well drained.

Vegetation: Savanna.

Parent material: Aluvial sediments of Pleistocene age.

Source: L.F. Sanchez (personnal comm.)

$A_{11}$ : 0-10cm. 7.5YR 3/2 silty clay loam; medium moderate subangular blocky structure breaking to strong, very fine crumb; friable, plastic, sticky; some medium tubular pores; abundant roots; presence of worm casts; clear smooth boundary.

$A_{12}$ : 10-33 cm. 7.5YR 4/4; silty clay loam; medium, moderate to weak subangular blocky structure breaking to strong, very fine crumb; friable, plastic, sticky; some medium tubular pores; roots common; gradual smooth boundary.

$B_2$ : 33-123 cm. 5YR 5/8 with trace of mottles 5Y 6/6; clay loam to sandy clay loam; fine, moderate subangular blocky structure breaking to strong, very fine crumb; friable, plastic, sticky; abundant fine tubular pores; few roots, gradual smooth boundary.

C : 123-178 cm. 2.5YR 4/8; silty clay loam;fine, moderate, subangular blocky structure, very friable, plastic, sticky; abundant fine tubular pores; no roots.

| HOR | pH $H_2O$ | pH KCl | O.M % | ppm P Bray II | S.Al % |
|---|---|---|---|---|---|
| $A_{11}$ | 4.5 | 3.6 | 3.6 | 1.5 | 93 |
| $A_{12}$ | 4.7 | | 1.6 | 0.6 | |
| $B_2$ | 4.9 | 4.0 | 0.9 | 0.4 | 85 |
| C | 5.3 | | 0.3 | 0.7 | |

EXCHANGE COMPLEX (meq/100 g soil)

| Al | Ca | Mg | K | Na | CEC |
|---|---|---|---|---|---|
| 2.6 | 0.12 | 0.02 | 0.07 | 0.03 | 2.84 |
| 2.0 | 0.04 | 0.02 | 0.03 | 0.06 | 5.6 |
| 1.2 | 0.14 | 0.03 | 0.04 | 0.03 | 1.44 |
| 0.8 | 0.50 | 0.20 | 0.04 | 0.10 | 4.6 |

Trace Elements

| B | Zn | Mn | Cu (ppm) | Fe | Mo | S |
|---|---|---|---|---|---|---|
| 0.23 | 0.60 | 2.8 | 0.53 | 44.0 | 1.36 | 6.0 |
| 0.26 | 0.39 | 1.28 | 0.39 | 33.5 | | |
| 0.25 | 0.35 | 2.1 | 0.18 | 13.3 | | |
| 0.28 | 0.59 | 2.62 | 0.59 | 19.4 | | |

$A_{11}$ y $A_{12}$ = KCl extract.
$A_{12}$ y C = $NH_4OAC$ extract.

## LAND SYSTEM 201, Facet 2.

Classification: Humaguept.

Location: Along fence of ICA 1969 A field experiment; Meta Department, Colombia.

Physiography: Lower position in a wet savanna (but not the lowest). Termites common.

Topography: 0-1% slope.

Drainage: Somewhat poorly to moderately-well drained.

Source: Guerrero, R. PH.D. Thesis, Raleigh, 1971, profile 7, page 73.

0-10 cm. 10YR 3/2; silt loam; weak fine blocky structure; friable; slightly sticky; medium roots; clear smooth boundary.

10-25 cm. 10YR 4/3; silty clay loam; moderate fine blocky structure; common fine-medium roots; gradual smooth boundary.

25-44 cm. 10YR 4/4, 7.5YR 4/4 and 10YR 6/3; silty clay; weak fine blocky structure; common small roots; gradual smooth boundary.

44-77 cm. 7.5YR 5/6, 7.5YR 5/4; red plinthite nodules 10YR 3/6; silty clay; weak fine blocky structure; few small roots; diffuse boundary.

77-188 cm. 7.5YR 5/6, and 7.5YR 5/4; (by ayger); clay; no plinthite nodules.

NOTE : In Land System 203, Facet 3, describes a similar soil to this termed "bajos" or "morichales" soils.

| HOR | pH $H_2O$ | pH KCl | C % | B.S. % | Al.S. % |
|---|---|---|---|---|---|
| 0-10 | 4.5 | — | 2.8 | 20 | 71 |
| 10-25 | 4.5 | — | 1.9 | 21 | 74 |
| 25-44 | 4.6 | — | 1.1 | 22 | 52 |
| 44-77 | 4.8 | — | 0.7 | 28 | 14 |
| 77-188 | 5.4 | — | 0.5 | 40 | 20 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.4 | 0.4 | 0.1 | 0.1 | 1.7 | 2.4 | 1.0 | 5.1 |
| 0.3 | 0.4 | 0.1 | 0.1 | 0.8 | 2.5 | 0.9 | 4.2 |
| 0.2 | 0.3 | <0.1 | 0.1 | 0.6 | 1.7 | 0.7 | 3.0 |
| 0.2 | 0.2 | <0.1 | <0.1 | 0.8 | 0.8 | 0.6 | 1.8 |
| 0.2 | 0.1 | <0.1 | <0.1 | 0.5 | 0.1 | 0.5 | 1.0 |

## LAND SYSTEM 202, Facet 1.

Classification: Haplustox.

Location: Zone Paso Nuevo, Vichada Department, Colombia.

Physiography: Poorly drained "altillanura",or high plains.

Topography: Level plain, 0-1% slope.

Drainage: Slow, moderately drained.

Vegetation: Savanna.

Parent material: Old acidic alluvial sediments.

Source: FAO, Rec. Edaf. Llanos Orientales, 1965, profile P-10, page 211.

$A_{11}$ : 0-10 cm. 10YR 4/2; silty loam; moderate fine crumb structure; slightly sticky and plastic; pores common; many fine roots, clear smooth boundary.

$A_{12}$ : 10-40 cm. 10YR 4/3; mottles 10YR 5/8; silty loam; massive with some blocks; hard to soft; plastic and sticky; common pores; gradual smooth boundary.

$B_2$ : 40-113 cm. 10YR 5/6; mottles 10YR 6/8, 2.5YR 5/8; silty loam; massive with clay skins; friable; plastic and sticky; common pores; few fine roots; clear wavy boundary.

$C_1cn$ : 113-200 cm. 5Y 6/3, mottles and concretions 2.5YR 4/8; silty loam; massive with clay skins; plastic and sticky; common pores; no roots.

| HOR | pH $H_2O$ | $Fe_2O_3$ % | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_{11}$ | 4.6 | 1.4 | 2.27 | 0.19 | 1.0 | 5.9 | 78 |
| $A_{12}$ | 4.8 | 1.6 | 0.97 | 0.10 | 0.5 | 6.6 | 81 |
| $B_2$ | 5.3 | 1.9 | 0.36 | 0.05 | - | 13.9 | 63 |
| $C_1cn$ | 5.3 | 2.5 | 0.20 | 0.03 | - | 14.3 | 72 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.20 | 0.17 | 0.15 | 0.04 | 8.91 | 78 | 0.56 | 9.47 |
| 0.09 | 0.14 | 0.07 | 0.05 | 4.93 | 81 | 0.35 | 5.28 |
| 0.15 | 0.13 | 0.11 | 0.07 | 2.83 | 63 | 0.46 | 3.29 |
| 0.14 | 0.09 | 0.23 | 0.02 | 2.86 | 72 | 0.48 | 3.34 |

## LAND SYSTEM 203, Facet 1.

Location: Meta, Department, Colombia.

Classification: Haplustox.

Phisiography: Undulating "altillanura" or high plain.

Topography: Nearly level, 0-1 slope.

Vegetation: Savanna.

Parent material: Acidic Tertiary sediments.

Source: FAO, Rec. Edalf. Llanos Orientales, 1965, profile C -71, pages 173-4.

$A_1$ : 0-14 cm. 10YR 3/3; loamy fine sand; weak medium blocky structure; friable; nonplastic, nonsticky, many roots; clear smooth boundary.

$A_3$ : 14-28 cm. 10YR 4/3, 10YR 5/6; loamy fine sand; weak medium blocky structure; pores common; nonplastic, nonsticky; common roots; gradual smooth boundary.

$C_1$ : 28-52 cm.7.5YR; sandy loam; massive; common pores; nonplastic, nonsticky; few roots; diffuse smooth boundary.

$C_2$ : 52-85 cm. 7.5YR 5/8 and 7.5YR 5/6; sandy loam; massive; common pores; very friable; few roots; diffuse smooth boundary.

$C_3$ : 85-150 cm. 5YR 5/8; mottles 2%; sandy loam; massive friable; nonplastic, nonsticky; few roots.

| HOR | pH $H_2O$ | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|
| $A_1$ | 4.7 | 0.61 | 0.06 | 1.9 | 18 | 57 |
| $A_3$ | 4.8 | 0.40 | 0.04 | 0.9 | 17 | 65 |
| $C_1$ | 5.0 | 0.37 | 0.04 | 0.7 | 18 | 58 |
| $C_2$ | 4.5 | 0.17 | 0.03 | 1.0 | 40 | 39 |
| $C_3$ | 4.4 | 0.13 | 0.05 | 0.7 | 39 | 38 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.19 | 0.07 | 0.09 | 0.06 | 1.85 | 0.55 | 0.41 | 2.26 |
| 0.15 | 0.07 | 0.02 | 0.08 | 1.56 | 0.60 | 0.32 | 1.88 |
| 0.13 | 0.02 | 1.04 | 0.08 | 1.18 | 0.38 | 0.27 | 1.45 |
| 0.16 | 0.08 | 0.02 | 0.26 | 0.77 | 0.33 | 0.52 | 1.29 |
| 0.11 | 0.07 | 0.06 | 0.20 | 0.69 | 0.27 | 0.44 | 1.13 |

## LAND SYSTEM 203, Facet 3.

Classification: Tropaquept.

Location: Meta Department , Colombia.

Physiography: Elongated depression in the "altillanura", (or high plain) locally termed "estero or morichal.

Topography: Level, 0-1% slope.

Drainage: Poorly drained.

Vegetation: Morichal forest.

Parent material: Acidic recent alluvium.

Source: FAO, Rec. Edaf. Llanos Orientales, 1965, profile C-66, pp 157-8.

$O_1$ : 2-0cm. Undecomposed organic matter.

$A_{11}g$ : 0-10 cm. 10YR 3/1; sandy clay loam; massive; very friable; nonplastic, nonsticky; many roots; gradual smooth boundary.

$A_{12}$ : 10-40 cm.10YR 3/2; sandy clay loam; massive; very friable; nonplastic, nonsticky; many roots; gradual smooth boundary.

$IIB_1$ : 40-80 cm. 10YR 6/2 sandy clay; slightly plastic; slightly sticky.

$IIB_2$ : 80-120 cm. 10YR 6/2; clay; slightly plastic, slightly sticky.

| HOR | pH $H_2O$ | $Fe_2O_3$ % | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_{11}g$ | 4.3 | 0.88 | 2.45 | 0.22 | 6 | 8 | 67 |
| $A_{12}$ | 4.6 | 0.76 | 1.59 | 0.13 | 4 | 5 | 77 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.17 | 0.26 | 0.27 | 0.27 | 11.46 | 2.0 | 0.97 | 12.40 |
| 0.13 | 0.11 | 0.16 | 0.16 | 9.30 | 1.52 | 0.54 | 9.48 |

## LAND SYSTEM 204, Facet 1.

Classification: Haplustox.

Location: "Serrania" (hills) South of the Meta river, Colombia.

Physiography: Hills of the "Serrania".

Topography: Slope 20-25 and more. Rolling to steep uplands.

Drainage: Well drained.

Vegetation: Savanna.

Parent material: Acidic Tertiary sediments and sandstones.

Source: FAO, Rec, Edaf, Llanos Orientales, 1965, profile C-62, pp 177-8.

$C_1$ : 0-10 cm.; Plinthite layer.

$IIC_2cm$: 10-20 cm. 2.5YR 4/6; transported ferruginous concretions 7.5YR 3/4; sandy clay loam; weak fine blocky structure; friable; slightly plastic, slightly sticky, few roots; gradual smooth boundary.

$IIC_3cn$: 20-70 cm. 10YR 4/6 and 7.5YR 8/0; concretions 10R 3/6; sandy clay loam; blocky structure without clay skins; friable; slightly plastic, slightly sticky; few roots; gradual smooth boundary.

$IIC_4cn$: 70-90 cm. 2.5YR 4/6, mottles 7.5YR 8/0; ferruginous concretions 10R 4/6; rocks (sandstones); sandy clay loam; massive, some pores; very friable, nonplastic, nonsticky, no roots; gradual smooth boundary.

$IIIC_5$ : 90-130 cm+. 5YR 4/6; mottles 7.5YR 8/0; rocks (sandstones) are present, sandy clay loam; massive very friable; nonplastic, nonsticky, no roots; with some pores.

| HOR | pH $H_2O$ | $Fe_2O_3$ % | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $IIC_2$ | 3.9 | 5.8 | 0.58 | 0.09 | 4.0 | 19 | 71 |
| $IIC_3$ | 4.3 | 6.4 | 0.30 | 0.07 | 1.6 | 8 | 86 |
| $IIC_4$ | 6.0 | 3.2 | 0.18 | 0.03 | 1.0 | 26 | 70 |
| $IIIC_5$ | 4.3 | 1.6 | 0.13 | 0.03 | 3.0 | 20 | 79 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.64 | 0.15 | 0.15 | 0.14 | 4.48 | 2.69 | 4.48 | 5.56 |
| 0.15 | 0.07 | 0.14 | 0.18 | 5.67 | 3.24 | 5.67 | 6.21 |
| 0.39 | 0.08 | 0.11 | 0.31 | 2.54 | 2.11 | 2.54 | 3.24 |
| 0.23 | 0.05 | 0.15 | 0.24 | 2.72 | 2.47 | 2.72 | 3.39 |

## LAND SYSTEM 207, Facet 1.

Classification: Dystropept.

Location: El Yopal, Casanare Department, Colombia.

Physiography: Alluvial fan; near level, 0-1% slope.

Drainage: Well drained.

Vegetation: Savanna.

Parent material: Alluvial sediments.

Source: FAO, Rec. Edaf. Llanos Orientales, 1965, profile 23, pp 277-8.

$A_1$ : 0-11 cm. 10YR 3/2; sandy loam; weak medium crumb structure; friable; nonplastic, nonsticky; many roots; gradual smooth boundary.

$B_{21}$ : 11-31 cm. 10YR 3/3; 10YR 4/4; sandy loam; massive; very friable; nonplastic, nonsticky; common roots; common pores; gradual smooth boundary.

$B_{22}$ : 31-52 cm. 10YR 4/3; mottles 5YR 4/6; sandy loam; massive, very friable; nonplastic, nonsticky; common pores and roots; gradual smooth boundary.

$B_3$ : 52-90 cm. 10YR 5/6, 10YR 5/8; clay loam; massive; nonplastic, nonsticky; few roots; common pores; diffuse wavy boundary.

$C_1cn$ : 90-115 cm. 10YR 5/6 and 10YR 5/8; mottles 5YR 4/6; concretions 10R 3/6; sandy loam; massive; very friable, nonplastic, nonsticky; few roots; common pores; clear wavy boundary.

$C_2gcn$ : 115-150 cm+., 5YR 6/1, mottles 5YR 4/6; concretions like above; sandy loam; massive, very friable; nonplastic, nonsticky; few roots.

| HOR | pH $H_2O$ | $Fe_2O_3$ % | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.7 | 1.14 | 0.79 | 0.07 | 4 | 20 | 58 |
| $B_{21}$ | 4.7 | 0.92 | 0.47 | 0.05 | 2 | 42 | 52 |
| $B_{22}$ | 4.6 | 0.96 | 0.31 | 0.04 | 1 | 15 | 74 |
| $B_3$ | 4.8 | 1.20 | 0.16 | 0.03 | 1 | 26 | 66 |
| $C_1cn$ | 5.0 | 0.99 | 0.13 | 0.03 | 1 | 18 | 76 |
| $C_2gcn$ | 4.9 | 0.66 | 0.14 | 0.02 | 1 | 21 | 73 |

EXCHANGE COMPLEX ( meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.39 | 0.30 | 0.17 | 0.09 | 3.7 | 1.32 | 0.95 | 4.67 |
| 1.15 | 0.32 | 0.14 | 0.14 | 2.4 | 1.87 | 1.75 | 4.18 |
| 0.16 | 0.23 | 0.09 | 0.11 | 3.1 | 1.65 | 0.59 | 3.75 |
| 0.12 | 0.41 | 0.07 | 0.12 | 2.0 | 1.37 | 0.72 | 2.78 |
| 0.08 | 0.09 | 0.07 | 0.11 | 1.5 | 1.10 | 0.35 | 1.92 |
| 0.17 | 0.15 | 0.07 | 0.14 | 1.9 | 1.43 | 0.53 | 2.45 |

## LAND SYSTEM 207, Facet 2.

Classification: Dystropept.

Location: El Yopal, Casanare Department, Colombia.

Physiography: Distal portion of alluvial fan.

Topography: Level, slightly concave, 0-1% slope.

Drainage: Well drained.

Vegetation: Savanna.

Source: FAO, Rec. Edaf. Llanos Orientales, 1965, profile A-2, pp 117-8.

$A_1$ : 0-18 cm. 10YR 3/3, and 10YR 3/4; sandy loam; weak medium blocky structure; very friable; nonplastic, nonsticky; many roots; some coarse pores; clear smooth boundary.

$A_3$ : 18-33 cm. 10YR 4/4; very fine sandy loam; weak medium blocky structure; massive, very friable; nonplastic, nonsticky; many roots; diffuse smooth boundary.

$B_2$ : 33-54 cm. 7.5YR 5/6; very fine sandy loam; massive; very friable; slightly plastic, slightly sticky; common roots ; diffuse smooth boundary.

$B_3$ : 54-110 cm. 7.5YR 5/8; very fine sandy loam; massive; friable; slightly plastic, slightly sticky; few roots; some pores; abrupt boundary.

Over rounded stones of diverse size.

| HOR | pH $H_2O$ | $Fe_2O_3$ % | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.7 | 1.12 | 0.87 | 0.09 | 3 | 21 | 45 |
| $A_3$ | 4.6 | 1.53 | 0.48 | 0.06 | 1 | 11 | 76 |
| $B_2$ | 4.6 | 1.30 | 0.29 | 0.04 | <1 | 7 | 82 |
| $B_3$ | 4.6 | 2.11 | 0.13 | 0.03 | <1 | 9 | 80 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.50 | 0.49 | 0.21 | 0.03 | 4.52 | 0.99 | 1.23 | 5.75 |
| 0.23 | 0.12 | 0.23 | 0.08 | 4.68 | 1.87 | 0.58 | 5.26 |
| 0.11 | 0.10 | 0.13 | 0.07 | 4.80 | 1.87 | 0.41 | 5.21 |
| 0.12 | 0.14 | 0.17 | 0.05 | 4.78 | 1.93 | 0.48 | 5.26 |

## LAND SYSTEM 208, Facet 1.

Classification: Haplorthox.

Location: NE, Acacias, Meta Department, Colombia.

Physiography: High terrace.

Drainage: Moderately well drined.

Vegetation: Forest.

Source: FAO, Rec. Edaf. Llanos Orientales, 1965, profile W-8, pp 69-70.

$A_1$ : 0-14 cm. 10YR 3/2; clay loam; weak medium blocky structure; very friable; slightly sticky, slightly plastic; many roots; abrupt smooth boundary.

$B_1$ : 14-26 cm. 10YR 4/3; mottles 5YR 4/6; clay loam; weak medium blocky structure; friable; slightly plastic; slightly sticky; clay skins; common roots gradual smooth boundary.

$B_{21}$ : 26-50 cm. 10YR 5/4; mottles 5YR 4/5; clay loam; weak medium blocky structure with clay skins; friable; few roots; diffuse smooth boundary.

$B_{22}$ : 50-72 cm. 7.5YR 5/4; clay; weak fine blocky structure with clay skins; friable to firm; slightly sticky; few roots; gradual smooth boundary.

$B_3$ : 72-90 cm. 5YR 4/4; clay; weak very fine blocky structure; very friable ; slightly plastic; slightly sticky; few roots; gradual smooth boundary.

C : 90-120 cm. 7.5YR 5/6; clay; weak fine blocky structure; friable; few roots.

NOTE : The increase in clay content does not satisfy the requirements for an argillic horizons.

| HOR | pH $H_2O$ | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|
| $A_1$ | 4.5 | 2.44 | 0.30 | 4 | 12.60 | 64 |
| $B_1$ | 4.6 | 1.34 | 0.30 | 3 | 6.35 | 85 |
| $B_{21}$ | 4.7 | 0.92 | 0.13 | 1 | 7.60 | 86 |
| $B_{22}$ | 4.7 | 0.63 | 0.09 | <1 | 5.33 | 88 |
| $B_3$ | 4.8 | 0.49 | 0.08 | 1 | 6.74 | 86 |
| C | 5.1 | 0.52 | 0.08 | <1 | 7.45 | 86 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.88 | 0.74 | 0.22 | 0.06 | 13.1 | 3.41 | 1.90 | 15.08 |
| 0.22 | 0.24 | 0.19 | 0.08 | 10.7 | 4.25 | 0.73 | 11.50 |
| 0.18 | 0.24 | 0.15 | 0.11 | 8.2 | 4.15 | 0.68 | 8.95 |
| 0.30 | 0.10 | 0.15 | 0.08 | 11.2 | 4.68 | 0.63 | 11.81 |
| 0.20 | 0.18 | 0.17 | -.09 | 8.8 | 4.12 | 0.64 | 9.44 |
| 0.20 | 0.14 | 0.15 | 0.08 | 7.0 | 3.55 | 0.57 | 7.65 |

## LAND SYSTEM 208, Facet 2.

Classification: Tropudult.

Location: Terrace in Apiay Zone, Meta Department, Colombia.

Physiography: Low terrace.

Topography: Level, 0-1 slope.

Drainage: Well drained.

Vegetation: Savanna.

Source: FAO, Rec. Edaf. Llanos Orientales, 1965, profile R-26, pp 67-8.

$A_1$ 0-10 cm. 10YR 4/3; sandy clay loam; moderate medium to coarse crumb structure; very friable, slightly plastic and slightly sticky; many roots, porous; gradual smooth boundary.

$A_3$ : 10-24 cm. 7.5YR 3/4; clay; weak medium blocky structure; very friable; slightly pastic, slightly sticky; very fine roots; clear smooth boundary.

$B_{21}t$ : 24-45 cm. 7.5YR 4/4; clay; medium weak blocky structure; very friable; slightly plastic, slightly sticky; common fine roots; gradual smooth boundary.

$B_{22}t$ : 45-85 cm. 5YR 4/6; clay; weak medium blocky structure; slightly plastic, slightly sticky; few roots; gradual smooth boundary.

$B_{23}$ : 85-116 cm. 5YR 5/6, and 5YR 4/8; clay; weak medium blocky structure; slightly plastic and slightly sticky; few roots; abrupt wavy boundary.

Layer of great rounded stonies.

| HOR | pH $H_2O$ | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|
| $A_1$ | 4.8 | 2.61 | 0.27 | 4 | 11 | 46 |
| $A_3$ | 4.5 | 1.60 | 0.17 | 3 | 6 | 62 |
| $B_{21}$ | 4.8 | 0.79 | 0.12 | 1 | 5 | 75 |
| $B_{22}$ | 4.8 | 0.52 | 0.11 | <1 | 6 | 76 |
| $B_{23}$ | 5.1 | 0.47 | 0.11 | <1 | 12 | 71 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.83 | 0.57 | 0.35 | 0.08 | 15.30 | 1.55 | 1.83 | 16.13 |
| 0.35 | 0.12 | 0.27 | 0.16 | 13.21 | 1.49 | 0.90 | 14.11 |
| 0.17 | 0.13 | 0.14 | 0.14 | 10.13 | 1.76 | 0.58 | 10.71 |
| 0.26 | 0.17 | 0.08 | 0.08 | 10.04 | 2.18 | 0.67 | 10.71 |
| 0.17 | 0.11 | 0.10 | 0.10 | 3.71 | 1.28 | 0.52 | 4.23 |

## LAND SYSTEM 209, Facet 1 a (50%)

Classification: Tropaquept.

Location: Hato El Gandul, Casanare Department, Colombia.

Physiography: Basin between dikes.

Topography: Level, 0-0.5% slope.

Drainage: Very poorly drained.

Vegetation: Poorly drained savanna.

Source: FAO, Rec. Edaf. Llanos Orientales, 1965, profile J-41, pp 73-4.

$A_1g$ : 0-10 cm. 10YR 3/2; mottles 10YR 5/8; clay; massive fragments; very hard; plastic and slightly sticky many roots; abrupt wavy boundary.

$B_2g$ : 10-42 cm. 7.5YR 3/2; mottles 7.5YR 5/8; clay; massive fragments; hard; sticky and plastic; few roots; gradual smooth boundary.

$IIC_1$ : 42-68 cm. 7.5YR 7/1; mottles 10YR 5/8; few concretions 2.5YR 4/8; loam; massive; very hard; plastic and sticky; few roots; gradual smooth boundary.

$IIC_2gcn$: 68-100 cm. 10YR 5/1.5; mottles 7.5YR 5/8; concretions 2.5YR 4/8; caly loam; massive; firm; plastic and sticky; few roots; gradual wavy boundary.

$IIC_3$ : 100-130 cm+. 10YR 6/2; mottles 10YR 5/6; loam; massive; plastic and sticky; few roots.

NOTE : Cracks 1-2 cm. wide are found over the soil surface.

| HOR | pH $H_2O$ | $Fe_2O_3$ % | C % | N % | P ppm | S.B. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1g$ | 4.6 | 1.19 | 2.23 | 0.28 | 16 | 33 | 29 |
| $B_2g$ | 5.0 | 1.57 | 0.75 | 0.11 | 25 | 24 | 52 |
| $IIC_1$ | 5.1 | 0.84 | 0.14 | 0.08 | 3 | 46 | 32 |
| $IIC_2$ | 5.3 | 2.64 | 0.09 | 0.04 | 1 | 79 | 30 |
| $IIC_3$ | 5.3 | 1.06 | 0.08 | 0.02 | 2 | 31 | 36 |

EXCHANGE COMPLEX ( meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 5.67 | 2.72 | 0.59 | 0.11 | 18.3 | 3.72 | 9.09 | 27.4 |
| 2.96 | 1.62 | 0.31 | 0.15 | 15.9 | 5.38 | 5.04 | 10.9 |
| 1.75 | 0.73 | 0.13 | 0.08 | 3.0 | 1.25 | 2.69 | 5.7 |
| 3.16 | 4.00 | 0.19 | 0.09 | 1.9 | 3.19 | 7.44 | 9.3 |
| 2.02 | 1.13 | 0.16 | 0.11 | 7.3 | 1.91 | 3.42. | 10.8 |

## LAND SYSTEM 209, Facet 1b (50%)

Classification: Tropaqualf.

Location: Hato El Gandul, Casanare Department, Colombia.

Physiography: Basin between dikes.

Topography: Level, 0-0.5% slope.

Drainage: Poorly drained.

Vegetation: Savanna.

Source: FAO, Rec. Edaf. Llanos Orientales, 1965, profile J-39, pp 197-8.

$A_{1g}$ : 0-18 cm. 10YR 4/1; mottles 10YR 7/8; clay; massive; hard; slightly plastic and slightly sticky; many roots; gradual smooth boundary.

$B_{2g}$ : 18-40 cm. 10YR 5/1; mottles 10YR 5/8; clay; massive; hard; slightly sticky; common roots; clear smooth boundary.

$C_{1gcn}$ : 40-80 cm. 10YR 4/1, concretions 2 cm. diameter, 15%, 10YR 4/8; 5% mottles 10YR 5/8; clay; massive; hard, slightly plastic and slightly sticky; few roots; gradual smooth boundary.

$C_{2gcn}$ : 80-165+. N 6/0; 30% concretions of 0.5 cm 2.5YR 5/8; clay; massive; firm; slightly plastic and slightly sticky; no roots.

NOTE : The soil surface presents cracks 15 cm depth and 2-3 cm. wide.

| HOR | pH $H_2O$ | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|
| $A_{1g}$ | 4.8 | 1.47 | 0.16 | 6.4 | 29 | 38 |
| $B_{2g}$ | 4.6 | 0.57 | 0.14 | 2.7 | 31 | 55 |
| $C_{1g}$ | 4.8 | 0.45 | 0.15 | 0.4 | 30 | 57 |
| $C_{2g}$ | 0.24 | 0.24 | 0.09 | 0.7 | 63 | 25 |

EXCHANGE COMPLEX (meq/100 g)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1.73 | 4.23 | 0.31 | 0.19 | 15.7 | 3.98 | 6.46 | 22.2 |
| 1.96 | 4.80 | 0.27 | 0.21 | 15.7 | 8.78 | 7.24 | 23.0 |
| 2.88 | 5.64 | 0.33 | 0.25 | 20.9 | 12.01 | 9.10 | 30.0 |
| 4.49 | 9.20 | 0.42 | 0.39 | 8.3 | 4.78 | 14.50 | 22.8 |

## LAND SYSTEM 209, Facet 2.

Classification: Tropaqualf.

Location: El Gandul, Casanare Department, Colombia.

Physiography: Natural dike.

Topography: Slightly convex, slope 1-2%.

Drainage: Imperfectly drained.

Vegetation: Savanna.

Source: FAO, Rec. Edaf. Llanos Orientales, 1965, profile Ch-25, pp 115-6.

$A_1$ : 0-23 cm. 10YR 5/2; few mottles 10YR 5/8; sandy loam; massive; soft; slightly plastic and slightly sticky; many roots; gradual smooth boundary.

$B_{2gcn}$ : 23-78 cm. 10YR 6/2; mottles 10YR 5/2; 15% concretions 10R 4/8; sandy clay loam; moderate medium blocky structure; soft; slightly plastic and slightly sticky; few roots; gradual smooth boundary.

$C_{1gcn}$ : 78-135 cm. 5Y 6/1; few mottles 5YR 5/8; concretions 10R 4/8; clay loam; massive; firm; slightly plastic and slightly sticky;few roots; clear smooth boundary.

$IIC_{2gcn}$: 135-160 cm+. 10YR 8/1, and 10YR 6/3; mottles 7.5YR 4/8; fine sandy loam; massive; friable; slightly plastic and slightly sticky; very few roots.

| HOR | pH $H_2O$ | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|
| $A_1$ | 4.8 | 0.58 | 0.07 | 2.8 | 29 | 50 |
| $B_{2gcn}$ | 5.1 | 0.20 | 0.05 | 2.6 | 27 | 63 |
| $C_{1gcn}$ | 5.4 | 0.16 | 0.04 | 2.1 | 69 | 12 |
| $IIC_{2gcn}$ | 5.3 | 0.05 | 0.02 | 5.0 | 89 | 0 |

EXCHANGE COMPLEX ( meq/100 g )

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.78 | 0.26 | 0.14 | 0.11 | 3.02 | 1.30 | 1.29 | 4.31 |
| 1.17 | 0.36 | 0.09 | 0.13 | 4.65 | 3.03 | 1.75 | 6.40 |
| 4.61 | 1.44 | 0.15 | 0.16 | 2.78 | 0.84 | 6.36 | 0.14 |
| 1.54 | 0.95 | 0.10 | 0.19 | 0.33 | - | 2.78 | 3.1 1 |

## LAND SYSTEM 210, Facet 1.

Classification: Tropaquult.

Location: Orocué, Casanare Department, Colombia.

Physiography: Eolian plain.

Topography: Slightly convex, 0-0.5% slope.

Drainage: Moderately drained.

Vegetation: Savanna.

Source: FAO, Rec. Edaf. Llanos Orientales, 1965, profile C-30, pp 7-8.

$A_1$ : 0-25 cm. 10YR 3/2; mottles 10YR 5/8; silty loam; massive; friable; slightly plastic and nonsticky; common roots; diffuse boundary.

$A_3$ : 25-90 cm. 7.5YR 4/2; clay loam; massive; friable, plastic and sticky; common roots; clear wavy boundary.

$IIB_2g$ : 90-140 cm. 10YR 6/2, and 10YR 4/6; clay; strong coarse prismatic structure with clay skins; slightly plastic, sticky; no roots.

| HOR | pH $H_2O$ | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|
| $A_1$ | 4.5 | 1.80 | 0.19 | 5.6 | 3.53 | 88 |
| $A_3$ | 4.6 | 0.45 | 0.07 | 3.2 | 3.66 | 93 |
| $IIB_2$ | 4.7 | 0.24 | 0.05 | 0.9 | 3.68 | 92 |

LXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.15 | 0.08 | 0.06 | 0.20 | 13.41 | 3.72 | 0.49 | 13.90 |
| 0.12 | 0.09 | 0.03 | 0.11 | 9.22 | 4.78 | 0.35 | 9.57 |
| 0.12 | 0.07 | 0.04 | 0.11 | 8.89 | 4.12 | 0.34 | 9.23 |

## LAND SYSTEM 210, Facet 2.

Classification: Tropudult.

Location: Orocué zone, Casanare Department, Colombia.

Physiography: Natural dike.

Topography: Level, 0-2% slope.

Drainage: Well drained.

Vegetation: Savanna.

Source: FAO, Rec. Edaf. Llanos Orientales, 1965, profile L-26, pp 181-2.

$A_1$ : 0-10 cm. 2.5Y 4/2; sandy loam with quartz; weak medium blocky structure; very friable, nonplastic, nonsticky; many roots; clear smooth boundary.

$A_3$ : 10-18 cm. 2.5Y 4/4; sandy loam, with quartz; weak fine blocky structure; friable, nonplastic, nonsticky; common fine roots; clear smooth boundary.

$B_{21}$ : 18-40 cm. 10YR 5/6; sandy loam with quartz; very weak blocky structure with clay skins; very friable, nonplastic, nonsticky; common roots; clear smooth boundary.

$B_{22}$ : 40-73 cm. 10YR 5/8, and N 4/0; sandy loam with quartz; massive very friable, nonplastic, nonsticky; few roots; clear smooth boundary.

$B_{23}$ : 73-130 cm. 10YR 5/8, 7.5YR 5/6, 10YR 5/6; sandy loam with quartz; massive, very friable; nonplastic, nonsticky; no roots; clear smooth boundary.

$C_1$ : 130-160 cm+. 7.5YR 5/6, 5YR 5/8; sandy loam with quartz; massive, very firm, nonplastic, nonsticky; no roots.

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| HOR | pH $H_2O$ | $Fe_2O_3$ % | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_4$ | 4.9 | 0.90 | 0.97 | 0.08 | 2.4 | 15 | 59 |
| $A_3$ | 4.9 | 1.19 | 0.82 | 0.07 | 3.0 | 10 | 71 |
| $B_{21}$ | 5.0 | 1.00 | 0.39 | 0.04 | 1.6 | 12 | 65 |
| $B_{22}$ | 4.9 | 1.18 | 0.24 | 0.03 | 1.1 | 15 | 58 |
| $B_{23}$ | 5.4 | 1.84 | 0.03 | 0.01 | 0.4 | 23 | 52 |
| $C_1$ | 5.3 | 2.33 | 0.07 | 0.01 | 0.7 | 19 | 38 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.20 | 0.23 | 0.06 | 0.09 | 3.26 | 0.85 | 0.58 | 3.89 |
| 0.11 | 0.09 | 0.12 | 0.06 | 3.25 | 0.91 | 0.38 | 3.63 |
| 0.11 | 0.06 | 0.11 | 0.05 | 2.26 | 0.60 | 0.33 | 2.59 |
| 0.10 | 0.07 | 0.13 | 0.05 | 1.88 | 0.48 | 0.35 | 2.23 |
| 0.06 | 0.12 | 0.11 | 0.04 | 1.07 | 0.17 | 0.33 | 1.40 |
| 0.15 | 0.06 | 0.14 | 0.04 | 1.58 | 0.24 | 0.39 | 1.97 |

## LAND SYSTEM 211, Facet 1.

Classification: Tropaquept.

Location: Cravo Norte, Arauca Department, Colombia.

Physiography: Depression between dunes.

Topography: Level, concave, slope 0-1%.

Drainage: Poorly drained.

Vegetation: Savanna.

Parent material: Alluvium covered with eolian sediments.

Source: FAO, Rec. Edaf. Llanos Orientales, 1965, profile D-10, pp 235-6.

$A_{11}g$ : 0-5 cm. 10YR 2/1; sandy loam; weak platy structure that breaks in blocks; very friable; slightly plastic, slightly sticky; many fine roots; gradual smooth boundary.

$A_{12}g$ : 5-21 cm. 10YR 3/1; fine sandy loam; moderate medium blocky structure that breaks like a fragipan; friable, soft; slightly plastic, slightly sticky; many pores; many roots; gradual smooth boundary.

$A_{21}g$ : 21-39 cm. 10YR 7/2; fine sandy loam; weak medium blocky structure; hard, nonplastic, nonsticky; many pores; few roots; gradual smooth boundary.

$A_{22}g$ : 39-52 cm. 10YR 7/2; fine sandy loam; single grain; hard; nonplastic, nonsticky; no roots; gradual smooth boundary.

$B_2$ : 52-130 cm. 10YR 6/8, 10YR 7/1, 10YR 4/8; fine sandy loam; massive, soft; slightly plastic, slightly sticky; few pores; cracks; no roots; diffuse smooth boundary.

C : 130 cm+. 10YR 6/6 and 10YR 7/2; loamy fine sand; massive to single grain; very friable; nonsticky, non-plastic; few pores; no roots.

| HOR | pH $H_2O$ | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|
| $A_{11}g$ | 4.6 | 1.77 | 0.25 | 14 | 10 | 62 |
| $A_{12}g$ | 4.5 | 0.90 | 0.12 | 7 | 7 | 77 |
| $A_{21}g$ | 4.5 | 0.09 | 0.03 | 5 | 26 | 68 |
| $A_{22}g$ | 4.6 | 0.03 | 0.01 | 4 | 26 | 77 |
| $B_2$ | 4.8 | 0.03 | 0.03 | 3 | 10 | 86 |
| C | 4.8 | 0.03 | 0.01 | <1 | 47 | 43 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.26 | 0.20 | 0.06 | 0.05 | 4.84 | 0.94 | 0.57 | 5.41 |
| 0.17 | 0.06 | 0.04 | 0.04 | 3.84 | 0.99 | 0.29 | 4.13 |
| 0.15 | 0.04 | 0.04 | 0.02 | 0.68 | 0.53 | 0.25 | 0.93 |
| 0.08 | 0.12 | 0.03 | 0.02 | 0.68 | 0.82 | 0.25 | 0.93 |
| 0.19 | 0.16 | 0.07 | 0.04 | 4.12 | 2.78 | 0.46 | 4.58 |
| 0.16 | 0.46 | 0.08 | 0.06 | 0.05 | 0.57 | 0.76 | 1.61 |

## LAND SYSTEM 211, Facet 2.

Classification: Quartzipsament.

Location: Cravo Norte, Arauca, Colombia.

Physiography: Top of dune.

Topography: Convex, 3-4% slope.

Drainage: Excessively drained.

Vegetation: Savanna.

Parent material: Eolian sandy sediments.

Source: FAO, Rec. Edaf. Llanos Orientales, 1965, profile P-14, pp 101-2.

$A_1$ : 0-10 cm. 10YR 5/3; fine sand ; single grain; loose; nonsticky, nonplastic; many roots; gradual wavy boundary.

$C_1$ : 10-75 cm. 5YR 4/4; fine sand ; single grain;loose; common roots; diffuse wavy boundary.

$C_2$ : 75-135 cm. 5YR 5/8; fine sand ; single grain; loose; few roots.

$C_3$ : 135 cm+. 7.5YR 5/8, 15% 7.5YR 6/4; fine sand ; massive that breaks in single grain; loose; few roots.

| HOR | pH $H_2O$ | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|
| $A_1$ | 4.8 | 0.33 | 0.04 | 3 | 50 | 59 |
| $C_1$ | 5.0 | 0.16 | 0.02 | 10 | 75 | 39 |
| $C_2$ | 4.9 | 0.05 | 0.01 | 6 | 38 | 62 |
| $C_3$ | 4.9 | 0.02 | 0.01 | 7 | 43 | 50 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.11 | 0.08 | 0.05 | 0.05 | 0.28 | 0.42 | 0.29 | 0.57 |
| 0.13 | 0.15 | 0.13 | 0.13 | 0.15 | 0.30 | 0.47 | 0.62 |
| 0.13 | 0.10 | 0.05 | 0.05 | 0.47 | 0.48 | 0.30 | 0.77 |
| 0.12 | 0.12 | 0.10 | 0.10 | 0.47 | 0.36 | 0.36 | 0.83 |

## LAND SYSTEM 211, Facet 3.

Classification: Plinthaquept.

Location: Cravo Norte, Arauca Department, Colombia.

Phisiography: Foot of dune.

Topography: Slightly convex, 0-1% slope.

Drainage: Moderately well drained.

Vegetation: Savanna.

Source: FAO, Rec. Edaf. Llanos Orientales, 1965, profile J-47, pp 47-8

$A_1g$ : 0-16 cm. 10YR 4/1; mottles 5YR 4/8; sandy loam; single grain; very friable, non plastic, non sticky; many roots; gradual smooth boundary.

$B_{21}$ : 16-30 cm. 10YR 6/3; mottles 10YR 6/8; sandy loam; single grain; very friable; non plastic, non sticky, gradual irregular boundary.

$B_{22}$ : 30-65 cm. 10YR 6/8; sandy loam; single grain; very friable; non plastic, non sticky; few roots; gradual broken boundary.

$C_1gcn$ : 65-100 cm. 10YR 6/1; mottles 10YR 7/1; soft concretions; 10R 4/4; sandy loam; single grain; very friable; non plastic , non sticky; few roots; clear smooth boundary.

$IIC_2gcn$: 100-170 cm. 10YR 7/2; concretions 10R 4/6, 1-5 cm diameter; loam; massive; slightly plastic, slightly sticky; no roots; clear smooth boundary.

$IIC_3gcn$: 170-185 cm. 5Y 7/1, and 50% concretions 10R 3/4, 1-5 cm. diameter; clay loam; massive; slightly sticky, slightly plastic; no roots.

| HOR | pH $H_2O$ | $Fe_2O_3$ % | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_{1g}$ | 5.3 | 0.55 | 0.68 | 0.09 | 3 | 13 | 65 |
| $B_{21}$ | 4.7 | 0.57 | 0.10 | 0.02 | 2 | 18 | 72 |
| $B_{22}$ | 4.8 | 1.28 | 0.09 | 0.02 | 2 | 14 | 61 |
| $C_1g$ | 5.2 | 1.03 | 0.08 | 0.02 | 2 | 5 | 56 |
| $IIC_2g$ | 4.9 | 0.76 | 0.05 | 0.02 | 2 | 11 | 83 |
| $IIC_3g$ | 4.9 | 2.38 | 0.03 | 0.02 | 1 | 13 | 80 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.13 | 0.11 | 0.21 | 0.10 | 3.54 | 1.02 | 0.55 | 4.09 |
| 0.09 | 0.7 | 0.06 | 0.13 | 1.51 | 0.91 | 0.35 | 1.86 |
| 0.06 | 0.13 | 0.11 | 0.16 | 2.65 | 0.72 | 0.46 | 3.11 |
| 0.17 | 0.15 | 0.21 | 0.20 | 0.67 | 0.95 | 0.76 | 1.40 |
| 0.16 | 0.20 | 0.09 | 0.12 | 4.42 | 2.81 | 0.57 | 4.49 |
| 0.21 | 0.41 | 0.20 | 0.10 | 5.97 | 3.70 | 0.92 | 6.89 |

## LAND SYSTEM 212, Facet 1.

Classification: Dystropept.

Location: One hour from Arauca towards Arauquita, Arauca Department, Colombia.

Physiography: Very small dikes in alluvial plain.

Topography: 3-7% slope.

Vegetation: Forest,(Igua, majuaguaro, mastranto).

Parent material: Mixed alluvial sediments.

Source: Cortés et al, 1973, profile 5, page 157.

$A_1$ : 0-15 cm. 10YR 5/3; loamy sand to loam; moderate medium blocky structure; slightly hard; many pores and roots; more than 3% muscovite.

$B_{21}$ : 15-30 cm. 10YR 5.5/3; loamy sand; weak medium blocky structure; friable, common pores and roots; more than 3% muscovite; clear smooth boundary.

$B_{22}$ : 30-54 cm.10YR 5/4; ; loamy sand; moderate coarse prismatic structure; friable, slightly sticky; many pores, few roots; clear smooth boundary.

$B_{23}$ : 54-150 cm+. 7.5YR 5/4; loamy sand; moderate medium blocky structure; friable, many pores; very few roots.

| HOR | pH $H_2O$ | $Fe_2O_3$ % | C % | N % | P Kg/ha | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.8 | 1.7 | 0.3 | 0.06 | 216 | 2 | 88 |
| $B_{21}$ | 4.6 | 1.5 | 0.2 | 0.05 | 189 | 2 | 92 |
| $B_{22}$ | 4.6 | 2.4 | 0.2 | 0.06 | 168 | 2 | 92 |
| $B_{23}$ | 4.7 | 3.0 | 0.2 | 0.05 | 77 | 3 | 92 |

EXCHANGE COMPLEX (meq/100 g)

| K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|
| 0.10 | | 0.1 | 0.8 | 0.10 | 4.5 |
| 0.07 | | 0.1 | 0.9 | 0.07 | 3.9 |
| 0.10 | | 0.1 | 1.2 | 0.10 | 4.7 |
| 0.10 | 0.02 | - | 1.5 | 0.12 | 4.2 |

## LAND SYSTEM 212, Facet 2.

Classification: Psammaquent.

Location: Fundo Hato Viejo, Arauca Department, Colombia.

Physiography: Natural dike, near a small river.

Topography: 1-3% slope.

Drainage: Moderately drained.

Vegetation: Forest (Majaguaro-Igua-Mastranto).

Parent material: Mixed alluvial sediments.

Source: Cortés et al, 1973, profile 6, page 159.

$A_1$ : 0-22 cm. 10YR 5/4; loamy sand; strong medium blocky structure; hard, plastic; common pores, many roots; ferruginous cutans; clear wavy boundary.

AC : 22-70 cm. 10YR 5/3; mottles 2.5YR 3/4; sandy loam; common pores, many roots: abrupt smooth boundary.

Cuirass: 70-96 cm. 10YR 5/6; hardened layer of sands cemented with Fe-Al-Mn; abrupt smooth boundary.

C : 96-150 cm.10YR 6/3; hardened layer of sand material cemented with Fe-Al-Mn.

| HOR | pH $H_2O$ | $Fe_2O_3$ % | C % | N % | P Kg/ha | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.8 | 2.7 | 0.4 | 0.06 | 236 | 3 | 85 |
| AC | 4.8 | 2.4 | 0.4 | 0.05 | 246 | 2 | 92 |
| Cuiras | 5.0 | 21.6 | 0.1 | 0.06 | 115 | 30 | 19 |
| C | 4.8 | 0.3 | 0.1 | 0.05 | 168 | 33 | 40 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | B.S. | Al.S. |
|---|---|---|---|---|---|---|---|
| - | - | 0.10 | 0.05 | 0.2 | 0.9 | 0.15 | 6.3 |
| - | - | 0.10 | 0.05 | 0.3 | 1.9 | 0.15 | 11.4 |
| 2.05 | - | 0.10 | 0.08 | 0.1 | 0.5 | 2.19 | 12.9 |
| 1.36 | 0.25 | 0.10 | 0.05 | 0.1 | 1.1 | 1.66 | 8.9 |

## LAND SYSTEM 216, Facet 1.

Classification: Dystropet.

Location: San Luis Farm, Florencia-Travesia road, Caquetá Department, Colombia.

Physiography: Piedmont Hills.

Topography: Steep to hilly; site 25% slope.

Drainage: Well drained.

Vegetation: Originally Tropical Rain Forest; actually pasture (Panicum maximun).

Parent material: Gneiss, granite, colluvial and pyroclastic materials, mixed.

Source: Benavidez, S.T. 1973, PH.D. Thesis; profile 8, p 201.

$A_1$ : 0.16 cm. 10YR 4/3.5; clay; very fine blocky structure; soft, friable, plastic, sticky; many fine roots; clear smooth boundary.

$B_{21}$ : 16-85 cm. 5YR 4.5/6; few mottles 2.5Y 6/4; clay; weak medium prismatic structure; friable;, very plastic, very sticky; many pores; no clay skins; few fine roots; diffuse smooth boundary.

$B_{22}$ : 85-173 cm. 5YR 5/6; clay; weak fine prismatic structure; friable, very sticky, very plastic; many fine pores; no clay skins; diffuse boundary.

$B_3$ : 173-208 cm. 5YR 5/7; sandy clay; weak medium blocky structure; very friable; plastic and sticky; many fine pores; clear boundary.

$C_1$ : 202-228 cm. rocky horizon(horizontal stratification) and loose material; sandy clay; no roots; clear smooth boundary.

$C_2$ : 228-247 cm. 2.5YR 4/6; sandy clay; weak medium blocky structure; clear smooth boundary.

$C_3$ : 247-350 cm+. Gneiss rock very altered and weathered.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.8 | 3.8 | 2.02 | 0.22 | 3.5 | 36 | 61 |
| $B_{21}$ | 4.7 | 3.7 | 0.51 | 0.08 | 0.9 | 10 | 90 |
| $B_{22}$ | 4.9 | 3.8 | 0.22 | 0.05 | 0.0 | 8 | 90 |
| $B_3$ | 4.9 | 3.7 | 0.15 | 0.03 | - | 9 | 90 |
| $C_1$ | 4.9 | 3.7 | 0.08 | 0.02 | - | 12 | 85 |
| $C_2$ | 4.9 | 3.7 | 0.09 | 0.02 | - | 10 | 89 |
| $C_3$ | 4.9 | 3.8 | 0.07 | 0.02 | - | 12 | 87 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.95 | 0.80 | 0.23 | 0.08 | 0.4 | 3.2 | 2.06 | 5.66 |
| 0.22 | 0.43 | 0.03 | 0.06 | 0.9 | 6.7 | 0.74 | 7.74 |
| 0.10 | 0.47 | 0.08 | 0.04 | 0.2 | 6.3 | 0.69 | 7.19 |
| 0.10 | 0.41 | 0.13 | 0.04 | 0.9 | 6.1 | 0.68 | 7.68 |
| 0.20 | 0.56 | 0.11 | 0.04 | 1.5 | 5.3 | 0.91 | 7.71 |
| 0.16 | 0.63 | 0.17 | 0.04 | 0.5 | 8.1 | 1.00 | 9.60 |
| 0.16 | 0.53 | 0.21 | 0.05 | 0.5 | 6.1 | 0.95 | 7.55 |

| HOR | Mn* ppm | | Cu ppm | | Zn ppm | |
|---|---|---|---|---|---|---|
| | N.C. | Olsen | N.C. | Olsen | N.C. | Olsen |
| $A_1$ | 47.0 | 290 | 2.4 | 4.7 | 3.5 | 5.8 |
| $B_{21}$ | 3.6 | 26 | 1.3 | 3.4 | 0.8 | 2.5 |
| $B_{22}$ | 4.8 | 48 | 1.0 | 3.0 | 1.0 | 3.2 |

* Mn, Cu, Zn extraídos por soluciones Noth Caroina y Olsen modificadas en ppm.

## LAND SYSTEM 218, Facet 1.

Classification: Dystropept.

Location: Left margin of Vaupés River, near head-quarters of the Army, Miraflores, Vaupés Department, Colombia.

Physiography: Upper slope of a hill, 70m above Vaupés River.

Topography: Undulating; site, 20% slope.

Drainage: Well drained.

Vegetation: Originally tropical rain forest; presently pastures and shrubs.

Source: Benavides, S.T. 1977, PH.D.Thesis; profile 1, page 188.

$A_1$ : 0-21 cm. 7.5YR 4/4; clay; moderate medium blocky structure; friable, plastic and sticky; common roots; gradual smooth boundary.

$B_1$ : 21-38 cm. 5YR 4/6; clay; weak fine prismatic structure; friable, slightly plastic; common pores and roots; diffuse smooth boundary.

$B_{21}$ : 38-100 cm. 5YR 4/6; silty clay; weak fine prismatic structure; many pores; few roots; diffuse boundary.

$B_{22}$ : 100-150 cm. 5YR 7/4; clay; weak fine prismatic structure; friable, slighlty sticky, slightly plastic; many pores.

$B_{23}$ : 150-350 cm. 5YR 4/4; clay; moderate medium prismatic structure; friable, plastic, sticky; common pores.

| HOR | pH | | C | N | P | B.S. | Al.S. |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.6 | 3.9 | 1.97 | 0.26 | 2.4 | 24 | 74 |
| $B_1$ | 4.5 | 3.8 | 1.22 | 0.17 | 0.9 | 14 | 84 |
| $B_{21}$ | 4.5 | 3.8 | 0.82 | 0.12 | 0.9 | 13 | 86 |
| $B_{22}$ | 4.7 | 4.0 | 0.34 | 0.07 | 0.4 | 14 | 85 |
| $B_{23}$ | 4.8 | 4.0 | 0.23 | 0.07 | 0.4 | 17 | 82 |

| HOR | Mn ppm | | Cu ppm | | Zn ppm | |
|---|---|---|---|---|---|---|
| | N.C. | Olsen | N.C. | Olsen | N.C | Olsen |
| $A_1$ | 5.6 | 34 | 1.0 | 3.0 | 5.8 | 8.5 |
| $B_1$ | 3.8 | 26 | 1.0 | 3.0 | 5.6 | 10.0 |
| $B_{21}$ | 2.8 | 26 | 0.8 | 2.7 | 2.9 | 5.8 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.85 | 0.26 | 0.22 | 0.12 | 0.3 | 4.2 | 1.45 | 5.95 |
| 0.41 | 0.21 | 0.06 | 0.13 | 0.6 | 4.3 | 0.81 | 5.71 |
| 0.38 | 0.11 | 0.13 | 0.09 | 0.4 | 4.2 | 0.71 | 5.31 |
| 0.21 | 0.07 | 0.03 | 0.05 | 0.1 | 2.0 | 0.36 | 2.46 |
| 0.21 | 0.09 | 0.02 | 0.10 | 0.1 | 1.9 | 0.42 | 2.42 |

NOTE : Facet 1 of Land System 218 was classified as Haplorthox because it is believed (from other sources) that this is the most extensive soil : Nevertheless the above soil profile was classified as Oxic Dystropept as the B horizon has more than 6% of mica, and therefore it must be considered as a "cambic horizon" not an "oxic horizon". This condition excepted,all the other charact eristics of the soil satisfy the requiriments of an Oxisol.A description of an Haplorthox for the same Land System follows:

## LAND SYSTEM 218, Facet 1.

Classification: Haplorthox.

Location: 1°. 16'N, 69°37'W. on margin of Aiari River, São Gabriel, Amazonas State, Brazil.

Physiography: Gently undulating plain.

Topography: 3% slope.

Drainage: Well drained.

Vegetation: Dense forest, tropical rain forest.

Parent material: Granite, migmatite, and granodiorite, Pre-Cambrian.

Source: Proj. Radambrasil, Vol. 11, 1976, profile 7, pages 215-6.

$A_1$ : 0-15 cm. 10YR 4/4; sandy loam; massive, friable; slightly plastic, slightly sticky; gradual boundary.

$A_3$ : 15-35 cm. 10YR 6/6; sandy clay loam; weak fine granular structure; friable,slightly plastic, slightly sticky; gradual boundary.

$B_1$ : 35-65 cm. 7.5YR 6/8; sandy clay loam; weak fine granular structure; friable; slightly plastic, slightly sticky; diffuse boundary.

$B_{21}$ : 65-95 cm. 7.5YR 6/8; sandy clay loam; with gravel; weak fine granular structure; friable; plastic and sticky; diffuse boundary.

$B_{22}$ : 95-120 cm. 5YR 6/8; sandy clay loam; with gravel; weak fine granular structure; friable, plastic, sticky; gradual boundary.

$B_3$ : 120-160 cm. 2.5YR 6/8; mottles 7.5YR 6/6; sandy clay loam; weak fine granular structure; friable, plastic, sticky.

| HOR | pH | | C | N | P | B.S. | Al.S. |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.9 | 4.0 | 1.43 | 0.11 | 1 | 6 | 78 |
| $A_3$ | 5.1 | 4.1 | 1.02 | 0.08 | <1 | 3 | 90 |
| $B_1$ | 5.0 | 4.1 | 0.47 | 0.04 | <1 | 4 | 91 |
| $B_{21}$ | 4.8 | 4.[illegible] | 0.35 | 0.04 | <1 | 4 | 92 |
| $B_{22}$ | 4.9 | 4.1 | 0.20 | 0.03 | <1 | 4 | 90 |
| $B_{23}$ | 5.0 | 4.2 | 0.18 | 0.02 | <1 | 5 | 88 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.08 | 0.13 | 0.13 | 0.03 | 4.14 | 1.32 | 0.37 | 5.83 |
| 0.04 | 0.03 | 0.04 | 0.03 | 3.52 | 1.32 | 0.14 | 4.98 |
| 0.04 | 0.01 | 0.03 | 0.03 | 1.83 | 1.13 | 0.11 | 3.07 |
| 0.04 | 0.01 | 0.02 | 0.03 | 1.37 | 1.13 | 0.10 | 2.60 |
| 0.04 | 0.01 | 0.02 | 0.03 | 1.39 | 0.95 | 0.10 | 2.44 |
| 0.04 | 0.01 | 0.02 | 0.03 | 1.27 | 0.76 | 0.10 | 2.13 |

## LAND SYSTEM 219, Facet 1.

Classification: Dystropept Típico.

Location: Km 2 along Leguizamo-La Tagua road; Putumayo, Colombia.

Physiography: Upper slope of hill.

Topography: Gently undulating, 3-7% slope.

Drainage: Well drained.

Vegetation: Originally Tropical Rain Forest, actually pastures.

Parent material: Post-Pleisticenic sediments.

Source: Benavides, S.T., 1973, PH.D. Thesis.

$A_1$ : 0-20 cm. 7.5YR 4/4; clay loam; moderate fine blocky structure; hard, friable, slightly sticky, plastic; common pores; common fine roots, clear smooth boundary.

$B_{21}$ : 20-80 cm. 10YR 5/3; moderate medium prismatic structure; friable, very sticky, very plastic;few fine roots; diffuse limit.

$B_{21}cn$ : 80-82 cm. Hard layer (discontinous)of sesquioxidic concretions, dark red and yelowish red; abrupt boundary.

$B_{22}$ : 82-133 cm. 5YR 4/6; clay; moderate medium prismatic structure, friable; very sticky, very plastic; very fine pores; gradual wavy boundary.

$IIB_3$ : 133-173 cm. 5YR 4/8; mottles 10YR 5/6, and 10YR 8/3; moderate prismatic structure; friable, sticky plastic;common clay hardened fragments; clear smooth boundary.

$IIC_1$ : 173-215 cm. 2.5YR 4/4; mottles 2.5Y 6/4; sandy clay loam; massive to blocky structure; friable; slightly sticky, slightly plastic; common pores; clear smooth boundary.

$IIC_2$ : 215-243 cm. Horizon formed by hardened clay fragments and soft materials 10YR 7/1, friable; sticky and plastic. In the lower boundary there is a thin red layer; clear smooth boundary.

$IIIC_3$ : 243-265 cm. 5YR 5/4; massive; sandy loam;friable; slightly sticky; slightly plastic; few mica fragments.

| HOR | pH | | C | N | P | B.S | Al.S. |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.9 | 3.8 | 1.39 | 0.17 | 3.0 | 41 | 58 |
| $B_{21}$ | 4.8 | 3.7 | 0.38 | 0.04 | 1.5 | 20 | 78 |
| $B_{22}$ | 4.8 | 3.7 | 0.21 | 0.10 | 0.4 | 10 | 89 |
| $IIB_{23}$ | 4.9 | 3.6 | 0.09 | 0.06 | - | 7 | 92 |
| $IIC_1$ | 4.9 | 3.7 | 0.05 | 0.02 | - | 8 | 92 |
| $IIC_2$ | 4.9 | 3.6 | 0.06 | 0.02 | - | 8 | 92 |
| $IIIC_3$ | 4.9 | 3.7 | 0.07 | 0.02 | - | 10 | 89 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 1.69 | 1.07 | 0.31 | 0.03 | 0.1 | 4.3 | 3.10 | 7.50 |
| 0.96 | 0.88 | 0.14 | 0.04 | 0.6 | 7.3 | 2.02 | 9.92 |
| 0.21 | 0.75 | 0.11 | 0.09 | 0.9 | 9.3 | 1.16 | 11.36 |
| 0.11 | 0.68 | 0.14 | 0.08 | 1.1 | 11.6 | 1.01 | 13.71 |
| 0.16 | 0.42 | 0.07 | 0.06 | 0.6 | 7.9 | 0.71 | 9.21 |
| 0.11 | 0.70 | 0.14 | 0.05 | 1.0 | 10.8 | 1.00 | 12.80 |
| 0.10 | 0.57 | 0.02 | 0.06 | 0.7 | 5.8 | 0.75 | 7.25 |

| HOR | Mn ppm | | Cu ppm | | Zn ppm | |
|---|---|---|---|---|---|---|
| | N.C. | Olsen | N.C. | Olsen | N.C. | Olsen |
| $A_1$ | 75 | 472 | 0.9 | 1.7 | 6.2 | 8.0 |
| $B_{21}$ | 18 | 168 | 1.0 | 2.7 | 1.2 | 3.5 |
| $B_{22}$ | 12 | 118 | 0.9 | 2.7 | 1.0 | 3.5 |

## LAND SYSTEM 220, Facet 1.

Classification: Paleudult.

Location: Naval Base, Leticia, Amazonas Department, Colombia.

Physiography: Midslope of small hill.

Topography: Gently undulating, 3-5% slope.

Drainage: Moderately well drained.

Vegetation: Originally Tropical Rain Forest, now pastures and shrubs.

Parent material: Pleistocenic sediments.

Source: Benavides, S.T. 1973, PH.D. Thesis; profile 3, page 192

$O_1$ : 2-0 cm. 10YR 3/2; mixed descomposing leaves, with some mineral material.

$A_1$ : 0-13 cm. 10YR 4.5/5; silty clay loam; moderate fine,soft, very friable; slightly plastic, slightly sticky, common pores and roots; clear smooth boundary.

$B_{21}$ : 13-52 cm. 10YR 5.5/3; mottles 10YR 7/1; silty clay; weak fine blocky structure; friable, plastic and sticky; few roots; fine pores; few clay skins; diffuse boundary.

$B_{22}$ : 52-105 cm. 5YR 5/6, 60%; 10YR 4/6, 20%; 2.5Y 7/2, 20%; clay; weak, prismatic structure; friable to firm; sticky, very plastic; common fine pores; few roots; few clay skins; diffuse boundary.

$B_{23}$ : 105-142 cm. 60% 5Y 7/2; 40% 2.5YR 3/6 and 2.5YR 5/6; clay; common pores; few roots; discontinuous clay skins; diffuse boundary.

$B_{24}$ : 142-250 cm. 2.5Y 7/2, 2.5YR 4/6; clay; very weak medium prismatic structure; friable; sticky, very plastic, common pores; very few roots.

| HOR | pH | | C | N | P | B.S. | Al.S. |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.3 | 3.6 | 1.41 | 0.17 | 3.0 | 10 | 89 |
| $B_{21}$ | 4.6 | 3.8 | 0.38 | 0.07 | 0.9 | 9 | 90 |
| $B_{22}$ | 4.6 | 3.7 | 0.13 | 0.04 | 0.4 | 4 | 95 |
| $B_{23}$ | 4.8 | 3.7 | 0.10 | 0.04 | 0.4 | 4 | 96 |
| $B_{24}$ | 4.9 | 3.7 | 0.07 | 0.04 | 0.0 | 3 | 96 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.23 | 0.22 | 0.08 | 0.13 | 0.7 | 5.1 | 0.66 | 6.46 |
| 0.18 | 0.17 | 0.05 | 0.06 | 0.4 | 4.1 | 0.46 | 4.96 |
| 0.14 | 0.08 | 0.02 | 0.07 | 1.0 | 6.3 | 0.31 | 7.61 |
| 0.20 | 0.13 | 0.13 | 0.07 | 1.7 | 11.9 | 0.53 | 13.33 |
| 0.18 | 0.16 | 0.18 | 0.06 | 1.6 | 14.6 | 0.58 | 16.88 |

| | Mn* ppm | | Cu ppm | | Zn ppm | |
|---|---|---|---|---|---|---|
| | N.C. | Olsen | N.C. | Olsen | N.C. | Olsen |
| $A_1$ | 1.2 | 18 | 1.0 | 1.7 | 1.6 | 3.2 |
| $B_{21}$ | 0.6 | 8 | 0.8 | 1.3 | 0.8 | 2.2 |
| $B_{22}$ | 0.6 | 8 | 0.7 | 1.7 | 0.8 | 2.2 |

* Mn, Cu and Zn, extra by North Carolina y Olsen modified solutions.

NOTE: For Land System No. 220 the following table summarizes the average chemical properties of 14 soil profiles from Jenaro Herrera, Loreto Department, Perú.Source: García G.J. et al , 1975, Table 4, (A=topsoil, B: Subsoil).

| HOR | pH | | Mo | N | P | B.S. | Al.S. |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| A | 3.5 | - | 4.81 | 0.22 | 5.0 | 56 | 43 |
| B | 3.6 | - | 2.13 | 0.12 | 1.2 | 49 | 50 |

| HOR | Mn Disp | Zn ppm | B Sol. | Mo Total ppm | Cu | Fe Total % | S |
|---|---|---|---|---|---|---|---|
| A | 49.87 | 3.23 | 0.178 | 20.4 | 13.5 | 0.73 | 2.34 |
| B | 38.11 | 2.57 | 0.078 | 18.6 | 16.0 | 0.78 | 2.74 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H + Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 2.43 | 0.61 | 0.17 | 0.24 | 2.70 | 3.45 | 6.15 |
| 2.16 | 0.49 | 0.14 | 0.26 | 3.13 | 3.05 | 6.18 |

## LAND SYSTEM 221, Facet 1.

Classification: Tropaquult.

Location: Hacienda Lagunazo, Puerto Nuevo zone, Vichada Comisaría, Colombia.

Topography: Level, 0-1% slope.

Physiography: Low terrace of Meta river.

Drainage: Very poorly drained.

Vegetation: Savanna.

Source: FAO, Rec. Edaf. Llanos Orientales, 1965, profile P-8, pp 165-6.

$A_{11}g$ : 0-15 cm. N 2/0; silty loam; weak fine crumb structure, very friable; non plastic, non sticky; many fine pores; many roots; clear smooth boundary.

$IIA_{12}g$: 15-42 cm. 10YR 2/2; clay; moderate coarse prismatic structure; clay skins; firm, plastic and sticky; gradual wavy boundary.

$IIB_2g$ : 42-95 cm. 10YR 4/1; and 10YR 5/6; clay; moderate medium prismatic structure; few fine roots; gradual wavy structure.

IIICg : 95 cm+ 10YR 5/1; and 10YR 6/8; silty clay; massive; friable, very sticky, very plastic; some pores, no roots.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_{11}g$ | 5.2 | - | 9.72 | 1.23 | 0.9 | 2 | 67 |
| $IIA_{12}g$ | 4.7 | - | 3.44 | 0.37 | 8.2 | 2 | 90 |
| $IIB_2g$ | 4.6 | - | 1.19 | 0.11 | 0.9 | 3 | 92 |
| IIICg | 5.2 | - | 0.42 | 0.04 | - | 2 | 77 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.12 | 0.26 | 0.35 | 0.23 | 41.3 | 1.86 | 0.96 | 42.3 |
| 0.12 | 0.26 | 0.12 | 0.15 | 29.6 | 5.16 | 0.65 | 30.3 |
| 0.13 | 0.28 | 0.14 | 0.06 | 17.8 | 7.35 | 0.61 | 18.4 |
| 0.15 | 0.36 | 0.18 | 0.26 | 6.8 | 3.11 | 0.95 | 7.7 |

## LAND SYSTEM 223, Facet 1.

Classification: Fluvaquent.

Location: 01°25' N, 68°37" W. Sao Gabriel, Amazonas State, Brazil.

Physiography: "Varzea" (alluvial flood plain).

Topography: Level.

Drainage: Poorly drained.

Vegetation: Campinarama.

Parent material: Holocene sediments.

Source: Proj. Radambrasil, Vol. 11, 1976, profile 26, pp 228-9.

$A_1$ : 0-20 cm. 10YR 6/1; silty clay loam; weak fine granular structure; firm, plastic and sticky; gradual boundary.

$C_1g$ : 20-50 cm. 10YR 7/1; mottles 10YR 6/8; silty clay loam; massive, firm, plastic and sticky; diffuse boundary.

$C_2g$ : 50-85 cm. 10YR 7/1; mottles 10YR 6/8; silty clay loam; massive, firm, plastic and sticky; gradual smooth boundary.

$C_3g$ : 85-120 cm. 10YR 6/1; mottles 2.5YR 4/8;silty clay loam; massive, firm, plastic and sticky.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 3.9 | 3.5 | 0.70 | 0.09 | 2 | 2 | 97 |
| $C_1g$ | 4.3 | 3.5 | 0.52 | 0.08 | 2 | 2 | 97 |
| $C_2g$ | 4.3 | 3.6 | 0.24 | 0.07 | 1 | 2 | 97 |
| $C_3g$ | 4.3 | 3.5 | 0.31 | 0.06 | <1 | 2 | 97 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.03 | 0.05 | 0.05 | 0.03 | 1.37 | 5.40 | 0.16 | 6.93 |
| 0.02 | 0.04 | 0.04 | 0.04 | 1.07 | 5.20 | 0.14 | 6.91 |
| 0.05 | 0.04 | 0.04 | 0.04 | 1.10 | 6.00 | 0.17 | 7.27 |
| 0.05 | 0.04 | 0.04 | 0.04 | 1.10 | 6.00 | 0.17 | 7.27 |

## LAND SYSTEM 225, Facet 1 (moderately well drained)

Classification: Plinthudult.

Location: 1°37'S, 68°07'W, Municipio Japurá, Amazonas State, Brazil.

Physiography: Plain.

Topography: 0-2% slope.

Drainage: Moderately drained.

Vegetation: Open forest.

Parent material: Solimoes Formation sediments; Tertiary-Quaternary.

Source: Proj. Radambrazil, Vol.14, 1977, profile 29, pp 222-3.

$A_1$ : 0-5 cm. 7.5YR 5/2; loam; weak fine granular structure; loose, non plastic, non sticky; clear boundary.

$A_3$ : 5-35 cm. 10YR 5/6; clay loam; weak fine granular structure; friable; slightly sticky, slightly plastic; clear boundary.

$B_1$ : 35-65 cm. 7.5YR 5/8; clay loam; weak fine granular structure; slightly hard, firm, plastic and sticky; diffuse boundary.

$B_{21}pl$ : 65-140 cm. 7.5YR 5/8; mottles 2.5YR 7/6; clay; moderate medium blocky structure; slightly hard, firm, plastic, sticky.

$B_{22}pl$ : 140-180 cm. 2.5YR 6/8; mottles 10YR 5/8, and 7.5YR 6/6; clay; moderate medium blocky structure; hard, firm, very plastic and very sticky.

NOTE : Few clay skins in $B_1$ and $B_{21}pl$. Common roots in $A_1$ and $A_3$, few in $B_1$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 3.9 | 3.0 | 6.69 | 0.56 | 20 | 5 | 78 |
| $A_3$ | 3.7 | 3.5 | 1.30 | 0.12 | 7 | 5 | 88 |
| $B_1$ | 4.4 | 3.6 | 0.44 | 0.12 | 4 | 6 | 91 |
| $B_{21}$ | 4.7 | 3.6 | 0.27 | 0.11 | 2 | 7 | 90 |
| $B_{22}$ | 4.9 | 3.6 | 0.23 | 0.10 | 3 | 6 | 93 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.9 | 0.2 | 0.31 | 0.03 | 19.7 | 5.0 | 1.4 | 26.1 |
| 0.5 | | 0.06 | 0.01 | 6.3 | 4.6 | 0.6 | 11.5 |
| 0.5 | | 0.02 | 0.01 | 2.8 | 5.1 | 0.5 | 8.4 |
| 0.5 | | 0.02 | 0.06 | 2.2 | 5.5 | 0.6 | 8.8 |
| 0.5 | | 0.05 | 0.01 | 2.1 | 7.4 | 0.6 | 10.1 |

## LAND SYSTEM 226, Facet 1.

Classification: Haplorthox.

Location: Lat 0°35'S, long. 65°47'W. Municipio Isla Grande, Amazonas State, Brazil.

Physiography: Elevated plain surface.

Topography: Gently undulating,5% slope

Drainage: Well drained.

Vegetation: Campinarama to dense forest.

Parent material: Solimoes Formation sediments; Tertiary-Quaternary.

Source: Proj. Radambrasil, Vol. 18, 1978, profile 4,pp 272-3.

$A_1$ : 0-20 cm. 10YR 4/3; sandy loam; weak fine granular structure; very friable, slightly sticky, slightly plastic; gradual boundary.

$A_3$ : 20-50 cm. 10YR 5/4; sandy clay loam; weak fine granular structure; very friable, slightly plastic slightly sticky; diffuse boundary.

$B_1$ : 50-80 cm. 10YR 6/6; sandy loam; massive, friable, slightly plastic, slightly sticky; diffuse boundary.

$B_{21}$ : 80-110 cm. 10YR 6/8; sandy clay loam; massive to granular structure; friable, plastic and sticky; diffuse boundary.

$B_{22}$ : 110-150 cm. 10YR 7/6; sandy clay loam; massive to granular structure; friable, slightly plastic, slightly sticky; diffuse boundary.

$B_{23}$ : 150-170 cm. 10YR 8/6; sandy clay loam; massive to granular structure; friable, slightly plastic, slightly sticky.

NOTE : Many roots in $A_1$ and $A_3$, common in $B_1$ and $B_{21}$, few in $B_{22}$ and $B_{23}$.

| HOR | pH $H_2O$ | pH KCl | C % | M.O. % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.1 | 3.8 | 1.3 | 2.24 | 12 | 8 | 77 |
| $A_3$ | 4.1 | 3.9 | 1.0 | 1.72 | 9 | 9 | 77 |
| $B_1$ | 3.8 | 3.7 | 0.6 | 1.03 | 6 | 8 | 77 |
| $B_{21}$ | 3.8 | 3.7 | 0.3 | 0.52 | 6 | 11 | 81 |
| $B_{22}$ | 3.8 | 3.8 | 0.1 | 0.17 | 3 | 8 | 86 |
| $B_{23}$ | 3.9 | 3.8 | 0.4 | 0.69 | 3 | 23 | 86 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.22 | 0.14 | 0.10 | 0.22 | 2.81 | 2.33 | 0.68 | 8.30 |
| 0.35 | 0.13 | 0.07 | 0.22 | 2.76 | 2.51 | 0.77 | 8.27 |
| 0.25 | 0.02 | 0.05 | 0.26 | 3.12 | 2.91 | 0.85 | 6.78 |
| 0.27 | 0.08 | 0.05 | 0.24 | 2.96 | 2.77 | 0.64 | 5.78 |
| 0.15 | 0.02 | 0.04 | 0.22 | 2.81 | 2.71 | 0.43 | 5.03 |
| 0.40 | 0.02 | 0.56 | 0.22 | 2.44 | 2.29 | 1.20 | 5.14 |

## LAND SYSTEM 227, Facet 1.

Classification: Podzol Hidromorfico-Tropaquod.

Location: Lat. 7°03'S, long. 72°39'W. Municipio Ipixuna; Amazonas State, Brazil.

Physiography: Plain.

Drainage: Poorly drained.

Vegetation: Campinarama.

Parent material: Sandy sediments of Solimoes Formation; Plio-Pleistocene.

Source: Proj. Radambrasil, Vol.13, 1977, profile 22, pp 224-5.

$O_2$ : 10-0 cm. Leaves,small branches and roots in decomposition.

$A_1$ : 0-40 cm. 7.5YR 2.5/2; sandy loam; massive; loose, slightly plastic, slightly sticky; clear boundary.

$A_2$ : 40-60 cm. 10YR 6/2; sandy loam; single grain; loose, non plastic,non sticky; abrupt boundary.

Bhir : 60-120 cm. 10YR 3/1; sandy loam; massive,slightly coherent, loose, non plastic, non sticky; clear boundary.

$B_3$ : 120-150 cm. 7.5YR 4/2; sandy loam; single grain; loose, non plastic, non sticky; gradual boundary.

C : 150-170 cm. 10YR 7/2; silty loam; massive; loose, non plastic, non sticky.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $O_2$ | | | >20.0 | | | | |
| $A_1$ | 3.8 | 2.5 | 16.5 | 0.53 | - | 2 | 37 |
| $A_2$ | 4.7 | 3.2 | 0.2 | 0.01 | - | 20 | 33 |
| Bhir | 4.1 | 3.0 | 0.6 | 0.02 | - | 4 | 81 |
| $B_3$ | 4.9 | 4.0 | 0.5 | 0.02 | - | 4 | 82 |
| C | 5.1 | 4.2 | 0.5 | 0.02 | - | 8 | 81 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.10 | 0.08 | 0.14 | 0.03 | 29.4 | 0.3 | 0.51 | 30.00 |
| 0.08 | 0.03 | 0.01 | 0.01 | 0.8 | 0.1 | 0.20 | 1.00 |
| 0.05 | 0.03 | 0.01 | 0.01 | 4.6 | 0.8 | 0.19 | 4.80 |
| 0.05 | 0.01 | 0.01 | 0.01 | 4.1 | 0.8 | 0.18 | 4.30 |
| 0.12 | 0.01 | 0.01 | 0.01 | 3.5 | 1.3 | 0.30 | 3.80 |

## LAND SYSTEM 228, Facet 1.

Classification: Podzólico Vermelho Amarelo Eutrófico-Tropudalf.

Location: Lat. 7°37'S, long. 73°47'W, Municipio Cruzeiro do Sul, Acre State, Brazil.

Physiography: Highish hills.

Topography: Footslope. Strongly undulating, 20% slope.

Drainage: Well drained.

Vegetation: Dense forest.

Parent material: Ramôn Formation, silstone; Cretaceous.

Source: Proj. Radambrasil, Vol. 13, 1977, profile 44, pp 182-3.

$A_1$ : 0-10 cm. 2.5YR 3/4; silty clay loam; moderate fine granular structure; friable; plastic and sticky.

$B_1$ : 10-35 cm. 2.5YR 3/6; silty clay loam; weak fine blocky structure; friable, plastic, sticky.

$B_{21}$ : 35-70 cm. 10YR 3/6; silty clay; moderate fine blocky structure; friable to firm; very plastic, very sticky.

$B_{22}$ : 70-90 cm. 10YR 3/6; silty clay; moderate fine blocky structure; firm, very plastic, very sticky.

NOTE : Many roots in $A_1$ and $B_1$, common in $B_{21}$.

| HOR | pH $H_2O$ | pH KCl | C % | O.M. % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 6.6. | 6.0 | 4.3 | 7.41 | 48 | 93 | 1 |
| $B_1$ | 6.3 | 5.6 | 1.7 | 2.93 | 21 | 88 | 2 |
| $B_{21}$ | 6.1 | 4.9 | 0.7 | 1.20 | 21 | 89 | 2 |
| $B_{22}$ | 7.5 | 6.3 | 0.5 | 0.80 | 40 | 96 | 1 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 16.1 | 6.27 | 0.38 | 0.10 | 1.52 | 0.26 | 22.9 | 24.7 |
| 11.6 | 4.37 | 0.58 | 0.07 | 1.78 | 0.38 | 16.6 | 18.8 |
| 16.5 | 1.82 | 0.45 | 0.09 | 1.96 | 0.46 | 18.9 | 21.3 |
| 20.9 | 0.90 | 0.10 | 0.22 | 0.83 | 0.13 | 22.1 | 32.1 |

## LAND SYSTEM 229, Facet 1.

Classification: Podzólico Vermelho Amarelo Alico-Tropudult.

**Location:** Lat. 8°08'S, Long. 72°39'W, Municipio Cruzeiro do Sul, Acre State, Brazil.

**Physiography:** Elevated plain.

**Topography:** Strongly undulating.

**Drainage:** Moderately drained.

**Vegetation:** Open forest.

**Parent material:** Solimoes Formation sediments; Plio-Pleistocenec.

**Source:** Proj. Radambrasil, Vol. 13, 1977, profile 60, page 208.

$A_1$ : 0-15 cm. 10YR 5/4; silty loam; weak fine granular structure; very friable, non plastic, non sticky; diffuse boundary.

$A_3$ : 15-35 cm. 10YR 5/6; sandy loam; weak fine granular structure; very friable, non plastic, non sticky; gradual boundary.

$B_1$ : 35-60 cm. 7.5YR 5/6; sandy loam; weak fine granular structure; friable, slightly plastic, slightly sticky; gradual boundary.

$B_2$ : 60-80 cm. 5YR 5/6; sandy clay loam; weak fine blocky structure; friable, slightly plastic, slightly sticky; diffuse boundary.

$B_3$ : 80-100 cm. 2.5YR 4/6; mottles 10YR 7/6; clay loam; weak fine blocky structure; firm, slightly plastic, slightly sticky; diffuse boundary.

C : 100-160 cm. 2.5YR 4/8; clay loam; massive; firm, slightly plastic, slightly sticky.

NOTES : Roots common in $A_1$ and $A_3$, few in the other horizons.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.6 | 4.3 | 0.50 | 0.05 | - | 25 | 62 |
| $A_3$ | 5.2 | 4.1 | 0.30 | 0.04 | - | 17 | 84 |
| $B_1$ | 4.9 | 4.2 | 0.20 | 0.03 | - | 5 | 92 |
| $B_2$ | 4.9 | 4.1 | 0.20 | 0.03 | - | 6 | 92 |
| $B_3$ | 5.1 | 4.0 | 0.20 | 0.04 | - | 5 | 93 |
| C | 4.6 | 3.9 | 0.10 | 0.03 | - | 6 | 91 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.10 | 0.04 | 0.06 | 0.13 | 1.13 | 0.6 | 0.37 | 1.50 |
| 0.05 | 0.16 | 0.05 | 0.03 | 1.49 | 1.6 | 0.31 | 1.80 |
| 0.06 | 0.09 | 0.03 | 0.01 | 3.99 | 2.3 | 0.21 | 4.20 |
| 0.08 | 0.18 | 0.04 | 0.01 | 4.91 | 3.3 | 0.29 | 5.20 |
| 0.10 | 0.12 | 0.03 | 0.01 | 5.67 | 4.2 | 0.33 | 6.00 |
| 0.12 | 0.20 | 0.06 | 0.01 | 6.56 | 4.5 | 0.44 | 7.00 |

## LAND SYSTEM 230, Facet 1.

**Classification:** Gley Pouco Humico Eutrófico-Tropaquept.

**Location:** Near Cruzeiro do Sul, Acre State, Brazil.

**Physiography:** Terrace of the right margen of the Juruá river.

**Topography:** Flat.

**Drainage:** Imperfectly drained.

**Vegetation:** Alluvial open forest.

**Parent material.** Unconsolidated sediments of Holocene age.

**Source:** Proj. Radambrasil, Vol. 13, 1977, profile 50, page 221.

$A_1$ : 0-8 cm. 10YR 7/4; silty loam; weak fine granular structure; hard, plastic and sticky; clear boundary.

$A_3$ : 8-30 cm. 10YR 7/1; mottles 7.5YR 5/8; silty clay; weak fine granular structure; hard, firm, plastic and sticky, gradual boundary.

$C_1g$ : 30-100 cm. 5YR 7/1; mottles 7.5YR 4/4; silty loam; massive, hard, firm, plastic and sticky; diffuse boundary.

$C_2g$ : 100-170 cm. 5YR 7/1; mottles 7.5YR 4/4; silty clay loam; massive, hard, firm; plastic and sticky.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.0 | 3.8 | 3.60 | 0.68 | 8 | 80 | 8 |
| $A_3$ | 4.7 | 4.0 | 0.82 | 0.17 | 4 | 87 | 7 |
| $C_1g$ | 5.0 | 3.9 | 0.17 | 0.06 | 5 | 89 | 9 |
| $C_2g$ | 5.0 | 3.9 | 0.27 | 0.04 | 12 | 93 | 4 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 51.4 | 5.87 | 0.46 | 0.08 | 9.39 | 4.80 | 57.8 | 72.0 |
| 51.4 | 4.95 | 0.15 | 0.09 | 3.85 | 4.40 | 56.5 | 64.8 |
| 59.0 | 6.33 | 0.12 | 0.23 | 1.35 | 6.40 | 65.6 | 73.4 |
| 47.0 | 6.33 | 0.11 | 0.27 | 1.79 | 2.00 | 53.8 | 57.6 |

## LAND SYSTEM 250, Facet 1.

**Classification:** Solo litólico distrófico-Troporthent.

**Location:** Lat. 03°35'N, long 63°47'W.

**Physiography:** Top of a plateau (chapada).

**Topography:** Gently undulating, 3% slope.

**Drainage:** Well drained.

**Vegetation:** Shrubs and grasses.

**Parent material:** Roraima Sandstone in decomposition.

**Source:** Proj. Radambrasil, Vol. 8, 1975, (a), profile 12, pp 260-1.

$A_1$ : 0-20 cm. 10YR 5/2; silty loam; weak fine granular structure; friable.

$A_3$ : 20-40 cm. 10YR 5/3; loam; weak fine granular structure.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B. S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 3.8 | 3.1 | 1.61 | 0.15 | 1 | 4 | 91 |
| $A_3$ | 4.2 | 3.5 | 0.79 | 0.07 | <1 | 2 | 98 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.05 | 0.24 | 0.15 | 0.04 | 6.38 | 5.12 | 0.48 | 11.98 |
| 0.02 | 0.09 | 0.05 | 0.03 | 2.86 | 4.92 | 0.19 | 7.97 |

## LAND SYSTEM 251, Facet 1.

**Classification:** Areias Quartzosas hidromórficas-Quartzipsamment.

**Location:** Lat. 01°50'S, long. 61°20'W.

**Physiography:** Plain.

**Drainage:** Poorly drained.

**Vegetation:** Flooded formation.

**Source:** Proj. Radambrasil, Vol. 8, 1975, profile 54, pp 257-8.

$A_{11}$ : 0-12 cm. 5Y 3/1; sandy loam; weak fine granular structure; friable; gradual smooth boundary.

$A_{12}$ : 12-25 cm. 5Y 3/1; sandy loam; weak fine granular structure; friable; gradual smooth boundary.

$C_1$ : 25-40 cm. 5YR 4/3; sandy loam; single grain; loose; gradual smooth boundary.

$C_2$ : 40-90 cm. 5Y 6/3; sandy loam; single grain; loose; clear smooth boundary.

$C_3$ : 90-110 cm. 5Y 7/3; sandy loam; single grain; loose; clear smooth boundary.

$C_4$ : 110-150 cm. 5Y 7/4; sandy loam; single grain; loose.

NOTES : Many fine roots in $A_{11}$ and $A_{12}$; much biological activity in $A_{11}$ and $A_{12}$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_{11}$ | 5.6 | 4.2 | 2.35 | 0.20 | 2 | 4 | 80 |
| $A_{12}$ | 5.7 | 4.2 | 1.02 | 0.08 | <1 | 2 | 88 |
| $C_1$ | 5.2 | 4.1 | 0.32 | 0.03 | <1 | 5 | 85 |
| $C_2$ | 5.1 | 4.1 | 0.23 | 0.02 | <1 | 6 | 86 |
| $C_3$ | 5.0 | 4.6 | 0.31 | 0.02 | <1 | 5 | 80 |
| $C_4$ | 4.8 | 4.3 | 0.14 | 0.02 | 2 | 6 | 81 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.02 | 0.04 | 0.14 | 0.05 | 5.76 | 1.00 | 0.25 | 7.01 |
| 0.02 | 0.03 | 0.04 | 0.01 | 4.15 | 0.80 | 0.10 | 5.05 |
| 0.02 | 0.03 | 0.03 | 0.02 | 1.38 | 0.60 | 0.10 | 2.08 |
| 0.02 | 0.03 | 0.03 | 0.01 | 0.88 | 0.60 | 0.09 | 1.57 |
| 0.02 | 0.03 | 0.03 | 0.02 | 1.41 | 0.40 | 0.10 | 1.91 |
| 0.02 | 0.03 | 0.03 | 0.01 | 0.92 | 0.40 | 0.09 | 1.41 |

## LAND SYSTEM 252, Facet 1.

Classification: Latossolo Vermelho Amarelo Distrófico-Haplorthox.

Location: 0°42'S, 65°06'W.

Physiography: Elevated plain surface.

Topography: Gently undulating, 3-5% slope.

Drainage: Well drained.

Vegetation: Dense forest.

Parent material: Granites and gneiss of Pre-Cambrian age.

Source: Proj, Radambrasil, Vol. 8, 1975, profile 60,pp 214-5.

$A_1$ : 0-20 cm. 7.5YR 4/4; sandy clay loam; weak fine granular structure; friable; gradual smooth boundary.

$A_3$ : 20-50 cm. 7.5YR 5/6; clay loam; weak fine granular structure; friable; diffuse smooth boundary.

$B_1$ : 50-65 cm. 5YR 5/6; clay ; massive; porous; friable; gradual smooth boundary.

$B_{21}$ : 65-85 cm. 5YR 5/6; clay; massive; porous; friable; diffuse smooth boundary.

$B_{22}$ : 85-120 cm. 5YR 5/8; clay; massive; porous; friable; diffuse smooth boundary.

$B_{23}$ : 120-165 cm. 5YR 5/8; clay; massive; porous;friable.

NOTE : Roots common in $A_1$, few in $A_3$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 3.9 | 3.8 | 1.30 | 0.10 | 1 | 3 | 86 |
| $A_3$ | 4.8 | 3.9 | 0.83 | 0.06 | <1 | 3 | 92 |
| $B_1$ | 4.1 | 4.0 | 0.61 | 0.04 | <1 | 3 | 93 |
| $B_{21}$ | 4.4 | 4.1 | 0.50 | 0.03 | <1 | 4 | 88 |
| $B_{22}$ | 4.6 | 4.3 | 0.46 | 0.02 | <1 | 3 | 89 |
| $B_{23}$ | 4.9 | 4.2 | 0.43 | 0.02 | <1 | 5 | 81 |

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.06 | 0.07 | 0.08 | 0.02 | 4.83 | 1.60 | 0.23 | 6.66 |
| 0.03 | 0.04 | 0.04 | 0.02 | 2.85 | 1.60 | 0.13 | 4.58 |
| 0.01 | 0.03 | 0.03 | 0.02 | 2.26 | 1.20 | 0.09 | 3.55 |
| 0.02 | 0.02 | 0.03 | 0.03 | 1.84 | 0.80 | 0.10 | 2.74 |
| 0.01 | 0.02 | 0.03 | 0.01 | 1.54 | 0.60 | 0.07 | 2.21 |
| 0.02 | 0.02 | 0.03 | 0.02 | 1.41 | 0.40 | 0.09 | 1.90 |

## LAND SYSTEM 253, Facet 1.

Classification: Latossolo Amarelo Alico-Haplorthox.

Location: Lat. 0°22'S, Long. 62°45'W.

Physiography: Elevated plain surface.

Topography: Gently undulating, 2-3% slope.

Drainage: Well drained.

Vegetation: Dense forest.

Source: Proj, Radambrasil, Vol. 18, 1978, profile 26, pp 273.

$A_1$ : 0-18 cm. 10YR 5/3; heavy clay; weak fine granular structure; very friable; gradual boundary.

$A_3$ : 18-35 cm. 10YR 6/4; heavy clay; weak fine granular structure; very friable; gradual boundary.

$B_1$ : 35-45 cm. 7.5YR 6/6; clay; weak fine granular structure; friable; clear boundary.

$B_{21}$ : 45-120 cm. 7.5YR 7/6; heavy clay; weak fine granular structure; friable; gradual boundary.

$B_{22}$ : 120-170 cm. 7.5YR 8/6; heavy clay; weak fine granular structure; friable.

| HOR | pH $H_2O$ | pH KCl | C % | M.O. % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 3.7 | 3.7 | 2.9 | 5.00 | 6 | 4 | 88 |
| $A_3$ | 4.1 | 3.8 | 1.7 | 2.93 | 3 | 4 | 89 |
| $B_1$ | 4.2 | 3.8 | 0.7 | 1.21 | 3 | 6 | 89 |
| $B_{21}$ | 4.2 | 3.8 | 0.5 | 0.86 | 3 | 7 | 88 |
| $B_{22}$ | 4.6 | 3.8 | 0.3 | 0.52 | 3 | 8 | 84 |

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.15 | 0.17 | 0.09 | 0.22 | 4.97 | 4.51 | 0.62 | 13.50 |
| 0.12 | 0.08 | 0.04 | 0.18 | 3.85 | 3.54 | 0.42 | 9.30 |
| 0.17 | 0.11 | 0.02 | 0.14 | 3.67 | 3.45 | 0.44 | 7.42 |
| 0.17 | 0.08 | 0.03 | 0.16 | 3.41 | 3.10 | 0.44 | 6.66 |
| 0.15 | 0.08 | 0.03 | 0.22 | 2.86 | 2.58 | 0.48 | 6.24 |

## LAND SYSTEM 254, Facet 1.

Classification: Podzol Hidromórfico-Tropaquod.

Location: 0°56'S, 61°00'W.

Physiography: Plain.

Topography: Level, 0-2% slope.

Drainage: Imperfectly drained.

Vegetation: Pioneer formation.

Source: Proj. Radambrasil, Vol. 8, 1975, profile 64, pp 247-8.

$A_1$ : 0-20 cm. 10YR 5/2; sandy; single grain; loose; clear smooth boundary.

$A_2$ : 20-120 cm. 5YR 8/1; sandy; single grain; loose; abrupt smooth boundary.

Bh : 120-140 cm. 5YR 2.5/1; loamy sand; massive; very friable; abrupt boundary.

$IIC_1$ : 140-155 cm. 7.5YR 4/2; sandy clay loam; massive; very friable; clear boundary.

$IIIC_2$ : 155-170 cm. 7.5YR 6/2; sandy clay loam; massive; very friable.

NOTES : Few fine roots in $A_1$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.3 | 3.8 | 0.39 | 0.01 | <1 | 16 | 81 |
| $A_2$ | 5.8 | 4.4 | 0.24 | 0.01 | <1 | 30 | 57 |
| Bh | 4.1 | 3.5 | 3.94 | 0.04 | 10 | 1 | 98 |
| $IIC_1$ | 4.4 | 3.8 | 1.68 | 0.02 | 7 | 1 | 98 |
| $IIIC_2$ | 4.3 | 3.7 | 0.53 | 0.01 | 2 | 2 | 96 |

EXCHANGE COMPLEX ( meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.01 | 0.02 | 0.03 | 0.03 | 0.04 | 0.09 | 0.09 | 0.58 |
| 0.01 | 0.02 | 0.04 | 0.02 | 0.09 | 0.09 | 0.09 | 0.30 |
| 0.01 | 0.01 | 0.03 | 0.01 | 0.06 | 17.28 | 0.06 | 21.33 |
| 0.01 | 0.01 | 0.03 | 0.01 | 0.06 | 9.67 | 0.06 | 12.93 |
| 0.02 | 0.01 | 0.03 | 0.04 | 0.10 | 2.71 | 0.10 | 5.21 |

## LAND SYSTEM 255, Facet 1.

Classification: Gley Pouco Húmico Distrófico-Tropaquent.

Location: 5Km from Caracarai North Perimeter road, Roraima Territory, Brazil.

Physiography: Alluvial plain.

Topography: Flat.

Drainage: Imperfectly to moderately drained.

Vegetation: Savanna.

Parent material: Sandy clay sediments of Quaternary age.

Source: Proj. Radambrasil, Vol. 8, 1975, profile 55, pp 240-1.

$A_1$ : 0-30 cm. 10 YR 4/1; sandy loam; weak fine granular structure; friable.

$C_1g$ : 30-65 cm. 10YR 7/1; sandy clay loam; massive; friable.

$C_2g$ : 65-100 cm. 10YR 8/2; sandy clay loam; massive; friable.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.6 | 3.8 | 0.50 | 0.04 | 1 | 5 | 88 |
| $C_1g$ | 5.0 | 4.0 | 0.20 | 0.02 | <1 | 5 | 88 |
| $C_2g$ | 5.3 | 4.0 | 0.19 | 0.01 | <1 | 8 | 83 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.03 | 0.04 | 0.04 | 0.02 | 1.47 | 1.00 | 0.13 | 2.60 |
| 0.02 | 0.02 | 0.03 | 0.01 | 0.88 | 0.60 | 0.08 | 1.56 |
| 0.04 | 0.02 | 0.03 | 0.03 | 0.88 | 0.60 | 0.12 | 1.60 |

## LAND SYSTEM 257, Facet 1.

Classification: Podzólico Vermelho Amarelo-Tropudult.

Location: Lat. 02°13'N - Long. 62°55'W.

Physiography: Footslope of hill.

Topography: Strongly undulating, 15-20% slope.

Drainage: Well drained.

Vegetation: Dense forest.

Parent material: Granites and gneiss: Pre-Cambrian.

Source: Proj. Radambrasil, Vol, 8, 1975, profile 38, pp 227-8.

$A_1$ : 0-5 cm. 10YR 5/6; silty loam; moderate medium granular structure; firm; gradual smooth boundary.

$A_3$ : 5-20 cm. 10YR 5/6; heavy clay; moderate medium granular structure; gradual smooth boundary.

$B_1$ : 20-45 cm. 7.5YR 5/6; heavy clay; moderate medium blocky structure; few clay skins; firm; gradual smooth boundary.

$B_{21}$ : 45-90 cm. 7.5YR 5/6; heavy clay; moderate fine blocky structure; common clay skins; gradual smooth boundary.

$B_{22}$ : 90-140 cm. 7.5YR 6/6; heavy clay; moderate fine blocky structure; common clay skins; firm.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.2 | 3.8 | 1.79 | 0.24 | 4 | 13 | 64 |
| $A_3$ | 4.0 | 3.7 | 1.23 | 0.15 | 1 | 10 | 68 |
| $B_1$ | 4.1 | 3.7 | 0.78 | 0.12 | <1 | 9 | 80 |
| $B_{21}$ | 4.9 | 3.9 | 0.33 | 0.05 | <1 | 8 | 84 |
| $B_{22}$ | 5.3 | 4.0 | 0.30 | 0.04 | <1 | 8 | 79 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.15 | 0.38 | 0.33 | 0.03 | 4.50 | 1.60 | 0.89 | 6.99 |
| 0.08 | 0.24 | 0.18 | 0.04 | 3.91 | 1.20 | 0.54 | 5.65 |
| 0.06 | 0.21 | 0.13 | 0.03 | 2.82 | 1.80 | 0.43 | 5.05 |
| 0.04 | 0.16 | 0.07 | 0.02 | 1.86 | 1.60 | 0.29 | 3.75 |
| 0.03 | 0.16 | 0.06 | 0.01 | 2.13 | 1.00 | 0.26 | 3.33 |

## LAND SYSTEM 261, Facet 1.

Classification: Hidromórfico Cinzento Distrófico-Albaquult.

Location: 800m from Boa Vista airport, Roraima Territory, Brazil.

Physiography: Plain.

Topography: Level.

Drainage: Moderately well drained.

Vegetation: Savanna.

Parent material: Sandy clay sediment of Quaternary age.

Source: Proj. Radambrasil, Vol. 8, 1975, profile 42, pp 249-50.

Ap : 0-19 cm. 10YR 4/1; loamy sand; massive; porous, friable; gradual smooth boundary.

$A_2$ : 19-35 cm. 10YR 5/1; sandy loam; massive, porous; friable; gradual smooth boundary.

$B_1$ : 35-64 cm. 10YR 6.5/2; sandy clay loam; massive, porous, friable; wavy smooth boundary.

$B_{21}$ : 64-78 cm. 10YR 7/7; mottles 7.5YR 6/8; sandy clay loam; massive, porous, friable; diffuse smooth boundary.

$B_{22}$ : 78-140 cm. 10YR 7/4; mottles 7.5YR 6/8; sandy clay loam; massive, porous, friable.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| Ap | 4.3 | 4.0 | 0.32 | 0.02 | 1 | 13 | 73 |
| $A_2$ | 4.0 | 3.9 | 0.28 | 0.02 | 1 | 10 | 80 |
| $B_1$ | 5.0 | 4.1 | 0.17 | 0.01 | <1 | 8 | 80 |
| $B_{21}$ | 5.0 | 4.3 | 0.13 | 0.01 | <1 | 12 | 80 |
| $B_{22}$ | 5.6 | 4.3 | 0.14 | 0.01 | <1 | 9 | 78 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.09 | 0.08 | 0.04 | 0.01 | 0.88 | 0.60 | 0.22 | 1.70 |
| 0.06 | 0.04 | 0.05 | 0.03 | 0.85 | 0.80 | 0.18 | 1.83 |
| 0.03 | 0.03 | 0.03 | 0.01 | 0.26 | 0.40 | 0.10 | 1.25 |
| 0.03 | 0.03 | 0.04 | 0.03 | 0.79 | 0.20 | 0.13 | 0.12 |
| 0.03 | 0.03 | 0.03 | 0.02 | 0.75 | 0.40 | 0.11 | 1.26 |

## LAND SYSTEM 262, Facet 1.

Classification: Latossolo Amarelo Distrófico-Haplorthox.

Location: 6Km from Uraricoera river towards Boa Vista city, BR 174, Roraima Territory, Brazil.

Physiography: Gently undulating to plain.

Topography 3% slope.

Drainage: Somewhat excessively drained.

Vegetation: Savanna (campo).

Parent material: Sandy clay sediments of Quaternary age.

Source: Proj. Radambrasil, Vol. 8, 1975, profile 21, pp 208.

$A_1$ : 0-10 cm. 10YR 4/3; sandy clay loam; weak fine granular structure; friable.

$A_3$ : 10-30 cm. 7.5YR 5/5; sandy clay loam; weak fine granular structure; friable.

$B_1$ : 30-70 cm. 7.5YR 5/6; sandy clay; massive, porous; friable.

$B_{21}$ : 70-110 cm. 7.5YR 5/8;sandy clay; massive, porous; friable.

$B_{22}$ : 110-165 cm. 7.5YR 5/8; sandy clay; massive,porous; friable.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.9 | 3.9 | 0.66 | 0.04 | 1 | 18 | 32 |
| $A_3$ | 5.9 | 3.8 | 0.46 | 0.04 | <1 | 13 | 71 |
| $B_1$ | 5.4 | 4.2 | 0.32 | 0.03 | <1 | 8 | 77 |
| $B_{21}$ | 5.5 | 4.4 | 0.20 | 0.02 | <1 | 9 | 62 |
| $B_{22}$ | 5.5 | 4.4 | 0.19 | 0.02 | <1 | 8 | 80 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.47 | 0.27 | 0.09 | 0.02 | 3.56 | 0.40 | 0.85 | 4.81 |
| 0.16 | 0.12 | 0.04 | 0.01 | 1.34 | 0.80 | 0.33 | 2.74 |
| 0.04 | 0.03 | 0.04 | 0.01 | 1.08 | 0.40 | 0.12 | 1.60 |
| 0.03 | 0.04 | 0.04 | 0.01 | 0.95 | 0.20 | 0.12 | 1.27 |
| 0.04 | 0.01 | 0.04 | 0.01 | 0.75 | 0.40 | 0.10 | 1.25 |

## LAND SYSTEM 265, Facet 1 (shallow fase)

Classification: Solo Litólico Distrpofico-Haplustox.

Location: 04°38'N, Long. 60°40'W.

Physiography: Elevated plain surface.

Topography: Strongly undulating to steep;site slope 3%.

Drainage: Excessively drained.

Vegetation: Savanna.

Parent material: Pre-Cambrian gneiss.

Source: Proj. Radambrasil, Vol. 8, 1975, profile 3, p 260.

A : 0-20 cm. 10YR 4/3; clay; weak fine granular structure; friable; abrupt smooth boundary.

R : 20 cm+. Gneissic rock.

NOTES : Many fine roots in A.
Concretions and stoniness in A.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| A | 4.9 | 4.4 | 1.43 | 0.16 | <1 | 4 | 86 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.10 | 0.12 | 0.05 | 0.01 | 5.62 | 1.80 | 0.28 | 7.70 |

## LAND SYSTEM 270, Facet 1.

Classification: Gley pouco húmico Eutrófico-Tropaqualf.

Location: Lat. 0°13'N - Long. 50°55'S.

Physiography: Fluviomarine terrace.

Topography: Level.

Drainage: Poorly drained.

Vegetation: Pioneer formations. Natural "campos" or grasslands.

Parent material: Quaternary silts and clays.

Source: Proj. Radambrasil, Vol. 6, 1974, profile 27, pp 61-3.

$A_1g$ : 0-10 cm. N 5/ ; silty clay loam; weak coarse granular structure; very hard, firm; clear smooth boundary.

$C_1g$ : 10-50 cm. N 5/ ; mottles 7.5YR 5/6; silty clay loam weak coarse granular structure; clear smooth boundary.

$C_2g$ : 50-120 cm. Mixture of 7.5YR 5/8 and N 5/ ;silty clay loam; massive, very hard, firm.

NOTES : Water-table at 100 cm depth.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.6 | 3.5 | 3.49 | 0.37 | 2 | 19 | 37 |
| $C_1g$ | 5.4 | 3.8 | 0.20 | 0.05 | 2 | 79 | 0 |
| $C_2g$ | 5.5 | 3.9 | 0.15 | 0.04 | 3 | 86 | 0 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 1.40 | 1.40 | 0.14 | 0.10 | 11.23 | 1.80 | 3.04 | 16.07 |
| 5.60 | 5.30 | 0.09 | 0.35 | 3.13 | 0.00 | 11.34 | 14.47 |
| 6.90 | 4.40 | 0.10 | 0.50 | 1.98 | 0.00 | 11.30 | 13.88 |

## LAND SYSTEM 271, Facet 1.

Classification: Gley pouco húmico distrófico-Haplaquent .

Location: Left margin of Camará river, near Furo do Amaral, Isla Marajó, Pará State, Brazil.

Physiography: Fluvio- marine terrace.

Topography: Flat.

Drainage: Imperfectly drained.

Vegetation: Grasses and Cyperaceous shrubs.

Parent material: Clay sediments.

Source: Proj. Radambrasil, Vol. 5, 1974, profile 18, pp 73-4.

$A_1$ : 0-18 cm. 10YR 3/1; clay; moderate medium blocky structure ; hard, firm; few pores and channels; clear smooth boundary.

$A_3g$ : 18-46 cm. 10YR 5/1; mottles 2.5YR 5/8 and 10YR 6/8; clay; massive, hard, firm; gradual smooth boundary.

Cg : 46-105 cm. 10YR 7/1; mottles 10YR 4/8; clay; massive; hard,firm.

NOTE : Medium and fine roots common in $A_1$, few coarse. Organic activity common in $A_1$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.4 | 3.7 | 2.40 | 0.17 | 4 | 5 | 88 |
| $A_3g$ | 4.6 | 3.4 | 1.02 | 0.07 | <1 | 8 | 67 |
| Cg | 4.5 | 3.5 | 0.73 | 0.05 | <1 | 3 | 68 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.45 | 0.09 | 0.20 | 0.28 | 10.37 | 7.62 | 1.02 | 19.01 |
| 0.15 | 0.06 | 0.17 | 0.70 | 4.52 | 7.09 | 1.08 | 12.69 |
| 0.50 | 0.12 | 0.10 | 2.30 | 3.60 | 6.32 | 3.02 | 12.23 |

## LAND SYSTEM 272, Facet 1.

Classification: Latossolo Amarelo Distrófico-Haplustox.

Location: Lat. 1°18'N - Lat. 59°00'W.

Physiography: Upper slope of a hill, on an elevated plain.

Topography: Gently undulating, 1-3% slope.

Drainage: Well drained.

Vegetation: Cerrado.

Parent material: Clay and sandy sediments of Tertiary age.

Source: Proj. Radambrasil, Vol. 6, 1974, profile 26, pp 36-7.

$A_1$ : 0-10 cm. 10YR 4/3; sandy loam; massive; slightly hard, very friable; clear smooth boundary.

$A_3/B_1$ : 10-30 cm. 10YR 5/6; sandy loam; massive; slightly hard; very friable; gradual smooth boundary.

$B_{21}$ : 30-60 cm. 10YR 6/6; sandy loam; massive; slightly hard; very friable; diffuse smooth boundary.

$B_{22}$ : 60-120 cm. 10YR 6/6; sandy loam; massive; slightly hard, very friable.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.9 | 4.1 | 0.51 | 0.04 | <2 | 12 | 63 |
| $A_3/B_1$ | 4.8 | 4.2 | 0.24 | 0.02 | <2 | 13 | 71 |
| $B_{21}$ | 5.0 | 4.2 | 0.15 | 0.01 | <2 | 15 | 64 |
| $B_{22}$ | 5.0 | 4.3 | 0.12 | 0.01 | <2 | 18 | 59 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.15 | 0.15 | 0.07 | 0.04 | 2.27 | 0.70 | 0.41 | 3.38 |
| 0.15 | 0.05 | 0.06 | 0.03 | 1.28 | 0.70 | 0.29 | 2.27 |
| 0.15 | 0.05 | 0.05 | 0.03 | 1.15 | 0.50 | 0.28 | 1.93 |
| 0.10 | 0.10 | 0.05 | 0.03 | 0.92 | 0.40 | 0.28 | 1.60 |

## LAND SYSTEM 274, Facet 1.

Classification: Gley Pouco Húmico Eutrófico-Eutropept.

Location: Lat 2°30'N - Long 50°48'W.

Physiography: Fluvio- marine terrace.

Topography: Flat.

Drainage: Imperfectly drained.

Vegetation: Pioneer formation (mangrove,tacuara).

Parent material: Quaternary clays and silts.

Source: Proj. Radambrasil, Vol. 6, 1974, profile 20, pp 67-9.

$A_1$ : 0.18 cm. 10YR 4/1; mottles 2.5YR 3/6; silty clay; massive, firm; gradual wavy boundary.

$A_3$ : 18-45 cm. 10YR 5/1; mottles 5YR 5/6; silty clay loam; massive, firm; gradual wavy boundary.

Cg : 45-95 cm. Mixture 10YR 5/3, 2.5YN 6/ ; and mottles 5YR 5/6; silty clay loam; massive, firm.

NOTE : Water table at 100 cm. depth.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.0 | 4.4 | 1.66 | 0.17 | 23 | 75 | 48 |
| $A_3$ | 5.1 | 4.6 | 0.59 | 0.07 | 23 | 88 | 31 |
| Cg | 5.1 | 4.7 | 0.54 | 0.07 | 37 | 90 | 26 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 3.60 | 10.80 | 0.29 | 1.00 | 4.48 | 0.80 | 15.69 | 20.97 |
| 2.60 | 8.50 | 0.30 | 1.22 | 1.25 | 0.40 | 12.62 | 14.27 |
| 3.20 | 10.40 | 0.33 | 1.22 | 1.25 | 0.40 | 15.15 | 16.80 |

## LAND SYSTEM 276, Facet 1.

Classification: Latossolo Amarelo Distrófico-Haplorthox.

Location: Point 114, Porto de Moz, Pará State, Brazil.

Physiography: Plain.

Topography: Flat.

Drainage: Somewhat excessively drained.

Vegetation: Forest.

Parent material: Tertiary sandy clay sediments.

Source: Proj. Radambrasil, Vol. 5, 1974, profile 3, pp 30-1.

$A_1$ : 0-20 cm. 10YR 3/2; sandy loam; single grain; loose, very friable; gradual smooth boundary.

$A_3$ : 20-35 cm. 10YR 4/3; sandy clay loam; massive;porous, very friable; gradual smooth boundary.

$B_1$ : 35-50 cm. 10YR 5/4; sandy clay loam; massive; porous, friable; diffuse smooth boundary.

$B_{21}$ : 50-80 cm. 10YR 5/6; sandy clay loam; massive; porous, friable, diffuse smooth boundary.

$B_{22}$ : 80-140 cm. 10YR 6/6; sandy clay loam; massive; porous, friable.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A^1$ | 4.7 | 3.7 | 1.66 | 0.10 | <2 | 4 | 86 |
| $A_3$ | 4.7 | 4.0 | 1.12 | 0.07 | 2 | 4 | 82 |
| $B_1$ | 4.9 | 4.0 | 0.45 | 0.03 | 2 | 8 | 74 |
| $B_{21}$ | 5.0 | 4.1 | 0.19 | 0.02 | <2 | 16 | 71 |
| $B_{22}$ | 5.3 | 4.2 | 0.11 | 0.01 | <2 | 16 | 52 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.15 | 0.05 | 0.08 | 0.03 | 7.67 | 1.90 | 0.31 | 8.17 |
| 0.15 | 0.05 | 0.06 | 0.03 | 5.53 | 1.40 | 0.31 | 7.24 |
| 0.10 | 0.10 | 0.05 | 0.03 | 2.33 | 0.80 | 0.28 | 3.41 |
| 0.15 | 0.05 | 0.05 | 0.02 | 1.15 | 0.50 | 0.27 | 1.65 |
| 0.15 | 0.05 | 0.05 | 0.03 | 1.18 | 0.30 | 0.28 | 1.76 |

## LAND SYSTEM 277, Facet 1.

Classification: Latossolo Amarelo Distrófico- Haplorthox.

Location: Km 8 of the road Acará-Tomé, Municipio Acará, Pará State, Brazil.

Physiography: Plain.

Topography: Flat.

Drainage: Well drained.

Vegetation: Forest.

Parent material: Tertiary clay sediments, Barreiras Formation.

Source: Proj. Radambrasil, Vol. 5, 1974, profile 26, pp 136-7.

$A_1$ : 0-10 cm. 10YR 4/3; loamy sand; very weak fine granular structure; very friable; gradual boundary.

$A_3$ : 10-25 cm. 10YR 5/6; sandy clay loam; weak fine granular structure; very friable; gradual smooth boundary.

$B_{11}$ : 25-45 cm. 10YR 5/6; sandy clay loam; massive, porous; very friable; diffuse smooth boundary.

$B_{12}$ : 45-70 cm. 10YR 5/8; heavy sandy clay loam; massive; porous; very friable; diffuse smooth boundary.

$B_{21}$ : 70-110 cm. 7.5YR 5/8; sandy clay; massive; porous; friable; diffuse smooth boundary.

$B_{22}$ : 110-140 cm. 7.5YR 5/8; sandy clay; massive; porous, friable.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.4 | 3.9 | 1.04 | 0.10 | 1.5 | 23 | 67 |
| $A_3$ | 4.3 | 3.8 | 0.74 | 0.05 | <1 | 7 | 72 |
| $B_{11}$ | 4.3 | 3.9 | 0.59 | 0.04 | <1 | 5 | 79 |
| $B_{12}$ | 4.5 | 4.0 | 0.49 | 0.03 | <1 | 4 | 87 |
| $B_{21}$ | 4.6 | 4.0 | 0.32 | 0.02 | <1 | 5 | 84 |
| $B_{22}$ | 4.9 | 4.0 | 0.14 | 0.02 | <1 | 5 | 88 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 1.08 | 0.31 | 0.05 | 0.05 | 3.95 | 1.00 | 1.49 | 6.44 |
| 0.14 | 0.11 | 0.03 | 0.03 | 3.65 | 0.80 | 0.31 | 4.76 |
| 0.08 | 0.09 | 0.02 | 0.02 | 3.65 | 0.80 | 0.21 | 4.66 |
| 0.05 | 0.06 | 0.02 | 0.02 | 2.30 | 1.00 | 0.15 | 3.45 |
| 0.06 | 0.09 | 0.02 | 0.02 | 2.30 | 1.00 | 0.19 | 3.49 |
| 0.04 | 0.06 | 0.02 | 0.02 | 1.64 | 1.00 | 0.14 | 2.78 |

## LAND SYSTEM 278, Facet 1.

Classification: Podzólico Vermelho Amarelo-Tropudult.

Location: Km 48 of the Transamazonic Highway; between Marabá and Itupiranga, Pará State, Brazil.

Physiography: Elevated plain surface.

Topography: Undulating, site slope 5-8%.

Drainage: Well drained.

Vegetation: Forest.

Parent material: Granites and gneisses of Pre-Cambrian age.

Source: Proj. Radambrasil, Vol. 4, 1974, profile 8, pp 40-1.

$A_1$ : 0-8 cm. 10YR 3/4; silty loam; weak fine granular structure; friable; clear smooth boundary.

$A_2$ : 8-22 cm. 10YR 5/6; sandy clay loam; weak fine blocky structure; friable to firm; gradual smooth boundary.

$B_1$ : 22-46 cm. 10YR 5/8; clay; moderate medium blocky structure; cutans; firm; diffuse smooth boundary.

$B_{21}$ : 46-71 cm. 7.5YR 6/6; clay; moderate medium blocky structure; cutans, firm; diffuse smooth boundary.

$B_{22}$ : 71-110 cm. 7.5YR 5/6; clay; moderate medium blocky structure; cutans, firm.

NOTES : Many roots in $A_1$, common in $A_2$ and $B_1$; few in $B_{21}$ and $B_{22}$. Fine gravel common throughout the profile.

| HOR | pH $H_2O$ | pH KCl | C | N | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.9 | 4.5 | 1.31 | 0.10 | 2 | 53 | 49 |
| $A_2$ | 4.7 | 4.2 | 0.54 | 0.08 | 2 | 35 | 25 |
| $B_1$ | 5.0 | 4.0 | 0.50 | 0.06 | 2 | 15 | 68 |
| $B_{21}$ | 5.5 | 4.1 | 0.36 | 0.04 | 2 | 24 | 46 |
| $B_{22}$ | 5.9 | 4.2 | 0.14 | 0.02 | 3 | 23 | 46 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 2.70 | 1.00 | 0.13 | 0.01 | 3.26 | 0.20 | 3.84 | 7.30 |
| 0.70 | 0.70 | 0.07 | 0.01 | 2.30 | 0.50 | 1.48 | 4.28 |
| 0.20 | 0.20 | 0.09 | 0.01 | 1.70 | 1.10 | 0.50 | 3.30 |
| 0.20 | 0.40 | 0.19 | 0.01 | 1.77 | 0.70 | 0.80 | 3.27 |
| 0.40 | 0.20 | 0.09 | 0.01 | 1.71 | 0.60 | 0.70 | 3.01 |

## LAND SYSTEM 281, Facet 1.

Classification: Latossolo Amarelo Distrófico- Haplorthox.

Location: Point 113, Municipio Altamira, Pará State, Brazil.

Physiography: Elevated plain surface.

Topography: Gently undulating 5-8% slope.

Drainage: Well drained.

Vegetation: Forest.

Parent material: Tertiary sandy sediments.

Source: Proj. Radambrasil, Vol. 5, 1974, profile 30, pp 144-5.

$A_1$ : 0-15 cm. 10YR 4/4; sand; single grain; loose; gradual smooth boundary.

$A_3$ : 15-40 cm. 10YR 5/4; loamy sand; massive, porous; very friable; gradual smooth boundary.

$B_1$ : 40-80 cm. 10YR 5/6; sandy loam, massive, porous, very friable.

$B_{21}$ : 80-100 cm. 10YR 5/8; loamy sand; massive,porous, very friable; diffuse smooth boundary.

$B_{22}$ : 100-130 cm+. 10YR 5/8; sandy loam; massive, porous; very friable.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.4 | 3.6 | 0.79 | 0.07 | 3 | 6 | 83 |
| $A_3$ | 4.5 | 4.0 | 0.62 | 0.05 | 3 | 6 | 84 |
| $B_1$ | 4.6 | 4.2 | 0.41 | 0.03 | 2 | 6 | 82 |
| $B_{21}$ | 4.6 | 4.2 | 0.26 | 0.02 | <2 | 9 | 82 |
| $B_{22}$ | 4.7 | 4.2 | 0.28 | 0.03 | <2 | 9 | 80 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.10 | 0.10 | 0.07 | 0.03 | 3.45 | 1.50 | 0.30 | 5.25 |
| 0.15 | 0.05 | 0.06 | 0.02 | 2.95 | 1.50 | 0.28 | 4.73 |
| 0.10 | 0.10 | 0.05 | 0.02 | 2.76 | 1.20 | 0.27 | 4.23 |
| 0.10 | 0.10 | 0.05 | 0.02 | 1.44 | 1.20 | 0.27 | 2.91 |
| 0.10 | 0.10 | 0.05 | 0.02 | 1.54 | 1.10 | 0.27 | 2.91 |

## LAND SYSTEM 282, Facet 1.

Classification: Gley Pouco Húmico Eutrófico-Tropaquept.

Location: Lat. 02°24'S, Long 54°01'W.

Physiography: Gradient between "varzea" and firm land.

Topography: Flat.

Drainage: Poorly drained.

Parent material: Quaternary sandy clay sediments.

Source: Proj. Radambrasil, Vol. 10, 1976, profile 59, pp 250-1.

$A_1$ : 0-20 cm. 10YR 5/1; silty loam; weak fine granular structure; friable; gradual boundary.

$C_1g$ : 20-45 cm. 10YR 5/1; mottles 7.5YR 5/8 and 2.5YR 4/8; silty loam; massive; abrupt boundary.

$C_2g$ : 45-80 cm. 10YR 6/1; mottles 7.5YR 5/8 and 2.5YR 4/6; clay loam; massive; diffuse boundary.

$C_3g$ . 80-110 cm. 10YR 7/1; mottles 10YR 5/8, 7.5YR 5/8, and 7.5YR 5/6; clay loam, massive; diffuse boundary.

$C_4g$ : 110-150 cm. 10YR 7/1; mottles 7.5YR 5/6, and 7.5YR 6/6; clay loam; massive.

| HOR | pH $H_2O$ | pH KCl | C % | M.O. % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 3.7 | 3.5 | 1.36 | 2.3 | 24 | 19.21 | 43.3 |
| $C_1g$ | 4.0 | 3.7 | 0.64 | 1.1 | 6 | 22.45 | 52.6 |
| $C_2g$ | 4.9 | 3.5 | 0.28 | 0.5 | 3 | 29.32 | 64.2 |
| $C_3g$ | 5.2 | 3.7 | 0.12 | 0.2 | 3 | 76.29 | 9.0 |
| $C_4g$ | 5.6 | 4.2 | 0.04 | 0.1 | 3 | 88.25 | 1.5 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.48 | 0.54 | 0.09 | 0.07 | 4.06 | 0.90 | 1.18 | 6.14 |
| 0.21 | 0.80 | 0.04 | 0.05 | 2.78 | 1.22 | 1.10 | 4.90 |
| 0.16 | 2.45 | 0.14 | 0.17 | 1.80 | 5.24 | 2.92 | 9.96 |
| 0.70 | 10.50 | 0.13 | 0.32 | 2.46 | 1.16 | 11.65 | 15.27 |
| 0.40 | 14.80 | 0.18 | 0.40 | 1.86 | 0.24 | 15.78 | 17.88 |

## LAND SYSTEM 284, Facet 1.

Classification: Latossolo Amarelo Distrófico-Haplorthox.

Location:109Km along Belterra-Curvá-Una road; Municipio Santarem, Pará State, Brazil.

Physiography: Footslope of hill.

Topography: Gently undulating, 4-6% slope.

Drainage: Somewhat excessively drained.

Vegetation: Dense forest.

Parent material: Tertiary sandy clay sediments.

Source: Proj. Radambrasil, Vol. 10, 1976, profile 58, pp 227-8.

$A_1$ : 0-6 cm. 10YR 4/4; loamy sand; single grain, loose; gradual smooth boundary.

$A_3$ : 6-15 cm. 10YR 4/4; loamy sand; single grain; loose; diffuse smooth boundary.

$B_{11}$ : 15-39 cm. 10YR 5/6; loamy sand; single grain; very friable; diffuse smooth boundary.

$B_{12}$ : 39-88 cm. 10YR 5/6; loamy sand; single grain; very friable; diffuse smooth boundary.

$B_2$ : 88-165 cm. 10YR 6/8; sandy loam; weak fine granular structure; very friable.

| HOR | pH $H_2O$ | pH KCl | C | N | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.0 | 4.0 | 0.81 | 0.07 | 1.5 | 13 | 61 |
| $A_3$ | 4.1 | 3.8 | 0.80 | 0.03 | <1 | 5 | 85 |
| $B_{11}$ | 4.5 | 4.0 | 0.52 | 0.03 | <1 | 4 | 90 |
| $B_{12}$ | 4.7 | 4.0 | 0.32 | 0.03 | <1 | 3 | 90 |
| $B_2$ | 4.4 | 4.0 | 0.42 | 0.03 | <1 | 4 | 90 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.25 | 0.17 | 0.06 | 0.03 | 2.50 | 0.80 | 0.51 | 3.81 |
| 0.04 | 0.04 | 0.04 | 0.02 | 2.00 | 0.80 | 0.14 | 2.94 |
| 0.02 | 0.01 | 0.03 | 0.02 | 1.18 | 0.80 | 0.08 | 2.06 |
| 0.03 | 0.01 | 0.03 | 0.01 | 1.67 | 0.80 | 0.08 | 2.55 |
| 0.02 | 0.02 | 0.03 | 0.02 | 2.01 | 0.80 | 0.08 | 1.89 |

## LAND SYSTEM 285, Facet 1.

Classification: Terra Roxa Estruturada Eutrófica-Paleudalf.

Location: 17Km from Agrovila Medicilandia, Trans-Amazonic road, between Altamira-Itaituba.

Physiography: Midslope of hill.

Topography: Undulating, 17% slope.

Drainage: Well drained.

Vegetation: Ecuatorial forest.

Parent material: Basic eruptive rocks.

Source: Embrapa, Bol. Téc. No. 34, 1973, profile 18, pp 33-4.

$A_1$ : 0-15 cm. 1.5YR 3/3; clay; very strong fine blocky and granular structure; many pores, hard, friable; gradual smooth boundary.

$B_1t$ : 15-30 cm. 1YR 3/4; clay; strong medium blocky structure; cutans; many pores, hard, friable; diffuse smooth boundary.

$B_{21}t$ : 30-75 cm. 1YR 3/5; clay; strong fine blocky structure; cutans, many pores, hard, friable; diffuse smooth boundary.

$B_{22}t$ : 75-155 cm. 1YR 3/5; clay; strong fine blocky structure, many roots, cutans; hard, friable; diffuse smooth boundary.

$B_{23}t$ : 155-210 cm. 1.5YR 4/6; mottles 7.5YR 5/6; clay; moderate medium blocky structure; cutans; many pores; hard, friable.

$B_3$ : 210-270 cm. 2.5YR 5/8, mottles 7.5YR 5/8; clay; plastic and sticky.

NOTES : Many roots in $A_1$, common in $B_1t$ and $B_{21}t$, few in $B_{22}t$ and $B_{23}t$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 6.4 | 5.7 | 2.15 | 0.25 | 1 | 80 | 0 |
| $B_1t$ | 5.5 | 4.8 | 0.87 | 0.13 | <1 | 56 | 0 |
| $B_{21}t$ | 5.4 | 4.8 | 0.59 | 0.09 | <1 | 55 | 0 |
| $B_{22}t$ | 5.4 | 5.2 | 0.31 | 0.06 | <1 | 63 | 0 |
| $B_{23}t$ | 5.4 | 5.0 | 0.18 | 0.02 | <1 | 58 | 0 |
| $B_3$ | 5.3 | 4.6 | 0.28 | 0.04 | <1 | 47 | 3 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 8.7 | 3.6 | 0.49 | 0.05 | 3.3 | 0 | 12.8 | 16.1 |
| 2.4 | 2.7 | 0.26 | 0.02 | 4.3 | 0 | 5.4 | 9.7 |
| 2.3 | 2.3 | 0.10 | 0.02 | 3.8 | 0 | 4.7 | 8.5 |
| 2.0 | 2.0 | 0.04 | 0.03 | 2.7 | 0 | 4.5 | 7.2 |
| 1.8 | 1.8 | 0.03 | 0.02 | 2.9 | 0 | 4.0 | 6.9 |
| 1.5 | 1.5 | 0.05 | 0.13 | 3.9 | 0.1 | 3.6 | 7.6 |

## LAND SYSTEM 291, Facet 1.

Classification: Podzólico Vermelho Amarelo-Tropudult.

Location: Point 130, left margin of Jari River, Municipio Mazagão, Amapá Territory, Brazil.

Physiography:

Topography: Undulating, 3-5% slope.

Drainage: Well drained.

Vegetation: Forest.

Parent material: Gneissic acid rocks of Pre-Cambrian age.

Source: Proj. Radambrasil, Vol. 5, 1974, profile 10, pp 49-50.

$A_1$ : 0-15 cm. 10YR 4/3; sandy clay loam; weak coarse granular structure; friable; clear smooth boundary.

$B_1$ : 15-30 cm. 10YR 5/4; sandy clay loam; weak medium blocky structure; friable; gradual smooth boundary.

$B_{21}$ : 30-90 cm. 7.5YR 5/6; clay loam; fine weak blocky structure; friable; gradual smooth boundary.

$B_{22}$ : 90-130 cm. 7.5YR 5/6; clay; weak fine blocky structure; friable.

NOTE : To 120 depth there are stones and transported quartz fragments.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.1 | 3.5 | 0.98 | 0.08 | 4 | 9 | 73 |
| $B_1$ | 4.4 | 3.8 | 0.65 | 0.05 | 3 | 7 | 79 |
| $B_{21}$ | 4.4 | 3.8 | 0.50 | 0.04 | <2 | 6 | 84 |
| $B_{22}$ | 4.7 | 3.8 | 0.26 | 0.03 | <2 | 6 | 85 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.20 | 0.30 | 0.11 | 0.03 | 4.57 | 1.70 | 0.64 | 6.91 |
| 0.20 | 0.10 | 0.07 | 0.01 | 3.45 | 1.50 | 0.39 | 5.34 |
| 0.10 | 0.10 | 0.06 | 0.02 | 2.79 | 1.50 | 0.28 | 4.57 |
| 0.10 | 0.10 | 0.05 | 0.01 | 2.46 | 1.50 | 0.26 | 4.22 |

## LAND SYSTEM 294, Facet 1.

Classification: Latossolo Vermelho Amarelo Distrófico-Haplorthox.

Location: Lat.01°30'N - Long. 55°52'W.

Physiography: Elevated plain surface.

Topography: Undulating, 8-12% slope.

Drainage: Well drained.

Vegetation: Dense forest.

Parent material: Biotite, granites, hornblend, and others.

Source: Proj. Radambrasil, Vol. 9, 1975, profile 27, pp 190-1.

$A_1$ : 0-5 cm. 7.5YR 4/4; sandy clay; gravel; moderate medium blocky and granular structure; friable; abrupt smooth boundary.

$A_3$ : 5-20 cm. 7.5YR 5/4; weak fine blocky structure; friable; gradual smooth boundary.

$B_1$ : 20-45 cm. 7.5YR 5/6; clay; weak fine blocky structure; friable; gradual smooth boundary.

$B_{21}$ : 45-80 cm. 5YR 5/6; clay; weak fine blocky structure; friable; diffuse smooth boundary.

$B_{22}$ : 80-110 cm. 3.5YR 5/6; clay; weak fine blocky structure; friable; diffuse smooth boundary.

$B_{23}$ : 110-130 cm. 2.5YR 4/6; clay; weak fine blocky structure;friable; diffuse smooth boundary.

$B_3$ : 130-155 cm. 10YR 4/8; loamy; weak fine blocky structure; friable.

| HOR | pH | | C | N | P | B.S. | Al.S. |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.4 | 4.2 | 1.67 | 0.12 | <1 | 4 | 87 |
| $A_3$ | 5.3 | 4.3 | 0.94 | 0.08 | <1 | 5 | 82 |
| $B_1$ | 5.5 | 4.5 | 0.52 | 0.05 | <1 | 6 | 71 |
| $B_{21}$ | 5.7 | 4.5 | 0.28 | 0.04 | <1 | 9 | 0 |
| $B_{22}$ | 5.7 | 4.8 | 0.28 | 0.03 | <1 | 8 | 0 |
| $B_{23}$ | 5.9 | 4.7 | 0.24 | 0.03 | <1 | 8 | 0 |
| $B_3$ | 5.7 | 4.5 | 0.13 | 0.02 | <1 | 8 | 0 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.05 | 0.06 | 0.05 | 0.07 | 3.68 | 1.60 | 0.23 | 5.51 |
| 0.03 | 0.03 | 0.04 | 0.07 | 2.50 | 0.80 | 0.17 | 3.47 |
| 0.03 | 0.01 | 0.04 | 0.08 | 1.91 | 0.40 | 0.16 | 2.47 |
| 0.03 | 0.03 | 0.04 | 0.07 | 1.81 | 0.00 | 0.17 | 1.98 |
| 0.01 | 0.01 | 0.04 | 0.08 | 1.65 | 0.00 | 0.14 | 1.79 |
| 0.02 | 0.01 | 0.03 | 0.07 | 1.48 | 0.00 | 0.13 | 1.61 |
| 0.02 | 0.01 | 0.04 | 0.08 | 1.81 | 0.00 | 0.15 | 1.96 |

## LAND SYSTEM 295, Facet 1.

Classification: Latossolo Vermelho Amarelo Distrófico-Haplorthox.

Location: Lat 01°21'N - Long 54°17'W.

Physiography: Midslope of a hill.

Topography: Strongly undulating; 3-6% site slope.

Drainage: Well drained.

Vegetation: Dense forest.

Parent material: Granites, migmatite, etc. of Pre-Cambrian age.

Source: Proj. Radambrasil, Vol. 9, 1975, profile 36, pp 192-3.

$A_1$ : 0-30 cm. 5YR 4/6; clay; weak fine granular structure; diffuse smooth boundary.

$A_3$ : 30-60 cm. 5YR 5/6; clay; weak fine blocky and granular structure; firm; gradual smooth boundary.

$B_1$ : 60-95 cm. 5YR 5/8; clay; massive, porous, firm; gradual smooth boundary.

$B_{21}$ : 95-125 cm. 2.5YR 5/8; clay; massive, porous, firm; diffuse smooth boundary.

$B_{22}$ : 125-150 cm. 2.5YR 5/8; clay; massive, porous; firm; gradual smooth boundary.

$B_{23}$ : 150-180 cm. 2.5YR 5/8; clay, massive, porous, firm.

| HOR | pH | | C | N | P | B.S. | Al.S. |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.0 | 4.1 | 1.95 | 0.18 | <1 | 7 | 75 |
| $A_3$ | 5.2 | 4.1 | 0.71 | 0.10 | <1 | 5 | 84 |
| $B_1$ | 5.4 | 4.4 | 0.41 | 0.05 | <1 | 6 | 70 |
| $B_{21}$ | 5.3 | 4.5 | 0.31 | 0.05 | <1 | 7 | 70 |
| $B_{22}$ | 5.4 | 4.5 | 0.23 | 0.03 | <1 | 6 | 80 |
| $B_{23}$ | 5.4 | 4.4 | 0.21 | 0.03 | <1 | 9 | 76 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.10 | 0.18 | 0.14 | 0.10 | 5.82 | 1.60 | 0.52 | 7.94 |
| 0.03 | 0.06 | 0.05 | 0.08 | 2.92 | 1.20 | 0.22 | 4.34 |
| 0.03 | 0.03 | 0.04 | 0.07 | 2.24 | 0.40 | 0.17 | 2.81 |
| 0.03 | 0.03 | 0.04 | 0.07 | 1.91 | 0.40 | 0.17 | 2.48 |
| 0.03 | 0.01 | 0.04 | 0.07 | 1.71 | 0.60 | 0.15 | 2.46 |
| 0.04 | 0.03 | 0.07 | 0.07 | 0.24 | 0.80 | 0.24 | 2.71 |

## LAND SYSTEM 304, Facet 1.

Classification: Podzólico Vermelho Amarelo Eutrófico-Tropudalf.

Location: Point 1, Marabá, Pará State, Brazil.

Physiography: Elevated plain surface.

Topography: Undulating, 8% slope.

Drainage: Well drained.

Vegetation: Forest with babaçu.

Parent material: Granites.

Source: Proj. Radambrasil, Vol. 4, 1974, profile 10, pp 44-5.

$A_1$ : 1-15 cm. 10YR 3/3; sandy loam; moderate medium granular structure.

$A_3$ : 15-30 cm. 10YR 5/3; loam; weak fine blocky structure; firm; gradual smooth boundary.

$B_1$ : 30-45 cm. 7.5YR 5/3; loam; weak fine blocky structure; firm; gradual smooth boundary.

$B_2$ : 45-80 cm+. 5YR 5/8; clay loam; moderate fine blocky structure; cutans, firm,

| HOR | pH | | C | N | P | B.S. | Al.S. |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.0 | 4.5 | 0.91 | 0.09 | 2 | 47 | 65 |
| $A_3$ | 5.1 | 4.4 | 0.59 | 0.07 | <2 | 48 | 80 |
| $B_1$ | 5.1 | 4.5 | 0.39 | 0.05 | <2 | 49 | 93 |
| $B_2$ | 5.3 | 4.8 | 0.32 | 0.04 | 2 | 57 | 43 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 2.00 | 0.70 | 0.16 | 0.03 | 3.10 | 0.20 | 2.89 | 6.19 |
| 1.60 | 0.50 | 0.17 | 0.03 | 2.27 | 0.20 | 2.30 | 4.77 |
| 1.60 | 0.20 | 0.12 | 0.02 | 1.78 | 0.20 | 1.94 | 3.92 |
| 1.80 | 0.30 | 0.08 | 0.02 | 1.55 | 0.10 | 2.20 | 3.85 |

## LAND SYSTEM 307, Facet 1.

Classification: Podzólico Vermelho Amarelo-Tropudult.

Location: Point 1, São Felix do Xingu , Brazil.

Physiography: Elevated plain surface.

Topography: Gently undulating to undulating; site slope 8%.

Drainage: Well drained.

Vegetation: Forest.

Parent material: Pre-Cambrian granites.

Source: Proj. Radambrasil, Vol. 4, 1974, profile 5, pp 31-3.

$A_1$ : 0-10 cm. 10YR 4/4; clay loam; weak fine granular structure; slightly hard, friable; clear smooth boundary.

$A_3$ : 10-30 cm. 8YR 5/4; clay loam ;weak fine blocky structure; slightly hard, friable; gradual smooth boundary.

$B_1$ : 30-50 cm. 7.5YR 5/6; clay loam; weak fine blocky structure; slightly hard, friable;clear smooth boundary.

$B_{21}$ : 50-80 cm. 5YR 5/8; cutans; clay loam; moderate fine bloacky structure; hard, firm; gradual smooth boundary.

$B_{22}$ : 80-100 cm. 5YR 5/8; silty clay loam; moderate fine blocky structure; hard, firm; diffuse smooth boundary.

$B_3$ : 100-120 cm+.5YR 5/8; silty clay loam; moderate medium blocky structure;slightly hard, firm.

NOTES : Ferruginous concretions in $B_2$ and $B_3$. Mottles in $B_3$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.2 | 3.6 | 0.93 | 0.12 | 3 | 15 | 69 |
| $A_3$ | 4.4 | 3.7 | 0.60 | 0.07 | 2 | 10 | 76 |
| $B_1$ | 4.5 | 3.8 | 0.46 | 0.06 | 3 | 10 | 76 |
| $B_{21}$ | 4.9 | 3.8 | 0.25 | 0.04 | 4 | 10 | 79 |
| $B_{22}$ | 4.8 | 3.7 | 0.33 | 0.04 | 4 | 10 | 81 |
| $B_3$ | 4.6 | 3.8 | 0.33 | 0.04 | 3 | 12 | 79 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.20 | 0.50 | 0.12 | 0.02 | 3.05 | 1.90 | 0.84 | 5.79 |
| 0.20 | 0.20 | 0.10 | 0.02 | 2.92 | 1.70 | 0.52 | 5.14 |
| 0.30 | 0.10 | 0.08 | 0.02 | 2.85 | 1.60 | 0.50 | 4.95 |
| 0.30 | 0.10 | 0.09 | 0.02 | 2.55 | 1.90 | 0.51 | 4.96 |
| 0.30 | 0.10 | 0.10 | 0.02 | 2.25 | 2.20 | 0.52 | 4.97 |
| 0.20 | 0.20 | 0.12 | 0.02 | 2.02 | 2.10 | 0.54 | 4,66 |

## LAND SYSTEM 308, Facet 1.

Classification: Terra Roxa Estruturada Eutrófica-Tropudalf.

Location: Right margin of Fresco River, 53Km from São Felix Pará State, Brazil.

Physiography: Plain.

Topography: Gently undulating, 0-2% slope.

Drainage: Well drained.

Vegetation: Forest.

Parent material: Basic rocks (andesites,rhyolites) of Pre-Cambrian age.

Source: Proj. Radambrasil, Vol. 4, 1974, profile 15, pp 55-6.

$A_1$ : 0-15 cm. 10YR 3/4; clay loam;weak fine granular structure; friable; gradual smooth boundary.

$B_1$ : 15-50 cm. 10R 3/3; clay; weak fine blocky structure; firm; diffuse smooth boundary.

$B_{21}$ : 50-100 cm. 10R 3/3; clay; moderate fine blocky structure.

$B_{22}$ : 100-150 cm. 10R 3/3; clay; moderate fine blocky structure; firm.

NOTE : Concretions in $B_2$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.0 | 4.6 | 1.85 | 0.08 | 1.3 | 54 | 6 |
| $B_1$ | 5.4 | 4.5 | 0.67 | 0.03 | <1 | 43 | 11 |
| $B_{21}$ | 5.4 | 4.5 | 0.45 | 0.03 | <1 | 44 | 12 |
| $B_{22}$ | 5.6 | 4.8 | 0.34 | 0.02 | <1 | 40 | 11 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 5.10 | 2.07 | 0.15 | 0.06 | 5.76 | 0.48 | 7.38 | 13.62 |
| 3.03 | 1.31 | 0.04 | 0.03 | 5.35 | 0.56 | 4.41 | 10.32 |
| 2.39 | 1.43 | 0.03 | 0.02 | 4.06 | 0.52 | 3.87 | 8.85 |
| 1.71 | 1.55 | 0.02 | 0.02 | 4.53 | 0.40 | 3.30 | 8.23 |

## LAND SYSTEM 309, Facet 1.

Classification: Gley Pouco Húmico Distrófico-Haplaquent.

Location: Point 7, São Felix do Xingu , Pará State, Brazil.

Physiography: Alluvial terrace.

Topography: Flat.

Drainage: Poorly drained.

Vegetation: Forest.

Parent material: Silty clay alluvial sediments.

Source: Proj.Radambrasil, Vol. 4, 1974, profile 21, pp 70-3.

$A_1$ : 0-30 cm. 10YR 5/2; mottles 7.5YR 6/6; silty clay loam; medium fine blocky structure; firm; gradual smooth boundary.

$A_3$ : 30-50 cm. 2.5YR 5/2; mottles 7.5YR6/6; silty clay;

: weak medium blocky structure; firm; clear smooth boundary.

$C_1g$ : 50-90 cm. 10YR 6/1; mottles 7.5YR 6/6, and few 10R 4/8; silty clay; massive; gradual smooth boundary.

$C_2g$ : 90-120 cm. Mixture 10YR 6/1, and 7.5YR 6/6; silty clay; massive.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.3 | 3.6 | 0.51 | 0.08 | 4 | 7 | 88 |
| $A_3$ | 4.5 | 3.5 | 0.35 | 0.06 | 3 | 9 | 88 |
| $C_1g$ | 4.9 | 3.6 | 0.19 | 0.06 | 2 | 8 | 88 |
| $C_2g$ | - | - | - | 0.04 | 3 | 14 | 81 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.30 | 0.20 | 0.06 | 0.03 | 3.39 | 4.20 | 0.59 | 8.18 |
| 0.30 | 0.30 | 0.06 | 0.01 | 2.01 | 6.40 | 0.87 | 9.28 |
| 0.40 | 0.30 | 0.04 | 0.01 | 2.61 | 5.80 | 0.75 | 9.16 |
| 1.10 | | 0.03 | 0.01 | 2.13 | 4.80 | 1.14 | 8.07 |

## LAND SYSTEM 310, Facet 1.

Classification: Podzólico Vermelho Amarelo-Tropudult.

Location: Point 22, Pará State, Brazil.

Physiography: Hills.

Topography: Strongly undulating to mountaimous, site slope 4-8%.

Drainage: Well drained.

Vegetation: Forest.

Parent material: Granites in decomposition.

Source: Porj. Radambrasil, Vol. 7, 1975, profile 37, pp 204-5.

$A_1$ : 0-30 cm. 10YR 2.5/1; sandy loam; weak fine granular structure; friable; gradual smooth boundary.

$B_{21}$ : 30-70 cm. 10YR 3/4; clay; weak fine granular structure; friable; diffuse smooth boundary.

$B_{22}$ : 70-110 cm. 10YR 4/4; clay; weak fine granular structure; friable; diffuse smooth boundary.

$B_{23}$ : 110-150 cm. 10YR 6/6; clay loam; weak fine granular structure; friable.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.5 | 4.7 | 1.59 | 0.06 | 62 | 36 | 13 |
| $B_{21}$ | 4.8 | 3.6 | 0.44 | 0.05 | 64 | 26 | 12 |
| $B_{22}$ | 4.9 | 3.7 | 0.38 | 0.06 | 82 | 34 | 13 |
| $B_{23}$ | 5.3 | 4.3 | 0.36 | 0.05 | 94 | 19 | 23 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 3.58 | 0.48 | 0.29 | 0.02 | 7.20 | 0.68 | 4.37 | 12.25 |
| 2.31 | 0.24 | 0.03 | 0.02 | 6.86 | 0.36 | 2.60 | 9.82 |
| 1.91 | 1.11 | 0.03 | 0.02 | 5.43 | 0.48 | 3.07 | 8.98 |
| 1.75 | 0.28 | 0.02 | 0.01 | 7.90 | 0.64 | 2.06 | 10.60 |

## LAND SYSTEM 311, Facet 1.

Classification: Areias Quartzosas Distróficas-Quartzipsamment.

Location: Transamazonic Road, 66Km between Marabá and Araguantins, Pará State, Brazil.

Physiography: Plain.

Topography: Flat.

Drainage: Excessively drained.

Vegetation: Forest.

Parent material: Carboniferous sandstones.

Source: Proj. Radambrasil, Vol. 4, 1974, profile 18, pp 62-3.

$A_1$ : 0-17 cm. 10YR 6/2; very fine loamy sand; weak fine granular structure, and single grain; loose; gradual smooth boundary.

$A_2$ : 17-75 cm. 10YR 6/3; loamy sand; loose, massive, porous, and single grain; clear smooth boundary.

C : 75-145 cm. 2.5YR 5/8; sandy loam, massive, porous and single grain; very friable.

NOTES : Many fine roots in $A_1$, common fine in $A_2$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.3 | 3.6 | 1.37 | 0.09 | 4 | 18 | 35 |
| $A_2$ | 3.8 | 3.6 | 0.82 | 0.07 | 2 | 10 | 73 |
| C | 4.7 | 4.1 | 0.28 | 0.02 | 2 | 9 | 77 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.80 | 0.40 | 0.08 | 0.01 | 5.24 | 0.70 | 1.29 | 7.23 |
| 0.20 | 0.30 | 0.05 | 0.01 | 3.45 | 1.50 | 0.56 | 5.51 |
| 0.15 | 0.05 | 0.03 | 0.01 | 1.51 | 0.80 | 0.24 | 2.55 |

## LAND SYSTEM 313, Facet 1.

Classification: Brunizem Avermelhado-Arguidoll.

Location: Km 93 of Transamazonic road, between Estreito-Rio Araguaia, Brazil.

Topography: Gently undulating.

Drainage: Well drained.

Vegetation: Transitional forest with babaçu.

Parent material: Basic rocks.

$A_1$ : 0-3 cm. 2.5YR 3/4; silty loam; moderate fine granular structure; firm; common lateritic concretions.

$B_2$ : 12-50 cm. 2.5YR 3/6; clay; strong medium prismatic structure; common cuatans; fine manganese concretions.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.8 | 5.2 | 4.48 | 0.42 | 1.6 | 82 | 0 |
| $A_3$ | 5.7 | 5.1 | 2.26 | 0.25 | <1 | 80 | 0 |
| $B_2$ | 5.0 | 4.3 | 1.06 | 0.12 | <1 | 79 | 12 |
| $B_3$ | 5.8 | 5.3 | 0.53 | 0.05 | <1 | 91 | 0 |
| C | 5.0 | 4.0 | 0.36 | 0.03 | <1 | 75 | 12 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 18.67 | 7.25 | 0.64 | 0.05 | 5.85 | 0.00 | 26.61 | 32.46 |
| 11.22 | 6.67 | 0.79 | 0.06 | 4.73 | 0.00 | 18.94 | 23.57 |
| 6.52 | 9.39 | 0.37 | 0.06 | 4.02 | 0.20 | 16.34 | 20.56 |
| 6.09 | 10.84 | 1.30 | 0.06 | 1.84 | 0.00 | 18.29 | 20.13 |
| 2.30 | 11.81 | 1.07 | 0.08 | 2.99 | 2.03 | 15.35 | 20.37 |

## LAND SYSTEM 316, Facet 1.

Classification: Areias Quartzosas Distróficas-Quartzipsamment.

Location: Point 3, Municipio Itaituba-Pará State, Brazil.

Topography: Gently undulating.

Drainage: Excessively to well drained.

Vegetation: Forest.

Parent material: Proj. Radambrasil, Vol. 7, 1975, profile 25, pp 219-20.

$A_0$ : 0-10 cm. 10R 2/2; sandy with organic matter; moderate medium granular structure, and single grain; very friable; abrupt smooth boundary.

$A_{11}$ : 10-25 cm. 5YR 2/2; sandy; single grain; loose; gradual smooth boundary.

$A_{12}$ : 25-45 cm. 5YR 2/1; sandy; single grain;loose; clear smooth boundary.

$A_{11}$ : 45-65 cm. 7.5YR 3.5/2; sandy; single grain; loose; gradual smooth boundary.

$A_{12}$ : 65-100 cm. 7.5YR 3/2; sandy; single grain; loose; gradual smooth boundary.

C : 100-130 cm. 7.5YR 3/2; sandy; single grain; loose.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_0$ | 4.1 | 3.8 | 6.25 | 0.72 | 1.7 | 1 | 91 |
| $A_{11}$ | 4.3 | 3.9 | 2.10 | 0.12 | 1.4 | 2 | 93 |
| $A_{12}$ | 4.5 | 4.3 | 1.82 | 0.10 | <1 | 2 | 84 |
| $A_{11}$ | 4.6 | 4.4 | 0.60 | 0.03 | <1 | 5 | 74 |
| $A_{12}$ | 4.9 | 4.7 | 0.29 | 0.02 | <1 | 7 | 66 |
| C | 4.9 | 4.7 | 0.09 | 0.01 | <1 | 27 | 62 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.18 | 0.23 | 0.21 | 0.16 | 57.63 | 8.20 | 0.78 | 66.61 |
| 0.04 | 0.09 | 0.04 | 0.03 | 9.28 | 2.60 | 0.20 | 12.08 |
| 0.03 | 0.07 | 0.03 | 0.02 | 6.79 | 0.80 | 0.15 | 7.74 |
| 0.03 | 0.06 | 0.02 | 0.03 | 2.24 | 0.40 | 0.14 | 2.78 |
| 0.02 | 0.06 | 0.01 | 0.01 | 1.12 | 0.20 | 0.10 | 1.42 |
| 0.03 | 0.06 | 0.01 | 0.01 | 0.13 | 0.20 | 0.12 | 0.45 |

## LAND SYSTEM 318, Facet 1.

Classification: Latossolo Vermelho Amarelo Distrófico-Haplorthox.

Location: Point 03, Pará State, Brazil.

Physiography: Footslope of hill.

Topography: Undulating, 10% slope.

Drainage: Well drained.

Vegetation: Forest.

Parent material: Granites.

Source: Proj. Radambrasil, Vol. 7, 1975, profile 32, pp 201-2.

$A_1$ : 0-5 cm. 10YR 5/4; clay; weak fine granular structure; friable; gradual smooth boundary.

$A_3$ : 5-20 cm. 10YR 5/6; clay; weak fine granular structure; friable; gradual smooth boundary.

$B_{21}$ : 20-50 cm. 10YR 5/8; heavy clay; massive, porous, and weak fine blocky structure; friable; gradual smooth boundary.

$B_{22}$ : 50-130 cm. 7.5YR 5.5/8; clay; gravel; massive, porous and weak fine blocky structure; friable.

NOTES : Many roots in $A_1$, and A , many in $B_{21}$ and $B_{22}$. Presence of gravel in $B_{21}$ and $B_{22}$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.1 | 3.6 | 1.66 | 0.14 | 2.9 | 3 | 89 |
| $A_3$ | 3.8 | 3.6 | 1.11 | 0.10 | 1.2 | 2 | 94 |
| $B_{21}$ | 4.3 | 3.9 | 0.72 | 0.06 | <1 | 2 | 94 |
| $B_{22}$ | 4.9 | 3.9 | 0.31 | 0.03 | <1 | 3 | 91 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.08 | 0.12 | 0.09 | 0.03 | 6.11 | 2.80 | 0.32 | 9.23 |
| 0.03 | 0.06 | 0.05 | 0.02 | 3.80 | 2.80 | 0.16 | 6.76 |
| 0.02 | 0.03 | 0.03 | 0.03 | 2.95 | 2.00 | 0.11 | 5.06 |
| 0.03 | 0.02 | 0.03 | 0.03 | 2.43 | 1.20 | 0.11 | 3.74 |

## LAND SYSTEM 328, Facet 1.

Classification: Latossolo Amarelo Distrófico-Haplorthox.

Location: Lat. 03°19'S, long. 57°27'W.

Physiography: Plain.

Topography: Flat.

Drainage: Well drained.

Vegetation: Dense forest.

Parent material: Tertiary clay sediments.

Source: Proj. Radambrasil, Vol. 10, 1976, profile 49, pp 225-6.

$A_1$ : 0-10 cm. 10YR 5/3; clay; very weak fine granular structure; friable; gradual boundary.

$A_3$ : 10-25 cm. 10YR 5/4; heavy clay; weak fine granular structure; friable; diffuse boundary.

$B_1$ : 25-55 cm. 10YR 6/6; clay; weak fine granular structure; friable; diffuse boundary.

$B_{21}$ : 55-90 cm. 10YR 7/6; heavy clay; weak medium granular structure; friable; diffuse boundary.

$B_{22}$ : 90-170 cm. 10YR 7/6; heavy clay; weak medium granular structure; friable.

| HOR | pH $H_2O$ | pH KCl | M.O % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 3.3 | 3.2 | 4.40 | 7.6 | 24 | 7 | 67 |
| $A_3$ | 3.8 | 3.8 | 1.40 | 2.4 | 9 | 12 | 55 |
| $B_1$ | 3.9 | 3.7 | 0.80 | 1.4 | 3 | 7 | 75 |
| $B_{21}$ | 4.3 | 3.8 | 0.52 | 0.9 | 3 | 5 | 79 |
| $B_{22}$ | 4.6 | 3.9 | 0.34 | 0.6 | 3 | 5 | 82 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.16 | 0.56 | 0.14 | 0.09 | 10.56 | 1.94 | 0.95 | 13.45 |
| 0.19 | 0.66 | 0.06 | 0.06 | 5.72 | 1.18 | 0.97 | 7.87 |
| 0.04 | 0.19 | 0.03 | 0.12 | 3.66 | 1.14 | 0.38 | 5.18 |
| 0.05 | 0.14 | 0.02 | 0.04 | 3.12 | 0.98 | 0.25 | 4.35 |
| 0.03 | 0.11 | 0.02 | 0.04 | 2.62 | 0.88 | 0.20 | 3.70 |

## LAND SYSTEM 330, Facet 1.

Classification: Solo Litólico Eutrófico- Troporthent.

Location: Lat 10°16'S, Long. 62°51'W.

Physiography: Hills.

Topography: Strongly undulating to mountainous; 25-30% slope.

Drainage: Well drained.

Vegetation: Open forest.

Parent material: Pre-Cambrian granites.

Source: Proj. Radambrasil, Vol. 16, 1978, profile 154, pp 311-2.

$A_{11}$ : 0-15 cm. 2.5YR 3/4; sandy loam; weak fine granular structure; friable; gradual boundary.

$A_{12}$ : 15-40 cm. 2.5YR 3/6; sandy clay loam; moderate fine granular structure; plastic and slightly sticky.

R : 40 cm+. Rock.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_{11}$ | 5.5 | 5.0 | 1.51 | 0.13 | 1.6 | 82 | 0 |
| $A_{12}$ | 5.7 | 4.8 | 0.59 | 0.07 | <1 | 77 | 0 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 6.10 | 1.11 | 0.34 | 0.02 | 1.68 | 0.02 | 7.57 | 9.22 |
| 3.80 | 0.38 | 0.15 | 0.03 | 1.32 | 0.00 | 4.36 | 5.68 |

## LAND SYSTEM 331, Facet 1.

Classification: Latossolo Vermelho Amarelo Alico-Acrorthox.

Location: Lat. 9°21'S, Long 62°15'W.

Physiography: Plain.

Topography: Level to gently undulating; site slope 2-4%.

Drainage: Well drained.

Vegetation: Dense forest.

Parent material: Pre-cambrian rocks.

Source: Proj. Radambrazil, Vol. 16, 1978, profile 101, page 283.

$A_1$ : 0-10 cm. 10YR 5/6; heavy clay; weak medium blocky structure; firm; clear smooth boundary.

$A_3$ : 10-30 cm. 7.5YR 5/8; heavy clay; massive to weak fine blocky structure; pores common.

$B_1$ : 30-55 cm. 7.5YR 5/8; heavy clay; massive to weak fine granular structure; fine pores, friable; diffuse smooth boundary.

$B_{21}$ : 55-95 cm. 7.5YR 6/8; heavy clay; massive;porous to weak fine granular structure; many pores; very friable; diffuse smooth boundary.

$B_{22}$ : 95-170 cm. 7.5YR 6/8; heavy clay; massive porous to weak fine granular structure; many pores, very friable.

NOTES : Many roots in $A_1$, $A_3$ and $B_1$. Few in $B_{21}$.

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| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 3.5 | 3.2 | 1.06 | 0.13 | 3 | 4 | 88 |
| $A_3$ | 4.0 | 3.8 | 0.84 | 0.06 | <1 | 5 | 88 |
| $B_1$ | 4.2 | 4.0 | 0.57 | 0.04 | <1 | 5 | 87 |
| $B_{21}$ | 4.6 | 4.2 | 0.34 | 0.03 | <1 | 6 | 85 |
| $B_{22}$ | 5.6 | 4.3 | 0.17 | 0.02 | <1 | 9 | 82 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.09 | 0.13 | 0.11 | 0.03 | 6.92 | 2.60 | 0.36 | 4.88 |
| 0.09 | 0.05 | 0.05 | 0.03 | 2.69 | 1.60 | 0.22 | 4.51 |
| 0.06 | 0.04 | 0.04 | 0.03 | 2.10 | 1.20 | 0.17 | 3.47 |
| 0.05 | 0.03 | 0.03 | 0.03 | 1.51 | 0.80 | 0.14 | 2.45 |
| 0.06 | 0.04 | 0.04 | 0.03 | 1.01 | 0.80 | 0.17 | 1.98 |

## LAND SYSTEM 332, Facet 1.

Classification: Podzólico Vermelho Amarelo Eutrófico-Tropudalf.

Location: Lat. 11°01'S., Long 62°17'W.

Physiography: Plain.

Topography: Slope less than 2%.

Drainage: Well drained.

Vegetation: Dense forest.

Parent material: Pre-Cambrian rocks.

Source: Proj. Radambrasil, Vol. 16, 1978, profile 193, page 291.

$A_1$ : 0-20 cm. 5YR 3/4; sandy loam; weak fine granular structure; friable; diffuse boundary.

$A_3$ : 20-40 cm. 5YR 4/4; sandy loam; medium blocky and granular structure; friable; diffuse boundary.

$B_1$ : 40-60 cm. 5YR 4/6; sandy clay loam; fine weak blocky structure; friable; diffuse boundary.

$B_2$ : 60-90 cm. 2.5YR 4/6 ; clay; moderate fine blocky structure; common faint cutans; friable; diffuse boundary.

$B_3$ : 90-110 cm. 2.5YR 5/8; mottles 7.5YR 7/6; clay loam; massive, friable; abrupt boundary.

$C_1$ : 110-130 cm. 2.5YR 5/8; mottles 7.5YR 7/6; clay loam;massive, friable; abrupt boundary.

$C_2$ : 130-160 cm. Mixture 7.5YR 7/8, 7.5YR 5/8, 5YR 5/8 and 2.5YR 6/8; sandy clay loam, massive, friable.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.8 | 5.1 | 0.58 | 0.11 | 1 | 66 | 0 |
| $A_3$ | 5.8 | 5.0 | 0.33 | 0.07 | <1 | 77 | 0 |
| $B_1$ | 5.5 | 5.0 | 0.33 | 0.07 | <1 | 66 | 0 |
| $B_2$ | 5.3 | 5.2 | 0.27 | 0.06 | <1 | 71 | 0 |
| $B_3$ | 5.4 | 5.3 | 0.20 | 0.05 | <1 | 83 | 0 |
| $C_1$ | 5.5 | 5.1 | 0.14 | 0.05 | <1 | 75 | 0 |
| $C_2$ | 5.5 | 5.0 | 0.13 | 0.04 | <1 | 69 | 0 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 2.3 | 0.5 | 0.11 | 0.01 | 1.5 | 0 | 2.1 | 4.4 |
| 1.2 | 1.4 | 0.07 | 0.01 | 0.8 | 0 | 2.7 | 3.5 |
| 1.2 | 0.8 | 0.08 | 0.01 | 1.1 | 0 | 2.1 | 3.2 |
| 1.5 | 0.9 | 0.08 | 0.01 | 1.0 | 0 | 2.5 | 3.5 |
| 1.6 | 1.2 | 0.08 | 0.01 | 0.6 | 0 | 2.9 | 3.5 |
| 1.6 | 1.0 | 0.09 | 0.02 | 0.9 | 0 | 2.7 | 3.6 |
| 1.1 | 1.0 | 0.11 | 0.01 | 1.0 | 0 | 2.2 | 3.2 |

## LAND SYSTEM 333, Facet 1.

Classification: Podzólico Vermelho Amarelo Alico-Paleudult.

Location: Lat. 09°11'S, Long 66°56'W.

Physiography: Gently undulating plain.

Topography: 2-4% slope.

Drainage: Well drained.

Vegetation: Dense Tropical forest.

Parent material: Complex sediments; fluvio-lacustrine; Plio-Pleistocenic.

Source: Proj. Radambrasil, Vol. 12, 1976, profile 79, pp 243-4.

$A_1$ : 0-6 cm. 10YR 3/3; silty loam; weak fine granular structure; loose, very friable; clear smooth boundary.

$A_3$ : 6-20 cm. 10YR 4/3; silty clay loam; weak fine granular structure; loose; clear smooth boundary.

$B_1$ : 20-60 cm. 7.5YR 5/6; clay; weak fine blocky structure; slightly hard, firm; gradual smooth boundary.

$B_2$ : 60-110 cm. 5YR 5/6; clay; weak fine blocky structure; hard, firm; gradual smooth boundary.

$B_3$ : 110-140 cm. 5YR 5/8; mottles 2.5YR 4/8, and 10YR 6/6; heavy clay; weak fine blocky structure; hard, firm; gradual smooth boundary.

C : 140-160 cm. Mixture 10YR 7/1, 2.5YR 5/8, 10YR 6/6; heavy clay; weak fine blocky structure; hard, firm.

NOTE : Medium and fine roots in $A_1$ and $A_3$. Biological activity common in $A_1$ and $A_3$, not in $B_1$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 3.5 | 3.1 | 7.47 | 0.79 | 50 | 5 | 80 |
| $A_3$ | 3.6 | 3.0 | 2.33 | 0.27 | 89 | 3 | 94 |
| $B_1$ | 3.9 | 3.5 | 0.62 | 0.08 | <1 | 1 | 98 |
| $B_2$ | 4.2 | 3.7 | 0.53 | 0.06 | <1 | 1 | 98 |
| $B_3$ | 4.4 | 3.7 | 0.42 | 0.07 | <1 | 2 | 98 |
| C | 4.5 | 3.8 | 0.43 | 0.05 | <1 | 2 | 97 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.56 | 0.85 | 0.50 | 0.07 | 30.61 | 8.00 | 1.98 | 40.59 |
| 0.09 | 0.22 | 0.17 | 0.03 | 9.65 | 8.00 | 0.51 | 18.16 |
| 0.02 | 0.04 | 0.04 | 0.03 | 1.78 | 6.80 | 0.13 | 8.71 |
| 0.02 | 0.04 | 0.04 | 0.03 | 1.74 | 7.00 | 0.13 | 8.87 |
| 0.01 | 0.05 | 0.04 | 0.03 | 1.45 | 6.80 | 0.13 | 8.38 |
| 0.03 | 0.06 | 0.04 | 0.03 | 1.26 | 6.00 | 0.16 | 7.42 |

## LAND SYSTEM 334, Facet 1.

Classification: Laterita Hidromorfica Alica- Plinthaquox.

Location: 77Km from Madeira river (Porto Velho), towards Humaitá, BR 319. Municipio Labrea, Amazonas State, Brazil.

Physiography: Plain.

Topography: Level.

Drainage: Imperfectly drained.

Vegetation: Savanna.

Parent material: Complex Plio-Pleistocenic sediments. (Solimoes Formation).

Source: Proj. Radambrasil, Vol. 16, 1978, profile 12, page 130.

$A_1$ : 0-8 cm. 5YR 3/1; silty loam; weak fine granular structure; friable, clear boundary.

$A_3$ : 8-20 cm. 5YR 4/1; loam; weak fine granular structure; friable; abrupt boundary.

$B_1pl$ : 20-50 cm. 10YR 4/2; mottles; 2.5YR 4/6; loam; moderate medium blocky structure; friable; gradual boundary.

$B_{21}pl$ : 50-70 cm. Mixture 10YR 5/2, 2.5YR 4/8; silty loam; moderate coarse blocky structure; firm; clear boundary.

$B_{22}pl$ : 70-110 cm. Mixture 10YR 5/2 and 2.5YR 3/6; silty loam; moderate coarse blocky structure; firm; clear boundary.

$B_{23}pl$ : 110-140 cm. Mixture N7/ and 10R 4/6; silty clay loam; moderate coarse blocky structure; firm.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.0 | 3.8 | 2.74 | 0.28 | 1.64 | 6 | 84 |
| $A_3$ | 4.2 | 3.9 | 1.36 | 0.17 | 1.11 | 6 | 88 |
| $B_1pl$ | 4.3 | 4.0 | 0.35 | 0.05 | 0.48 | 9 | 77 |
| $B_{21}pl$ | 4.2 | 4.1 | 0.49 | 0.05 | 0.53 | 9 | 80 |
| $B_{22}pl$ | 4.3 | 3.9 | 0.29 | 0.03 | 0.53 | 7 | 85 |
| $B_{23}pl$ | 4.4 | 3.8 | 0.21 | 0.06 | 0.44 | 5 | 89 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.16 | 0.32 | 0.15 | 0.01 | 6.30 | 3.84 | 0.64 | 10.78 |
| 0.28 | 0.16 | 0.09 | 0.01 | 4.71 | 3.84 | 0.54 | 9.09 |
| 0.12 | 0.51 | 0.05 | 0.01 | 4.60 | 2.36 | 0.69 | 7.65 |
| 0.12 | 0.43 | 0.05 | 0.01 | 3.84 | 2.50 | 0.61 | 6.95 |
| 0.12 | 0.47 | 0.07 | 0.02 | 5.03 | 3.84 | 0.68 | 9.55 |
| 0.08 | 0.47 | 0.09 | 0.02 | 6.66 | 5.38 | 0.66 | 12.70 |

## LAND SYSTEM 335, Facet 2.

Classification: Terra Roxa Estruturada Distrófica-Paleudult.

Location: Lat. 10°41'S, Long 63°48'W.

Topography: Level, slope less than 2%.

Drainage: Well drained.

Vegetation: Open forest.

Parent material: Basic rocks.

Source: Proj. Radambrasil, Vol. 16, 1978, profile 147, page 289.

$A_1$ : 0-20 cm. 10R 3/3. ; clay; moderate medium granular structure.

$A_3$ : 20-40 cm.10R 3/4; heavy clay; medium moderate blocky structure; friable; diffuse boundary.

$B_1$ : 40-60 cm. 10R 3/5; heavy clay; moderate medium blocky structure; friable; diffuse boundary.

$B_{21}$ : 60-90 cm. 10R 3/6; heavy clay; moderate medium blocky structure; few cutans; friable; diffuse boundary.

$B_{22}$ : 90-130 cm. 10R 3/6; heavy clay; moderate medium blocky structure; common cutans; friable; diffuse boundary.

$B_{23}$ : 130-160 cm. 10R 3/6; heavy clay; moderate medium blocky structure; common cutans; friable; diffuse boundary.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.3 | 4.8 | 2.01 | 0.37 | 7 | 50 | 0 |
| $A_3$ | 5.1 | 4.6 | 1.23 | 0.24 | 5 | 33 | 3 |
| $B_1$ | 5.1 | 4.5 | 0.73 | 0.17 | 8 | 18 | 14 |
| $B_{21}$ | 5.6 | 4.7 | 0.37 | 0.12 | 16 | 15 | 11 |
| $B_{22}$ | 5.6 | 4.7 | 0.31 | 0.10 | 17 | 13 | 13 |
| $B_{23}$ | 5.6 | 4.8 | 0.28 | 0.08 | 18 | 14 | 13 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 5.4 | 1.1 | 0.19 | 0.01 | 6.6 | 0.0 | 6.7 | 13.3 |
| 2.1 | 0.6 | 0.09 | 0.01 | 5.7 | 0.1 | 2.8 | 8.6 |
| 1.0 | 0.1 | 0.06 | 0.01 | 5.3 | 0.2 | 1.2 | 6.7 |
| 0.7 | | 0.05 | 0.01 | 4.5 | 0.1 | 0.8 | 5.4 |
| 0.7 | | 0.03 | 0.01 | 4.5 | 0.1 | 0.7 | 5.3 |
| 0.7 | | 0.03 | 0.01 | 4.1 | 0.1 | 0.7 | 4.9 |

## LAND SYSTEM 338, Facet 1.

Classification: Gley Pouco Húmico Alico-Tropaquept.

Location: Lat. 9°45'S , Long. 65°16'W.

Physiography: "Varzea" or flood plain.

Topography: Level, 0-2% slope.

Drainage: Poorly drained.

Vegetation: Alluvial dense forest.

Parent material: Quaternary clay and sandy sediments.

Source: Proj. Radambrasil, Vol. 16, 1978, profile 61, page 307.

$A_{11}$ : 0-20 cm. 10YR 4/1; silty loam; massive; gradual boundary.

$A_{12}$ : 20-40 cm. 10YR 4/2; silty clay loam; massive; gradual boundary.

$C_1g$ : 40-55 cm. 10YR 5/1; clay loam; massive; gradual boundary.

$C_2g$ : 55-80 cm. 5Y 6/1; silty loam; massive; clear boundary.

$C_3g$ : 80-140 cm. 5Y 6.5/1, mottles 2.5YR 4/8 and 10YR 6/6; loam; massive.

| HOR | pH $H_2O$ | pH KCl | C % | M.O. % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_{11}$ | 3.9 | 3.7 | 2.10 | 3.62 | 6 | 10.21 | 79 |
| $A_{12}$ | 5.0 | 4.0 | 1.38 | 2.38 | 9 | 20.95 | 59 |
| $C_1g$ | 4.9 | 3.9 | 0.75 | 1.29 | 9 | 9.84 | 81 |
| $C_2g$ | 4.9 | 3.8 | 0.30 | 0.52 | 3 | 15.29 | 79 |
| $C_3g$ | 4.8 | 3.8 | 0.15 | 0.26 | 6 | 16.86 | 81 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| - | 1.04 | 0.07 | 0.05 | 5.88 | 4.32 | 1.16 | 11.36 |
| 0.27 | 1.89 | 0.05 | 0.07 | 5.29 | 3.31 | 2.28 | 10.88 |
| 0.11 | 0.50 | 0.05 | 0.06 | 3.42 | 3.18 | 0.72 | 7.32 |
| 0.13 | 0.43 | 0.04 | 0.05 | 1.10 | 2.50 | 0.65 | 4.25 |
| 0.06 | 0.58 | 0.02 | 0.05 | 0.51 | 2.99 | 0.71 | 4.21 |

## LAND SYSTEM 343, Facet 1.

Classification: Latossolo Vermelho Amarelo Distrófico-Haplorthox.

Location: 00°03'S, Long 57°30'W.

Physiography: Hills.

Topography: Midslope, 45°slope.

Drainage: Well drained.

Vegetation: Dense forest.

Parent material:Pre-Cambrian granites, gneiss, biotite, etc.

Source: Proj. Radambrasil, Vol. 9, 1975, profile 17, page 188.

A : 0-20 cm. 7.5YR 4/4; clay; weak fine granular structure; friable; gradual smooth boundary.

$B_1$ : 20-40 cm. 7.5YR 4/4; heavy clay; moderate fine granular structure; friable; diffuse smooth boundary.

$B_{21}$ : 40-65 cm. 7.5YR 5/6; heavy clay;moderate fine granular structure; diffuse smooth boundary.

$B_{22}$ : 65-105 cm. 7.5YR 5/6; heavy clay; moderate fine blocky structure; friable.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| A | 4.3 | 4.0 | 1.71 | 2.95 | 0.5 | 12 | 40 |
| $B_1$ | 4.7 | 4.3 | 0.97 | 1.67 | 0.5 | 7 | 0 |
| $B_{21}$ | 5.7 | 4.9 | 0.48 | 0.07 | 0.5 | 8 | 0 |
| $B_{22}$ | 5.5 | 5.1 | 0.29 | 0.30 | 0.5 | 10 | 0 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.22 | 0.26 | 0.08 | 0.02 | 4.05 | 0.40 | 0.58 | 5.03 |
| 0.07 | 0.10 | 0.05 | 0.02 | 2.97 | 0.00 | 0.24 | 3.21 |
| 0.05 | 0.04 | 0.04 | 0.02 | 1.65 | 0.00 | 0.15 | 1.80 |
| 0.04 | 0.04 | 0.04 | 0.02 | 1.32 | 0.00 | 0.14 | 1.46 |

## LAND SYSTEM 345, Facet 1.

Classification: Podzolico Vermelho Amarelo-Tropudult.
Location: Lat. 00°50'N , Long 56°35'W.

Physiography: Undulating plain.

Topography: Lower slope; 6-8%.

Drainage: Well Drained.

Vegetation: Dense forest.

Parent material:Pre-Cambrian granites.

Source: Proj. Radambrasil, Vol. 9,1975, profile 28, page 198.

$A_1$ : 0-10 cm. 10YR 5/4; sandy loam; single grain;friable; gradual smooth boundary.

$A_3$ : 10-20 cm. 10YR 5/8; sandy clay loam; weak fine granular structure; friable; clear smooth boundary.

$B_1$ : 20-40 cm. 7.5YR 6/6; clay loam; weak fine blocky structure; friable; gradual smooth boundary.

$B_{21}$ : 40-75 cm. 7.5YR 6/6; clay; weak medium blocky structure; friable; diffuse smooth boundary.

$B_{22}$ : 75-110 cm. 7.5YR 6/8; clay; weak medium blocky structure; friable.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.6 | 4.0 | 1.69 | 0.13 | 1.0[illegible] | 8 | 71 |
| $A_3$ | 4.6 | 4.0 | 0.85 | 0.08 | <0.5 | 4 | 86 |
| $B_1$ | 5.1 | 4.2 | 0.52 | 0.04 | <0.5 | 5 | 85 |
| $B_{21}$ | 5.4 | 4.2 | 0.52 | 0.04 | <0.5 | 5 | 87 |
| $B_{22}$ | 6.1 | 5.3 | 0.37 | 0.03 | <0.5 | 5 | 75 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.15 | 0.23 | 0.09 | 0.03 | 4.24 | 1.20 | 0.5 | 5.94 |
| 0.04 | 0.05 | 0.05 | 0.02 | 2.46 | 1.00 | 0.16 | 3.62 |
| 0.03 | 0.05 | 0.05 | 0.02 | 1.84 | 0.80 | 0.15 | 2.78 |
| 0.03 | 0.04 | 0.04 | 0.01 | 1.67 | 0.80 | 0.12 | 2.59 |
| 0.03 | 0.04 | 0.04 | 0.02 | 1.91 | 0.40 | 0.13 | 2.44 |

## LAND SYSTEM 347, Facet 1.

Classification: Latossolo Amarelo Distrófico-Umbriorthox.

Location: Lat. 02°13'S. , Long. 56°55'W.

Physiography: Undulating plain.

Topography: Midslope, 8-9%.

Drainage: Well drained.

Vegetation: Dense forest.

Parent material: Tertiary clay sediments.

Source: Proj. Radambrasil, Vol. 10, 1976, profile 50, page 226.

$A_1$ : 0-20 cm. 10YR 3/3; clay; weak fine granular structure; friable; gradual boundary.

$A_3$ : 20-50 cm. 10YR 4/4; clay; weak fine granular structure; friable; diffuse boundary.

$B_1$ : 50-70 cm. 10YR 5/6; heavy clay; massive to granular structure; friable; diffuse boundary.

$B_{21}$ : 70-110 cm. 7.5YR 5/6; heavy clay; massive to granular structure; friable; diffuse boundary.

$B_{22}$ : 110-150 cm. 7.5YR 5/8; heavy clay; massive to granular friable.

| HOR | pH $H_2O$ | pH KCl | C % | O.M. % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 3.0 | 3.2 | 3.60 | 6.2 | 1.8 | 5 | 82 |
| $A_3$ | 3.8 | 3.9 | 1.96 | 3.4 | 6.0 | 4 | 83 |
| $B_1$ | 4.0 | 3.9 | 1.01 | 1.7 | 3.0 | 5 | 79 |
| $B_{21}$ | 3.9 | 3.7 | 0.57 | 0.9 | 6.0 | 19 | 81 |
| $B_{22}$ | 4.2 | 4.0 | 0.45 | 0.8 | 6.0 | 27 | 73 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.29 | 0.29 | 0.09 | 0.10 | 11.45 | 3.46 | 0.77 | 15.65 |
| 0.13 | 0.16 | 0.04 | 0.04 | 8.14 | 1.76 | 0.37 | 10.27 |
| 0.13 | 0.19 | 0.03 | 0.03 | 5.14 | 1.46 | 0.38 | 6.98 |
| 0.11 | 0.11 | 0.02 | 0.03 | 3.74 | 1.14 | 0.27 | 5.15 |
| 0.10 | 0.12 | 0.02 | 0.03 | 2.46 | 0.72 | 0.27 | 3.95 |

## LAND SYSTEM 348, Facet 1.

Classification: Latossolo Amarelo Alico-Acrustox.

Location: Lat. 2°53'S , Long. 60°06'W.

Physiography: Gently undulating plain.

Topography: Midslope, 2-6%.

Drainage: Well drained.

Vegetation: Dense forest.

Parent material: Tertiary mixted sandstone and clay sediments (Barreiras Foramtion).

Source: Proj. Radambrasil, Vol. 18, 1978, profile 105, page 277.

$A_1$ : 0-30 cm. 10YR 4/4; sandy clay;weak fine granular structure; very friable; gradual boundary.

$B_1$ : 30-50 cm. 10YR 5/6; sandy clay; weak fine granular structure; friable; diffuse boundary.

$B_{21}$ : 50-130 cm. 10YR 6/6; sandy clay; weak fine blocky structure; friable; diffuse boundary.

$B_{22}$ : 130-160 cm. 10YR 6/8; clay; weak fine blocky structure; friable.

NOTE : Medium ferruginous concretions from 140 cm+.

| HOR | pH $H_2O$ | pH KCl | C % | O.M. % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 3.8 | 3.8 | 2.1 | 3.61 | 6 | 8 | 72 |
| $B_1$ | 4.3 | 4.1 | 0.8 | 1.38 | 3 | 7 | 74 |
| $B_{21}$ | 4.5 | 4.3 | 0.4 | 0.69 | 3 | 10 | 63 |
| $B_{22}$ | 4.6 | 4.4 | 0.4 | 0.69 | 3 | 11 | 72 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.10 | 0.10 | 0.08 | 0.40 | 2.00 | 1.73 | 0.68 | 8.02 |
| 0.07 | 0.02 | 0.04 | 0.23 | 1.15 | 1.04 | 0.36 | 5.24 |
| 0.12 | 0.02 | 0.05 | 0.21 | 0.82 | 0.69 | 0.40 | 3.90 |
| 0.10 | 0.02 | 0.04 | 0.23 | 0.66 | 0.58 | 0.23 | 3.65 |

## LAND SYSTEM 349, Facet 1.

Classification: Laterita Hidromorfica Distrófica-Plinthaquult.

Location: BR, 319, Km 30 between Careiro-Manaus, Amazonas State, Brazil.

Topography: Flat.

Drainage: Moderately drained.

Vegetation: Dense forest.

Parent material: Tertiary clay sediments.

Source: Proj. Radambrasil, Vol. 10, 1976, profile 45, page 251.

Ap : 0-10 cm. 10YR 3/4; silty loam; moderate medium blocky structure; friable; clear boundary.

$A_3$ : 10-30 cm. 10YR 5/6; mottles 5Y 6/1 and 2.5YR 5/8; silty loam; moderate medium blocky structure; firm; clear boundary.

$B_1$ : 30-45 cm. 2.5YR 4/8; mottles 5Y 6/1; silty clay loam; strong medium blocky structure; firm; gradual boundary.

$B_{21}pl$ : 45-60 cm. Mixture 2.5YR 4/8 and 5YR 6/1; silty clay; strong medium blocky structure; firm; clear boundary.

$B_{22}pl$ : 60-90 cm. Mixture 10R 5/8 and 5Y 7/1; heavy clay; strong medium blocky structure; firm.

| HOR | pH | | C | M.O. | P | B.S. | Al.S. |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| Ap | 4.1 | 3.9 | 4.00 | 6.9 | 15 | 39 | 13 |
| $A_3$ | 3.7 | 3.5 | 0.94 | 1.6 | 6 | 7 | 85 |
| $B_1$ | 4.1 | 3.5 | 0.60 | 1.0 | 6 | 5 | 93 |
| $B_{21}pl$ | 4.3 | 3.6 | 0.48 | 0.8 | 6 | 4 | 94 |
| $B_{22}pl$ | 4.4 | 3.4 | 0.32 | 0.5 | 6 | 4 | 96 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 4.40 | 1.01 | 0.23 | 0.06 | 8.28 | 0.82 | 5.70 | 14.80 |
| 0.10 | 0.33 | 0.10 | 0.03 | 4.62 | 3.28 | 0.56 | 8.46 |
| 0.05 | 0.29 | 0.04 | 0.03 | 3.52 | 5.18 | 0.41 | 9.11 |
| 0.02 | 0.30 | 0.06 | 0.03 | 2.92 | 6.38 | 0.41 | 9.71 |
| 0.03 | 0.42 | 0.09 | 0.04 | 3.12 | 12.68 | 0.58 | 16.38 |

## LAND SYSTEM 350, Facet 1.

Classification: Solo Alluvial Eutrófico-Haplaquent.

Location: Municipio de Obidos, Ilha Amador, Amazonas river, Pará State, Brazil.

Physiography: Alluvial terrace.

Topography: Flat.

Drainage: Imperfectly drained.

Vegetation: Pioneer formations.

Parent material: Quaternary silty-sandy sediments.

Source: Proj. Radambrasil, vol. 10, 1976, profile 34, page 253.

A : 0-20 cm. 10YR 3/1; silty loam; weak fine granular structure; very friable.

IIC : 40-60 cm. 10YR 4/1; sandy loam; massive, plastic and slighlty sticky.

| HOR | pH | | C | N | P | B.S. | Al.S. |
|---|---|---|---|---|---|---|---|
| | H O | KCl | % | % | ppm | % | % |
| A | 5.9 | 5.1 | 0.67 | 0.06 | 60 | 84 | 0 |
| IIC | 5.9 | 4.6 | 0.57 | 0.04 | 75 | 54 | 0 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 16.80 | 1.70 | 0.31 | 0.10 | 3.59 | 0.00 | 18.91 | 22.50 |
| 5.18 | 1.26 | 0.16 | 0.05 | 5.57 | 0.00 | 6.65 | 12.22 |

## LAND SYSTEM 352, Facet 1.

Classification: Latossolo Vermelho Amarelo-Acrorthox.

Location: Lat. 01°15'N , Long. 66°48'W.

Physiography: Gently undulating plain.

Topography: Upper slope 5%.

Drainage: Well drained.

Vegetation: Dense forest.

Parent material: Pre-Cambrian granites, migmatites, and granodiorites.

Source: Proj. Radambrasil, Vol. 11, 1976, profile 53, page 218.

$A_1$ : 0-20 cm. 10YR 5/4; sandy loam; weak fine granular structure and single grain; friable; diffuse boundary.

$A_3$ : 20-35 cm. 10YR 5/6; sandy clay loam; weak fine granular structure; friable; diffuse boundary.

$B_1$ : 35-50 cm. 10YR 5/8; sandy clay loam; weak fine granular and single grain; friable; diffuse boundary.

$B_2$ : 50-160 cm+. 7.5YR 5/8; sandy clay loam; medium fine granular structure and single grain; friable.

NOTE : Many roots in $A_1$ and $A_3$, common in $B_1$ and $B_2$.

| HOR | pH | | C | N | P | B.S. | Al.S. |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 3.6 | 3.4 | 1.45 | 0.12 | 1 | 3 | 88 |
| $A_3$ | 4.3 | 4.0 | 0.67 | 0.07 | <0.5 | 4 | 83 |
| $B_1$ | 4.6 | 4.4 | 0.40 | 0.04 | <0.5 | 6 | 77 |
| $B_2$ | 5.0 | 1.8 | 0.37 | 0.02 | <0.5 | 7 | 71 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.08 | 0.07 | 0.07 | 0.03 | 6.45 | 1.80 | 0.25 | 8.50 |
| 0.03 | 0.03 | 0.03 | 0.03 | 2.37 | 0.60 | 0.12 | 3.09 |
| 0.05 | 0.03 | 0.03 | 0.01 | 1.41 | 0.40 | 0.12 | 1.93 |
| 0.02 | 0.01 | 0.03 | 0.02 | 0.79 | 0.20 | 0.08 | 0.07 |

## LAND SYSTEM 353, Facet 1.

Classification: Podzol Hidromórfico-Tropaquod.

Location: Lat. 01°14'N , Long. 67°48'W.

Topography: Flat.

Drainage: Poorly drained.

Vegetation: Campinarama.

Parent material: Pre-Cambrian rocks.

Source: Proj. Radambrasil, Vol. 11, 1976, profile 41, page 232.

$O_2$ : 10-0 cm. Vegetation residues in decomposition.

$A_2$ : 0-30 cm. 10YR 4/2; loamy sand; single grain; loose; gradual smooth boundary.

Bhir : 30-70 cm. 10YR 3/2; sandy loam; single grain; friable.

NOTE : Below 10 cm consolidated material could not be penetrated by auger.

| HOR | pH | | C | N | P | B.S. | Al.S. |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $O_2$ | 3.5 | 3.0 | 16.53 | 0.97 | 10 | 4 | 66 |
| $A_2$ | 5.0 | 3.9 | 0.82 | 0.03 | 0.7 | 4 | 86 |
| Bhir | 4.8 | 3.8 | 3.14 | 0.20 | 0.5 | 1 | 93 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | N. | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.08 | 2.09 | 1.28 | 0.20 | 71.50 | 7.20 | 3.65 | 82.35 |
| 0.02 | 0.07 | 0.04 | 0.03 | 2.63 | 1.00 | 0.16 | 3.79 |
| 0.07 | 0.04 | 0.04 | 0.05 | 11.59 | 2.60 | 0.20 | 14.39 |

## LAND SYSTEM 356, Facet 1.

Classification: Podzolico Vermelho Amarelo-Paleudult.

Location: Lat. 01°56'N - Long. 67°01'W.

Topography: Undulating, 10-12% slopes.

Drainage: Well drained.

Vegetation: Dense forest.

Parent material: Pre-Cambrian granites.

Source: Proj. Radambrasil, Vol. 11, 1976, profile 54, page 221.

$A_1$ : 0-10 cm. 10YR 5/4; loam; weak fine granular structure; gradual boundary.

$A_3$ : 10-40 cm. 10YR 5/6; sandy clay loam; moderate medium blocky structure; firm, clear boundary.

$B_2$ : 40-100 cm. 10YR 6/8; sandy clay loam; moderate medium blocky structure; friable.

NOTES : Many roots in $A_1$; common in $A_3$, few in $B_2$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 3.8 | 3.6 | 1.27 | 0.13 | <0.5 | - | - |
| $A_3$ | 4.2 | 4.0 | 0.80 | 0.07 | <0.5 | - | - |
| $B_2$ | 5.0 | 4.4 | 0.46 | 0.06 | <0.5 | - | - |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na |
|---|---|---|---|
| 0.05 | 0.05 | 0.05 | 0.03 |
| 0.03 | 0.03 | 0.03 | 0.03 |
| 0.03 | 0.01 | 0.01 | 0.02 |

## LAND SYSTEM 357, Facet 1.

Classification: Podzólico Vermelho Amarelo Alico-Plinthudult.

Location: Lat. 3°23' - Long. 69°25'W.

Topography: Flat.

Drainage: Imperfectly drained.

Vegetation: Open forest.

Parent material: Tertiary-Quaternary complex sediments (Solimoes Formation).

Source: Proj. Radmabrasil, Vol. 14, 1977, profile 62, page 224.

A : 0-30 cm. 10YR 7/6; silty clay loam; weak fine blocky structure; slightly hard, friable; gradual boundary.

$B_1$ : 30-60 cm. 7.5YR 5/8; silty clay loam; weak fine blocky structure; slightly hard, friable; gradual boundary.

$B_{21}$ : 60-80 cm. 5YR 6/8; mottles N 7/ ; silty loam; weak fine blocky structure; slightly hard; friable; gradual boundary.

$B_{22}$ : 80-110 cm. 5YR 5/8; mottles 5YR 8/2; silty clay; moderate medium blocky structure; hard, friable; gradual boundary.

$B_{23}pl$ : 110-150 cm+. Mixture 2.5YR 4/6, N 7/ , 7.5YR 6/8; heavy clay; moderate medium blocky structure; hard, friable.

NOTE : Many fine roots in $A_1$, few fine in $B^1$. Presence of mottles from 60 cm and water table at 150 cm.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| A | 4.8 | 3.7 | 1.74 | 0.26 | <1 | 7 | 84 |
| $B_1$ | 4.5 | 3.7 | 0.53 | 0.17 | 1 | 6 | 92 |
| $B_{21}$ | 4.7 | 3.2 | 0.52 | 0.14 | <1 | 6 | 92 |
| $B_{22}$ | 4.9 | 3.8 | 0.44 | 0.14 | <1 | 5 | 94 |
| $B_{23}pl$ | 5.1 | 3.8 | 0.34 | 0.13 | <1 | 5 | 94 |

EXCHANGE COMPLEX (meq/100 g)

| Ca + Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 0.7 | 0.13 | 0.01 | 5.8 | 4.3 | 0.8 | 10.9 |
| 0.4 | 0.05 | 0.01 | 2.4 | 6.1 | 0.5 | 9.0 |
| 0.5 | 0.06 | 0.01 | 2.1 | 7.3 | 0.6 | 10.0 |
| 0.5 | 0.09 | 0.01 | 2.5 | 9.1 | 0.6 | 12.2 |
| 0.5 | 0.17 | 0.02 | 2.3 | 11.5 | 0.7 | 14.5 |

## LAND SYSTEM 358, Facet 1.

Classification: Gley Pouco Húmico Eutrófico-Tropaquept.

Location: Lat. 3°26'S - Long. 60°28'W.

Topography: Flat.

Drainage: Poorly drained.

Vegetation: Alluvial open forest.

Parent material: Quaternary to recent sediments.

Source: Proj. Radambrasil, Vol. 18, 1978, profile 131, pp 312-13.

$A_1$ : 0-10 cm. N 7/ ; mottles 5YR 5/8; silty clay; massive; gradual boundary.

$C_1g$ : 10-20 cm. 5Y 6/1; mottles 5YR 5/8; silty clay; massive; gradual boundary.

$C_2g$ : 20-100 cm. 5Y 6/1; mottles 5YR 6/8; silty clay; massive; gradual boundary.

$C_3g$ : 100-160 cm. N 6/ ; mottles 5YR 6/8; clay; massive; very plastic and very sticky.

NOTES : Area used for grazing cattle.

| HOR | pH $H_2O$ | pH KCl | C % | M.O. % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.1 | 3.3 | 2.3 | 3.96 | 27 | 68 | 13 |
| $C_1g$ | 4.0 | 3.2 | 0.8 | 1.37 | 6 | 69 | 21 |
| $C_2g$ | 4.5 | 3.2 | 0.3 | 0.51 | 6 | 64 | 25 |
| $C_3g$ | 4.7 | 3.4 | 0.2 | 0.34 | 6 | 86 | 3 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 14.44 | 6.44 | 0.31 | 0.27 | 3.55 | 3.10 | 21.40 | 31.74 |
| 13.84 | 7.15 | 0.21 | 0.30 | 6.63 | 5.62 | 21.50 | 31.22 |
| 3.08 | 10.07 | 0.20 | 0.56 | 5.25 | 4.61 | 13.91 | 21.59 |
| 13.84 | 11.59 | 0.17 | 0.73 | 1.45 | 0.89 | 26.33 | 30.43 |

## LAND SYSTEM 360, Facet 1.

Classification: Gley Pouco Húmico Eutrófico-Tropaquept.

Location: Lat. 4°21' - Long. 66°30'W.

Topography: Flat.

Drainage: Poorly drained.

Vegetation: "Campo" (grassland).

Parent material: Quaternary alluvium sediments.

Source: Proj. Radambrasil, Vol. 5, 1977, profile 41, pp 210-1.

$A_1$ : 0-20 cm. 10YR 5/2; clay loam; moderate medium blocky structure; hard, firm; gradual boundary.

$C_1g$ : 20-45 cm. 10YR 5/1; mottles 2.5YR 6/8, and 10YR 6/8; silty clay loam; massive, firm; gradual boundary.

$C_2g$ : 45-120 cm. 10YR 4/1, mottles 2.5YR 4/8, silty clay loam; massive; firm.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 6.0 | 4.6 | 0.55 | 0.18 | 16 | 90 | 0 |
| $C_1g$ | 6.6 | 5.5 | 0.52 | 0.16 | 15 | 94 | 0 |
| $C_2g$ | 6.8 | 5.6 | 0.50 | 0.16 | 14 | 94 | 0 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 21.1 | 4.0 | 0.12 | 0.07 | 2.7 | 2.7 | 25.3 | 28.0 |
| 22.7 | 4.7 | 0.13 | 0.06 | 1.7 | 1.7 | 27.6 | 29.3 |
| 20.6 | 4.8 | 0.15 | 0.05 | 1.7 | 1.7 | 25.6 | 27.3 |

## LAND SYSTEM 361, Facet 1.

Classification: Podzólico Vermelho Amarelo Alico-Paleudult.

Location: Lat. 08°22'S - Long 66°08'W.

Physiography: Elevated plain surface.

Topography: Level to gently undulating, site:upper slope 1-2%.

Drainage: Well to moderately well drained.

Vegetation: Open tropical forest.

Parent material: Plio-Pleistocene complex sediments.

Source: Proj. Radambrasil, Vol. 12, 1976, profile 74, pp 241-2.

$A_1$ : 0-10 cm. 10YR 4/3; silty clay loam; weak fine granular structure; hard, friable; clear smooth boundary.

$B_1$ : 10-25 cm. 10YR 4/4; silty clay loam; massive, porous, hard, friable; gradual smooth boundary.

$B_2$ : 25-90 cm. 10YR 5/4; silty clay; massive; porous, hard, friable; clear smooth boundary.

$B_3pl$ : 90-150 cm. 10YR 6/4; mottles 2.5YR 4/8; clay; massive, porous, hard, firm.

NOTE : Many roots in $A_1$ and $B_1$; common in $B_2$; few in $B_3pl$. Plinthic layer with some hardened concretions $B_3pl$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 3.7 | 3.5 | 1.00 | 0.10 | 2 | 3 | 95 |
| $B_1$ | 3.7 | 3.5 | 0.52 | 0.07 | <1 | 3 | 96 |
| $B_2$ | 4.1 | 3.6 | 0.44 | 0.05 | <1 | 2 | 97 |
| $B_3pl$ | 4.6 | 3.6 | 0.23 | 0.04 | <1 | 2 | 98 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.05 | 0.08 | 0.09 | 0.03 | 4.01 | 4.40 | 0.25 | 8.66 |
| 0.05 | 0.04 | 0.05 | 0.03 | 2.40 | 2.40 | 0.17 | 6.77 |
| 0.03 | 0.02 | 0.04 | 0.03 | 1.90 | 1.90 | 0.12 | 6.22 |
| 0.03 | 0.02 | 0.04 | 0.03 | 1.46 | 1.46 | 0.12 | 7.38 |

## LAND SYSTEM 362, Facet 1.

Classification: Latossolo Vermelho Amarelo Alico-Haplorthox.

Location: 199, 3Km from Rio Branco, towards Abuná. Municipality of Porto Velho, Territory of Rondonia.

Physiography: Elevated plain surface.

Topography: Gently undulating, site slope 0-1% (level).

Drainage: Well drained.

Parent material: Granite of Xingú Complex, Pre-Cambrian.

Source: Proj. Radambrasil, Vol. 12, 1976, profile 86, page 200.

$A_1$ : 0-8 cm. 7.5YR 4/4; heavy clay; weak fine granular structure; loose; clear smooth boundary.

$A_3$ : 8-30 cm. 5YR 5/4; heavy clay; massive; slightly hard, friable; gradual smooth boundary.

$B_1$ : 30-60 cm. 5YR 4/6; heavy clay; massive; slightly hard, friable; diffuse smooth boundary.

$B_{21}$ : 60-90 cm. 5YR 5/6; clay; massive, slightly hard; friable; diffuse smooth boundary.

$B_{22}$ : 90-150 cm. 5YR 5/6; clay; massive; slightly hard; friable; diffuse smooth boundary.

$B_{23}$ : 150-200 cm. 5YR 5/8; clay; massive; slightly hard; friable.

NOTE : Few ferruginous concretions at 50 cm depth. Many roots in $A_1$, common in $A_3$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.3 | 3.7 | 5.80 | 0.47 | 9 | 17 | 54 |
| $A_3$ | 4.0 | 3.5 | 1.86 | 0.20 | 2 | 6 | 86 |
| $B_1$ | 4.2 | 3.6 | 1.07 | 0.12 | 1 | 5 | 90 |
| $B_{21}$ | 4.5 | 3.7 | 0.66 | 0.07 | <1 | 3 | 95 |
| $B_{22}$ | 4.4 | 3.6 | 0.62 | 0.05 | <1 | 2 | 96 |
| $B_{23}$ | 4.5 | 3.8 | 0.35 | 0.05 | <1 | 6 | 90 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 3.00 | 1.36 | 0.31 | 0.05 | 17.83 | 5.60 | 4.72 | 28.15 |
| 0.49 | 0.27 | 0.14 | 0.04 | 8.19 | 6.00 | 0.94 | 15.13 |
| 0.07 | 0.27 | 0.12 | 0.05 | 4.31 | 4.60 | 0.51 | 9.42 |
| 0.04 | 0.09 | 0.04 | 0.05 | 3.65 | 4.60 | 0.22 | 8.47 |
| 0.08 | 0.05 | 0.04 | 0.05 | 4.44 | 4.80 | 0.22 | 9.46 |
| 0.19 | 0.05 | 0.02 | 0.05 | 2.11 | 3.00 | 0.32 | 5.43 |

## LAND SYSTEM 364, Facet 1.

Classification: Podzólico Vermelho Amarelo Alico-Tropudult.

Location: 45Km from Brasileia toward Assis, BR-317, Acre State, Brazil.

Physiography: Elevated plain surface.

Topography: Undulating 2% upper slope.

Drainage: Well drained.

Vegetation: Dense tropical forest.

Parent material: Mixed-Plio-Pleistocene sediments.

Source: Proj. Radambrasil, Vol. 12, 1976, profile 27, page 220.

$A_1$ : 0-8 cm. 5YR 3/4; sandy loam; single grain; loose; clear smooth boundary.

$A_3$ : 8-25 cm. 5YR 4/4; sandy loam; weak fine granular structure; very friable; gradual smooth boundary.

$B_1$ : 25-40 cm. 5YR 4/6; loam; weak fine blocky structure; slightly hard, firm; gradual smooth boundary.

$B_{21}$ : 40-70 cm. 2.5YR 3/6; clay loam; weak fine blocky structure; slightly hard, firm; gradual smooth boundary.

$B_{22}$ : 70-110 cm. 2.5YR 3/6; clay loam; weak fine blocky structure; slightly hard, firm; gradual smooth boundary.

$B_{23}$ : 110-140 cm. 2.5YR 3/6; clay loam; weak fine blocky structure; slightly hard, firm.

NOTE : Fine and medium roots in $A_1$, few in $A_3$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.3 | 5.0 | 2.92 | 0.27 | 15 | 84 | 2 |
| $A_3$ | 4.7 | 4.3 | 1.42 | 0.13 | 5 | 49 | 11 |
| $B_1$ | 4.5 | 4.0 | 0.29 | 0.05 | <1 | 15 | 85 |
| $B_{21}$ | 4.9 | 4.0 | 0.11 | 0.03 | <1 | 8 | 90 |
| $B_{22}$ | 4.7 | 3.8 | 0.11 | 0.03 | 1 | 8 | 89 |
| $B_{23}$ | 4.6 | 3.6 | 0.20 | 0.03 | 1 | 9 | 88 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 22.00 | 3.92 | 0.96 | 0.04 | 4.68 | 0.60 | 26.92 | 32.20 |
| 3.18 | 1.40 | 0.42 | 0.04 | 4.68 | 0.60 | 5.04 | 10.32 |
| 0.16 | 0.26 | 0.24 | 0.03 | 1.82 | 2.80 | 0.49 | 3.29 |
| 0.02 | 0.34 | 0.05 | 0.03 | 1.11 | 4.00 | 0.44 | 5.55 |
| 0.04 | 0.27 | 0.06 | 0.03 | 1.05 | 3.40 | 0.40 | 4.85 |
| 0.02 | 0.34 | 0.07 | 0.03 | 1.38 | 3.40 | 0.46 | 5.24 |

## LAND SYSTEM 365, Facet 1.

Classification: Podzólico Vermelho Amarelo Eutrófico-Tropudalf.

Location: 144Km from Rio Branco, towards Xapuri, BR-317, Acre State, Brazil.

Physiography: Elevated plain surface.

Topography: Undulating, 5-7% upper slope.

Drainage: Well drained.

Vegetation: Dense Tropical Forest with "seringueira" or rubber trees .

Parent material: Mixed Plio-Pleistocene sediments (Solimoes formation).

Source: Proj. Radambrasil, Vol. 12, 1976, profile 57, page 214.

$A_1$ : 0-5 cm. 5YR 3/2; sandy loam; single grain; loose; clear smooth boundary.

$A_3$ : 5-20 cm. 5YR 3/4; sandy loam; weak fine granular structure; very friable; clear smooth boundary.

$B_1$ : 20-60 cm. 2.5YR 3/6; clay; weak medium blocky structure; friable; gradual smooth boundary.

$B_{21}$cn : 60-120 cm. 2.5YR 3/6; clay; weak medium blocky structure; moderate common clay skins; hard, firm; diffuse smooth boundary.

$B_{22}$ : 120-160 cm. 2.5YR 4/6; clay; weak fine blocky structure; moderate common clay skins; hard, firm; diffuse smooth boundary.

$B_3$ : 160-190 cm+. 5YR 4/6; clay loam; weak fine blocky structure; hard, firm.

NOTE : Ferruginous concretions from $B_1$ horizon. Many roots in $A_1$, common in $A_3$, few coarse in $A_1$ and $A_3$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.5 | 5.2 | 0.35 | 0.47 | 16 | 93 | 0 |
| $A_3$ | 4.7 | 4.5 | 1.19 | 0.14 | 4 | 56 | 0 |
| $B_1$ | 5.4 | 4.3 | 0.17 | 0.03 | 1 | 54 | 0 |
| $B_{21}$cn | 5.1 | 4.5 | 0.18 | 0.09 | 3 | 53 | 13 |
| $B_{22}$ | 5.2 | 4.0 | 0.19 | 0.04 | 3 | 56 | 21 |
| $B_3$ | 5.3 | 4.5 | 0.11 | 0.04 | 3 | 40 | 35 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 37.30 | 3.40 | 0.04 | 0.03 | 2.80 | 0.00 | 40.77 | 43.57 |
| 3.63 | 1.20 | 0.21 | 0.04 | 3.96 | 0.00 | 5.08 | 9.04 |
| 1.27 | 0.61 | 0.04 | 0.02 | 1.65 | 0.00 | 1.94 | 3.59 |
| 1.81 | 0.88 | 0.05 | 0.03 | 2.07 | 0.40 | 2.77 | 5.29 |
| 1.72 | 1.12 | 0.05 | 0.03 | 1.51 | 0.80 | 2.92 | 5.23 |
| 1.09 | 0.68 | 0.04 | 0.03 | 1.80 | 1.00 | 1.84 | 4.64 |

## LAND SYSTEM 366, Facet 1.

Classification: Podzólico Vermelho Amarelo Epieutrófico Endoálico-Tropudult.

Location: 9°48.S, Long 68°00'W.

Topography: Gently undulating 0-2 slope.

Drainage: Well to moderately well drained.

Vegetation: "Bambuzal"

Parent material: Mixed Plio-Pleistocenic sediments. Solimoes Formation.

Source: Proj. Radambrasil, Vol. 12, 1976, profile 44, page 226.

$A_1$ : 0-5 cm. 10YR 4/4; silty loam; weak granular structure; friable; clear boundary.

$A_3$ : 5-15 cm. 10YR 5/6; silty clay loam; weak fine granular structure; slightly hard, friable;gradual boundary.

$B_1$ : 15-40 cm. 7.5YR 5/6; silty clay loam; weak fine blocky structure; hard, friable; gradual boundary.

$B_{21}$ : 40-70 cm. 7.5YR 5/8; silty clay; weak fine blocky structure; hard, firm; gradual boundary.

$B_{22}$ : 70-110 cm. 7.5YR 5/8; clay; weak fine blocky structure; hard, firm; gradual boundary.

$B_3$ : 110-140 cm. 7.5YR 5/6 and 5YR 4/6; clay; weak fine blocky structure; hard, firm; gradual boundary.

C : 140-170 cm. 7.5YR 6/6 and 5YR 5/6; clay; weak fine blocky structure; hard, firm.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.0 | 4.8 | 2.42 | 0.31 | 8 | 83 | 0 |
| $A_3$ | 5.0 | 4.0 | 0.78 | 0.15 | 3 | 60 | 15 |
| $B_1$ | 4.7 | 3.5 | 0.40 | 0.10 | 2 | 30 | 61 |
| $B_{21}$ | 4.6 | 3.7 | 0.28 | 0.08 | 2 | 25 | 65 |
| $B_{22}$ | 4.6 | 4.0 | 0.38 | 0.08 | 3 | 20 | 83 |
| $B_3$ | 4.8 | 4.0 | 0.32 | 0.09 | 4 | 17 | 80 |
| C | 4.8 | 4.5 | 0.19 | 0.07 | 6 | 14 | 85 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 10.00 | 5.10 | 0.32 | 0.12 | 3.13 | 0.00 | 15.54 | 18.67 |
| 3.00 | 3.40 | 0.13 | 0.05 | 3.25 | 1.20 | 6.58 | 11.03 |
| 1.20 | 2.30 | 0.07 | 0.06 | 2.98 | 5.60 | 3.63 | 12.21 |
| 1.10 | 2.30 | 0.06 | 0.04 | 4.32 | 6.40 | 3.50 | 14.22 |
| 1.00 | 2.30 | 0.07 | 0.05 | 2.09 | 11.60 | 3.42 | 17.11 |
| 0.72 | 2.20 | 0.06 | 0.04 | 2.35 | 12.00 | 3.02 | 17.37 |
| 0.47 | 2.40 | 0.08 | 0.05 | 1.44 | 17.20 | 3.00 | 21.64 |

## LAND SYSTEM 367, Facet 1.

Classification: Podzólico Vermelho Amarelo Alico-Plithudult.
Location: 8°57'S - 67°13'W.

Topography: Gently undulating to flat.

Drainage: Moderately well drained.

Parent material: Mixed Plio-Pleistocene sediments. Solimoes Formation.

Vegetation: Dense Tropical Forest.

Source: Proj. Radambrasil, Vol. 12, 1976, (13), profile 77, page 243.

$A_1$ : 0-4 cm. 10YR 4/4; silty clay loam; weak fine granular structure; loose, very friable; clear smooth boundary.

$A_3$ : 4-15 cm. 10YR 5/4; silty clay loam; weak fine granular structure; friable; gradual smooth boundary.

$B_1$ : 15-45 cm. 7.5YR 5/6; silty clay; weak fine blocky structure; slightly hard, friable; gradual smooth boundary.

$B_2$ : 45-80 cm. 10YR 6/2 and 2.5YR 4/6; silty clay; weak fine blocky structure; slightly hard, friable; gradual smooth boundary.

$B_3$ : 80-120 cm. 10YR 7/1 and 10R 4/8; clay; weak fine blocky structure; slightly hard, firm; gradual smooth boundary.

C : 120-150 cm. 5Y 7/1; mottles 10R 4/6 and 7.5YR 6/8; clay; weak fine blocky structure; hard, very firm.

NOTE : Many roots in $A_1$ and few in $A_3$; few medium in $A_1$ and many in $A_3$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 3.7 | 3.4 | 3.64 | 0.43 | 21 | 15 | 61 |
| $A_3$ | 3.5 | 3.1 | 1.91 | 0.23 | 6 | 5 | 90 |
| $B_1$ | 3.9 | 3.4 | 0.86 | 0.09 | 1 | 2 | 97 |
| $B_2$ | 4.0 | 3.5 | 0.64 | 0.08 | <1 | 2 | 98 |
| $B_3$ | 4.2 | 3.8 | 0.53 | 0.07 | <1 | 1 | 98 |
| C | 4.5 | 3.4 | 0.35 | 0.04 | <1 | 2 | 98 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 1.80 | 1.13 | 0.33 | 0.04 | 12.95 | 5.20 | 3.30 | 21.45 |
| 0.16 | 0.37 | 0.16 | 0.03 | 6.43 | 6.60 | 0.72 | 13.75 |
| 0.04 | 0.10 | 0.05 | 0.03 | 3.59 | 6.80 | 0.22 | 10.61 |
| 0.03 | 0.07 | 0.05 | 0.03 | 2.69 | 8.20 | 0.18 | 11.07 |
| 0.02 | 0.04 | 0.05 | 0.03 | 2.32 | 8.40 | 0.14 | 10.86 |
| 0.02 | 0.07 | 0.07 | 0.04 | 1.35 | 10.20 | 0.20 | 11.75 |

## LAND SYSTEM 368, Facet 1.

Classification: Cambissolo Alico-Dystropept.

Location: Lat. 08°34'S - Long. 68°11'W.

Topography: Gently undulating, 0-2% slope.

Drainage: Moderately drained.

Parent material: Mixed Plio-Pleistocene sediments of Solimoes Formation.

Source: Proj. Radambrail, Vol. 12, 1976, profile 38, pp 256-7.

$A_1$ : 0-10 cm. 7.5YR 5/4; silty clay loam; weak fine blocky structure; slightly hard, friable; clear boundary.

$A_3$ : 10-30 cm. 5YR 5/6; silty clay loam; weak fine blocky structure; slightly hard, friable; gradual boundary.

$(B)_1$ : 30-50 cm. 5YR 5/4; silty clay; moderate medium blocky structure, hard, firm; gradual boundary.

$(B)_{21}$ : 50-80 cm. 5YR 4/4; silty clay; moderate medium blocky structure; hard, firm; gradual boundary.

$(B)_{22}$ : 80-100 cm. 2.5YR 4/6 and 7.5YR 7/6; clay; moderate medium blocky structure; hard, firm; gradual boundary

$(B)_3$ : 100-150 cm. 2.5YR 4/6, 7.5YR 7/6 and 7.5YR 7/2; clay loam; moderate medium blocky structure; hard, firm.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.5 | 3.9 | 0.50 | 0.09 | 3 | 10 | 87 |
| $A_3$ | 4.6 | 3.8 | 0.38 | 0.07 | 1.5 | 7 | 91 |
| $(B)_1$ | 4.6 | 4.0 | 0.35 | 0.07 | 1 | 4 | 95 |
| $(B)_{21}$ | 4.6 | 4.1 | 0.25 | 0.06 | 1.5 | 4 | 96 |
| $(B)_{22}$ | 4.5 | 3.5 | 0.37 | 0.06 | 1 | 3 | 96 |
| $(B)_3$ | 4.4 | 3.6 | 0.08 | 0.03 | 1 | 4 | 95 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.80 | 0.24 | 0.18 | 0.05 | 2.78 | 8.60 | 1.27 | 12.65 |
| 0.04 | 0.76 | 0.09 | 0.04 | 2.61 | 9.60 | 0.93 | 13.14 |
| 0.04 | 0.44 | 0.06 | 0.04 | 2.10 | 10.60 | 0.58 | 13.28 |
| 0.04 | 0.36 | 0.06 | 0.04 | 2.07 | 10.80 | 0.50 | 13.37 |
| 0.08 | 0.32 | 0.05 | 0.05 | 1.86 | 12.00 | 0.50 | 14.36 |
| 0.08 | 0.32 | 0.06 | 0.03 | 0.85 | 10.20 | 0.49 | 11.54 |

## LAND SYSTEM 369, Facet 1.

Classification: Latossolo Vermelho Amarelo Alico-Haplorthox.

Location: Lat. 08°20'S. - Long. 68°10'W.

Topography: Gently undulating, 1-4% site slope.

Drainage: Well to moderately well drained.

Vegetation: Dense Tropical Forest.

Parent material: Mixed Plio-Pleistocene sediments of Solimoes Formation.

Source: Proj. Radambrasil, Vol. 12, 1976, profile 29, pp 196-7.

$A_1$ : 0-5 cm. 10YR 4/3; sandy clay loam; weak fine granular structure; friable; clear smooth boundary.

$A_3$ : 5-30 cm. 10YR 5/6; clay; massive, friable; gradual smooth boundary.

$B_1$ : 30-50 cm. 10YR 6/8; clay massive, slightly hard, firm; diffuse smooth boundary.

$B_{21}$ : 50-90 cm. 7.5YR 5/8; clay, massive, hard, firm;diffuse smooth boundary.

$B_{22}$ : 90-140 cm. 7.5YR 5/8; clay, massive, hard, firm; diffuse smooth boundary.

$B_3$ : 140-170 cm+. 7.5YR 6/8, mottles 10YR 7/6; clay, massive, slightly hard, friable.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 3.5 | 3.0 | 1.88 | 0.15 | 6 | 9 | 78 |
| $A_3$ | 3.5 | 3.2 | 1.16 | 0.09 | 3 | 4 | 92 |
| $B_1$ | 3.8 | 3.5 | 0.59 | 0.06 | <1 | 2 | 96 |
| $B_{21}$ | 4.1 | 3.5 | 0.29 | 0.05 | <1 | 3 | 94 |
| $B_{22}$ | 4.3 | 3.6 | 0.20 | 0.03 | <1 | 3 | 95 |
| $B_3$ | 4.5 | 3.6 | 0.15 | 0.03 | <1 | 3 | 95 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.37 | 0.51 | 0.23 | 0.03 | 7.71 | 4.00 | 1.14 | 12.85 |
| 0.05 | 0.13 | 0.09 | 0.03 | 4.52 | 3.40 | 0.30 | 8.22 |
| 0.03 | 0.04 | 0.04 | 0.02 | 2.74 | 3.20 | 0.13 | 6.07 |
| 0.04 | 0.06 | 0.04 | 0.03 | 2.15 | 2.80 | 0.17 | 5.12 |
| 0.02 | 0.04 | 0.04 | 0.03 | 1.62 | 3.00 | 0.13 | 4.75 |
| 0.04 | 0.02 | 0.04 | 0.03 | 1.29 | 3.00 | 0.13 | 4.42 |

## LAND SYSTEM 370, Facet 1.

Classifiaction: Podzólico Vermelho Amarelo Eutrófico-Tropudalf.

Location: 48.8Km from Sena Madureira, towards Manuel Urbano, 36.7Km before Purus River, Acre State, Brazil.

Physiography: Elevated plain surface.

Topography: Undulating, 3-5% upper slope.

Drainage: Moderately drained.

Vegetation: Dense Tropical Forest.

Parent material: Mixed Plio-Pleistocene sediments of Solimoes Formation.

Source: Proj. Radambrasil, Vol. 12, 1976, profile 33, pp 210-1.

$A_1$ : 0-5 cm. 10YR 4/2; silty clay loam; weak fine granular structure; friable; clear smooth boundary.

$A_3$ : 5-15 cm. 10YR 5/2; silty clay; weak fine bloacky structure; hard, firm; clear smooth boundary.

$B_1$ : 15-30 cm. 10YR 5/4; clay; weak fine blocky structure; hard, firm, gradual smooth boundary.

$B_2$ : 30-50 cm. 10YR 6/3, mottles 2.5YR 4/6; clay; weak fine blocky structure; very hard, firm; gradual smooth boundary.

$B_3$ : 50-80 cm. 10YR 7/2; many mottles 7.5YR 5/6, and few 10YR 4/6; heavy clay; weak fine bloacky structure; very hard, very firm; gradual smooth boundary.

C : 80-130 cm+. 10YR 7/1, mottles 7.5YR 6/6; silty clay, massive; very hard, firm,

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.4 | 4.2 | 5.62 | 0.58 | 13 | 84 | 1 |
| $A_3$ | 4.5 | 4.0 | 1.57 | 0.25 | 3 | 88 | 2 |
| $B_1$ | 4.6 | 4.0 | 0.87 | 0.16 | 1 | 86 | 8 |
| $B_2$ | 4.5 | 4.1 | 0.73 | 0.12 | 1 | 82 | 14 |
| $B_3$ | 4.5 | 3.4 | 0.45 | 0.07 | <1 | 76 | 21 |
| C | 4.6 | 4.0 | 0.13 | 0.04 | <1 | 89 | 8 |

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EXCHANGE COMPLEX (meq/100 )

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 44.60 | 5.38 | 0.44 | 0.04 | 8.97 | 0.60 | 50.46 | 60.03 |
| 37.80 | 5.52 | 0.23 | 0.04 | 4.97 | 0.80 | 43.59 | 49.36 |
| 42.30 | 7.65 | 0.13 | 0.04 | 3.32 | 4.60 | 50.12 | 58.04 |
| 42.30 | 8.50 | 0.14 | 0.05 | 2.98 | 8.40 | 0.99 | 62.37 |
| 38.50 | 8.92 | 0.14 | 0.10 | 2.54 | 12.80 | 47.66 | 63.00 |
| 52.00 | 10.05 | 0.13 | 0.19 | 1.46 | 5.80 | 62.37 | 69.63 |

## LAND SYSTEM 371, Facet 1.

Classification: Podzólico Vermelho Amarelo Alico-Paleudult.

Location: Lat. 08°37'S - Long. 68°14'W.

Topography: Gently undulating, 7-8% site slope.

Drainage: Well drained.

Vegetation: Dense Tropical Forest.

Parent material: Mixed Plio-Pleistocene sediments of Solimoes Formation.

Source: Proj. Radambrasil, Vol. 12, 1976, profile 32, pp 222-3.

$A_1$ : 10YR 4/4; sandy loam; weak fine granular structure; very friable gradual smooth boundary.

$A_3$ : 15-40 cm. 7.5YR 4/4; loam; weak fine blocky structure; slightly hard, friable; gradual smooth boundary.

$B_1$ : 40-50 cm.5YR 5/6; clay loam; weak fine blocky structure; hard, firm; gradual boundary.

$B_{21}$ : 50-80 cm. 5YR 4/6; clay loam; weak fine blocky structure; hard, firm; gradual boundary.

$B_{22}$ : 80-110 cm. 5YR 4/4; clay loam; moderate fine blocky structure; hard, firm; gradual boundary.

$B_3$ : 110-160 cm. 5YR 5/6; sandy clay loam; weak fine blocky structure; hard, firm.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.0 | 3.5 | 1.01 | 0.10 | 4 | 7 | 81 |
| $A_3$ | 4.4 | 3.6 | 0.24 | 0.04 | <1 | 3 | 94 |
| $B_1$ | 4.2 | 4.0 | 0.14 | 0.03 | <1 | 4 | 94 |
| $B_{21}$ | 4.1 | 3.7 | 0.20 | 0.03 | <1 | 3 | 96 |
| $B_{22}$ | 4.3 | 3.6 | 0.17 | 0.02 | <1 | 3 | 96 |
| $B_3$ | 4.4 | 3.6 | .09 | 0.02 | <1 | 3 | 87 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.18 | 0.11 | 0.14 | 0.04 | 4.43 | 2.00 | 0.47 | 6.90 |
| 0.09 | 0.02 | 0.04 | 0.03 | 2.11 | 3.00 | 0.18 | 5.29 |
| 0.10 | 0.02 | 0.04 | 0.03 | 1.42 | 3.20 | 0.19 | 4.81 |
| 0.10 | 0.02 | 0.03 | 0.03 | 1.77 | 4.00 | 0.18 | 5.95 |
| 0.06 | 0.04 | 0.04 | 0.03 | 1.57 | 4.20 | 0.17 | 5.94 |
| 0.08 | 0.04 | 0.04 | 0.03 | 4.80 | 1.30 | 0.19 | 6.29 |

## LAND SYSTEM 372, Facet 1.

Classification: Podzólico Vermelho Amarelo Eutrófico-Tropudalf.

Location: Lat. 09°10'S - Long. 71°10'W.

Topography: Undulating, 2-6% mid-slope site.

Drainage: Moderately well drained.

Vegetation: Open Tropical Forest.

Parent material: Clay and silty, Plio-Pleistocene, Solimoes Formation.

Source: Proj. Radambrasil, Vol. 12, 1976, profile 11, pp 207-8.

$O_1$ : 3-0 cm. Organic residues.

$A_1$ : 0-10 cm. 10YR 4/3, mottles 10YR 5/8; loam; weak fine blocky structure; firm; gradual boundary.

$A_3$ : 10-20 cm. 10YR 4/3, mottles 10YR 5/3; clay loam; weak fine blocky structure; firm; gradual boundary.

$B_1$ : 20-30 cm. 10YR 5/4, mottles 7.5YR 6/8; silty clay loam; weak fine blocky structure; firm; gradual boundary.

$B_2$ : 30-40 cm. 10YR 5/8, 10YR 7/2 and 7.5YR 7/4; silty clay; weak fine blocky structure; firm; gradual boundary.

$B_3$ : 40-70 cm. 7.5YR 6/4, 7.5YR 5/4 and 7.5YR 5/8; silty clay loam; massive, firm; gradual boundary.

$C_1$ : 70-100 cm. 5Y 7/1, 7.5YR 5/4 and 7.5YR 7/8; silty clay loam; massive, firm; gradual boundary.

$C_2$ : 100-140 cm. 5Y 7/1, 7.5YR 5/4, and 7.5YR 7/8; silty clay loam; massive, firm.

NOTE : Fe-Mn concretions in $B_3$ and $C_1$, few and fine, hard.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.9 | 5.0 | 1.72 | 0.17 | 7 | 87 | 0 |
| $A_3$ | 6.2 | 4.9 | 0.67 | 0.08 | 3 | 90 | 0 |
| $B_1$ | 6.1 | 4.9 | 0.43 | 0.05 | 1 | 96 | 0 |
| $B_2$ | 6.3 | 5.0 | 0.37 | 0.04 | <1 | 95 | 0 |
| $B_3$ | 6.4 | 5.0 | 0.34 | 0.02 | <1 | 97 | 0 |
| $C_1$ | 6.4 | 5.7 | 0.28 | 0.02 | 16 | 99 | 0 |
| $C_2$ | 6.8 | 5.5 | 0.28 | 0.03 | 26 | 100 | 0 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 17.00 | 1.80 | 0.14 | 0.10 | 2.80 | 0.00 | 19.04 | 21.84 |
| 15.00 | 2.00 | 0.10 | 0.10 | 1.81 | 0.00 | 17.2 | 19.01 |
| 25.00 | 3.00 | 0.09 | 0.19 | 1.32 | 0.00 | 28.28 | 29.60 |
| 28.00 | 3.90 | 0.09 | 0.23 | 1.65 | 0.00 | 32.22 | 33.87 |
| 26.00 | 3.90 | 0.08 | 0.23 | 0.99 | 0.00 | 30.21 | 31.20 |
| 30.00 | 3.80 | 0.06 | 0.19 | 0.49 | 0.00 | 34.05 | 34.54 |
| 34.00 | 3.40 | 0.05 | 0.17 | 0.16 | 0.00 | 37.62 | 37.78 |

## LAND SYSTEM 373, Facet 1.

Classification: Cambissolo Eutrófico-Eutropept.

Location: Lat. 09°38'S - Long. 71°08'W.

Physiography: Elevated plain surface.

Topography: Strongly undulating, 45% upper slope.

Drainage: Well drained.

Vegetation: Dense Tropical Forest.

Parent material: Sandstone from Solimoes Formation, Plio-Pleistocene.

Source: Proj. Radambrasil, Vol. 12, 1976, profile 14, pp 252-3.

$O_1$ : 3-0 cm. Organic residues.

$A_1$ : 0-10 cm. 10YR 4/3; sandy loam; weak fine blocky structure; very friable; gradual boundary.

$A_3$ : 10-25 cm. 10YR 4/3; sandy loam; weak fine blocky structure; very friable; gradual boundary.

$(B)_1$ : 25-35 cm. 10YR 4/3; sandy clay loam;weak fine blocky structure; friable; gradual boundary.

$(B)_2$ : 35-50 cm. 10YR 4/3; sandy clay loam; weak fine blocky structure; friable; gradual boundary.

$(B)_3$ : 50-70 cm. 10YR 5/6; sandy clay loam; massive, very friable; gradual boundary.

C : 70-100 cm+. 10YR 6/4; sandy clay loam; massive, very friable.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.2 | 4.7 | 1.21 | 0.13 | 7 | 95 | 0 |
| $A_3$ | 5.9 | 5.1 | 0.69 | 0.07 | 3 | 98 | 0 |
| $(B)_1$ | 5.6 | 4.5 | 0.52 | 0.06 | 3 | 91 | 0 |
| $(B)_2$ | 5.2 | 4.0 | 0.37 | 0.04 | 15 | 86 | 8 |
| $(B)_3$ | 5.0 | 4.5 | 0.25 | 0.02 | 42 | 83 | 10 |
| C | 5.2 | 4.3 | 0.27 | 0.02 | 100 | 87 | 0 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 10.00 | 1.70 | 0.21 | 0.04 | 0.66 | 0.00 | 11.95 | 12.61 |
| 7.20 | 1.50 | 0.10 | 0.05 | 0.16 | 0.00 | 8.85 | 9.01 |
| 9.00 | 1.50 | 0.10 | 0.05 | 0.99 | 0.00 | 10.65 | 11.64 |
| 11.00 | 1.70 | 0.08 | 0.08 | 1.14 | 1.00 | 12.86 | 15.00 |
| 11.00 | 1.24 | 0.06 | 0.09 | 1.07 | 1.40 | 12.39 | 14.86 |
| 13.00 | 1.20 | 0.07 | 0.13 | 0.94 | 1.20 | 14.40 | 16.54 |

## LAND SYSTEM 374, Facet 1.

Classification: Podzólico Vermelho Amarelo Alico-Tropudult.

Location: Lat. 08°37'S - Long. 71°12'W.

Physiography: Elevated plain surface.

Topography: Atrongly undulating, midslope site.

Vegetation: Dense tropical forest.

Parent material: Mixed sediments of Solimoes Formation.

Source: Proj. Radambrasil, Vol. 12, 1976, profile 12, pp 215-6.

$O_1$ : 3-0 cm. Organic residues.

$A_1$ : 0-20 cm. 10YR 5/3; loam; massive, very friable; gradual boundary.

$A_3$ : 20-40 cm. 10YR 5/4; loam; massive, very friable; clear boundary.

$B_1$ : 40-55 cm. 7.5YR 5/4; loam, massive, friable; many fine pores, clear boundary.

$B_2$ : 55-65 cm. 5YR 5 , mottles 2.5YR 4/6; clay loam; massive, friable; clear boundary.

$B_3$ : 65-80 cm. 2.5YR 4/8; 5YR 4/4, and 5Y 6/2; clay loam; massive, firm; clear boundary.

C : 80-120 cm+. 2.5YR 5/8, mottles 5Y 6/2, 7.5YR 5/6; clay loam; clear boundary.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.4 | 4.1 | 0.56 | 0.08 | 5 | 36 | 32 |
| $A_3$ | 5.0 | 4.0 | 0.28 | 0.03 | 1 | 32 | 45 |
| $B_1$ | 5.0 | 4.1 | 0.33 | 0.04 | <1 | 63 | 62 |
| $B_2$ | 4.8 | 4.0 | 0.39 | 0.05 | <1 | 36 | 74 |
| $B_3$ | 4.5 | 3.8 | 0.41 | 0.06 | <1 | 19 | 76 |
| C | 4.7 | 4.0 | 0.34 | 0.04 | <1 | 19 | 79 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 1.10 | 0.52 | 0.12 | 0.03 | 2.33 | 0.80 | 1.77 | 4.90 |
| 0.52 | 0.35 | 0.09 | 0.03 | 1.34 | 0.80 | 0.99 | 3.13 |
| 0.39 | 0 49 | 0.10 | 0.02 | 0.54 | 1.60 | 1.00 | 3.14 |
| 0.42 | 0.74 | 0.10 | 0.03 | 0.85 | 3.60 | 1.29 | 5.74 |
| 0.58 | 1.03 | 0.09 | 0.03 | 1.66 | 5.60 | 1.73 | 8.99 |
| 0.65 | 1.14 | 0.07 | 0.03 | 1.08 | 7.00 | 1.90 | 9.98 |

## LAND SYSTEM 378, Facet 1.

Classification: Podzólico Vermelho Amarelo Alico-Tropudult.

Location: Lat. 6°16'S - Long. 70°50'W.

Topography: Strongly undulating, 15% slope.

Vegetation: Dense Tropical Forest.

Parent material: Mixed Plio-Pleistocene sediments of Solimoes Formation.

Source: Proj. Radambrasil, Vol. 15, 1977, profile 67, pp 184-5.

$O_1$ : 3-0 cm. Organic residues.

$A_1$ : 0-10 cm. 10YR 5/3; loam; weak fine blocky structure;friable; clear boundary.

$A_3$ : 10-30 cm. 7.5YR 5/6; clay loam; weak fine blocky structure; firm, gradual boundary.

$B_1$ : 30-50 cm. 7.5YR 5/6; clay loam; weak fine blocky structure; firm; gradual boundary.

$B_{21}$ : 50-70 cm. 5YR 5/8; clay loam, massive, firm; diffuse boundary.

$B_{22}$ : 70-100 cm. 2.5YR 5/8; clay, massive, firm; diffuse boundary.

$B_{23}$ : 100- 140 cm. 2.5YR 4/8; clay, massive, firm; diffuse boundary.

$B_3$ : 140-170 cm+. 2.5YR 4/8; clay loam, massive, firm; very plastic and sticky.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.0 | 3.6 | 1.26 | 0.11 | 3 | 4 | 93 |
| $A_3$ | 4.0 | 3.6 | 0.81 | 0.07 | 1 | 3 | 96 |
| $B_1$ | 4.5 | 4.0 | 0.53 | 0.05 | <1 | 2 | 97 |
| $B_{21}$ | 4.4 | 4.0 | 0.35 | 0.05 | <1 | 2 | 97 |
| $B_{22}$ | 4.6 | 4.1 | 0.34 | 0.05 | <1 | 2 | 97 |
| $B_{23}$ | 4.8 | 4.5 | 0.24 | 0.04 | <1 | 1 | 98 |
| $B_3$ | 4.9 | 4.1 | 0.18 | 0.04 | <1 | 2 | 98 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.06 | 0.14 | 0.14 | 0.03 | 4.73 | 5.00 | 0,37 | 10,10 |
| 0.05 | 0.08 | 0.06 | 0.03 | 1.92 | 6.00 | 0,22 | 8.14 |
| 0.04 | 0.07 | 0.04 | 0.03 | 1.46 | 5.80 | 0.18 | 7.44 |
| 0.04 | 0.07 | 0.03 | 0.03 | 1.55 | 6,20 | 0.17 | 7.92 |
| 0.03 | 0.09 | 0.04 | 0.03 | 0.87 | 6.20 | 0,19 | 9.26 |
| 0.03 | 0.05 | 0.04 | 0.03 | 0.61 | 7.80 | 0.15 | 8,56 |
| 0.02 | 0.03 | 0.03 | 0.03 | 0.23 | 6.20 | 0.11 | 6.54 |

## LAND SYSTEM 380, Facet 1.

Classification: Podzólico Vermelho Amarelo Alico-Plintico-Plinthudultu.

Location: Lat. 3°24'S - Long. 66°31'W.

Topography: Flat to gently undulating, local site slope:1%.

Drainage: Moderately drained.

Vegetation: Dense tropical forest.

Parent material: Mixed Tertiary-Quaternary sediments of Solimoes Formation.

Source: Proj. Radambrasil, Vol. 14, 1977, profile 78, pp 227-8.

$A_1$ : 0-5 cm. 10YR 5/3; loam; weak fine blocky structure, very friable; clear boundary.

$A_3$ : 5-35 cm. 10YR 5/6; clay loam; weak fine blocky structure; friable; gradual boundary.

$B_{21}$ : 35-120 cm. 5YR 5/8; clay; moderate fine blocky structure; friable; diffuse boundary.

$B_{22}pl$ : 120-170 cm. 5YR 5/8; mottles 10YR 7/4; clay;moderate fine blocky structure; friable.

NOTE : Many roots in $A_1$, common in $A_3$, few in $B_{21}$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.9 | 3.8 | 2.69 | 0.32 | 3 | 7 | 79 |
| $A_3$ | 4.8 | 3.8 | 1.09 | 0.12 | 1 | 6 | 88 |
| $B_{21}$ | 4.9 | 3.8 | 0.34 | 0.09 | 1 | 11 | 86 |
| $B_{22}pl$ | 5.0 | 3.8 | 0.22 | 0.08 | <1 | 9 | 89 |

| Ca + Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 0.7 | 0.10 | 0.01 | 7.1 | 3.0 | 0.8 | 10.9 |
| 0.5 | 0.03 | 0.01 | 4.3 | 3.7 | 0.5 | 8.5 |
| 0.8 | 0.01 | 0.01 | 1.8 | 4.8 | 0.8 | 7.4 |
| 0.6 | 0.01 | 0.01 | 1.5 | 4.9 | 0.6 | 7.0 |

## LAND SYSTEM 381, Facet 1.

Classification: Latossolo Amarelho Alico-Haplorthox.

Location: 22Km from Urubu River, on BR-174 towards to Caracarai, Amazonas State, Brazil.

Physiography: Upper tableland surface.

Topography: Gently undulating, 6% slope.

Drainage: Well drained.

Vegetation: Dense forest.

Parent material: Sandstone and silts of Urupadi Group; Silurian, Paleozoic.

Source: Proj. Radambrasil, Vol. 18, 1978, profile 83, page 276.

$A_1$ : 0-5 cm. 10YR 5/3; heavy clay;weak fine granular structure; friable; clear boundary.

$A_3$ : 5-25 cm. 10YR 7/6; heavy clay; weak fine granular structure; friable; diffuse boundary.

$B_1$ : 25-50 cm. 10YR 7/8; heavy clay; weak fine granular structure; friable; gradual boundary.

$B_{21}$ : 50-80 cm. 7.5YR 7/6; heavy clay, massive, friable; diffuse boundary.

$B_{22}$ : 80-120 cm. 7.5YR 7/6; heavy clay; massive, friable diffuse boundary.

$B_{23}$ : 120-150 cm. 7.5YR 7/8; heavy clay; massive, friable.

NOTE : Few fine and medium roots in $A_1$ and $A_3$; rare in the other horizons.

| HOR | pH $H_2O$ | pH KCl | C % | M.O. % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 3.5 | 3.5 | 7.2 | 12.4 | 9 | 8 | 70 |
| $A_3$ | 3.9 | 3.9 | 1.8 | 3.1 | 3 | 12 | 60 |
| $B_1$ | 4.3 | 4.0 | 0.8 | 1.4 | 3 | 12 | 63 |
| $B_{21}$ | 4.3 | 4.0 | 0.7 | 1.2 | 3 | 5 | 74 |
| $B_{22}$ | 4.4 | 4.0 | 0.5 | 0.9 | 3 | 9 | 71 |
| $B_{23}$ | 4.4 | 4.0 | 0.1 | 0.1 | 3 | 9 | 74 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.42 | 0.55 | 0.44 | 0.21 | 4.19 | 3.81 | 1.62 | 21.08 |
| 0.20 | 0.17 | 0.34 | 0.40 | 2.10 | 1.64 | 1.11 | 9.03 |
| 0.22 | 0.10 | 0.04 | 0.39 | 1.72 | 1.25 | 0.75 | 6.41 |
| 0.12 | 0.02 | 0.09 | 0.20 | 1.55 | 1.22 | 0.43 | 5.59 |
| 0.25 | 0.02 | 0.02 | 0.21 | 1.54 | 1.25 | 0.50 | 5.36 |
| 0.20 | 0.05 | 0.04 | 0.16 | 1.47 | 1.25 | 0.45 | 5.01 |

## LAND SYSTEM 382, Facet 1.

Classification: Podzólico Vermelho Amarelo-Haplorthox.

Location: Lat. 00°15'N - Long. 59°43'W.

Physiography: Elevated plain surface.

Topography: Gently undulating, 4-6% slope.

Drainage: Well drained.

Vegetation: Dense tropical forest.

Parent material: Granite and gneiss of Pre-Cambrian age.

Source: Proj. Radambrasil, Vol. 9, 1975, profile 6, page 195.

$A_1$ : 0-20 cm.10YR 6/8; loamy sand; weak fine granular structure; slightly hard, friable; gradual smooth boundary.

$A_3$ : 20-40 cm. 10YR 6/6; sandy loam; weak fine granular structure; slightly hard, friable; clear smooth boundary.

$B_1$ : 40-70 cm. 7.5YR 5/8; sandy clay loam; weak fine granular structure; slightly hard, firm; gradual smooth boundary.

$B_{22}$ : 90-150 cm. 5YR 5/8; mottles 2.5YR 4/8; sandy clay loam; weak fine granular structure; slightly hard, slightly firm.

NOTE : Roots common in $A_1$ and $A_3$, few in $B_1$ and $B_{22}$, and rare in $B_{22}$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.0 | 3.7 | 0.59 | 0.05 | 2 | 8 | 78 |
| $A_3$ | 4.3 | 4.0 | 0.41 | 0.04 | <1 | 5 | 89 |
| $B_1$ | 4.6 | 4.2 | 0.38 | 0.03 | <1 | 7 | 86 |
| $B_{21}$ | 5.0 | 4.4 | 0.31 | 0.03 | <1 | 5 | 86 |
| $B_{22}$ | 5.5 | 4.3 | 0.21 | 0.02 | <1 | 6 | 84 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.08 | 0.06 | 0.05 | 0.03 | 1.67 | 0.80 | 0.22 | 2.69 |
| 0.02 | 0.03 | 0.04 | 0.01 | 1.18 | 0.80 | 0.10 | 2.08 |
| 0.04 | 0.03 | 0.04 | 0.02 | 0.85 | 0.80 | 0.13 | 1.78 |
| 0.01 | 0.04 | 0.04 | 0.01 | 1.21 | 0.60 | 0.10 | 1.91 |
| 0.01 | 0.04 | 0.04 | 0.02 | 1.21 | 0.60 | 0.11 | 1.92 |

## LAND SYSTEM 383, Facet 1.

Classification: Podzólico Vermelho Amarelo Epialico-Paleudult.

Location: Lat. 1°51'S - Long. 60°53'W.

Physiography: Elevated plain surface.

Topography: Undulating;site slope 10-13%.

Drainage: Well drained.

Vegetation: Dense tropical forest.

Parent material:Shales,silstones and sandstones. Pre-Cambrian.

Source: Proj. Radambrasil, Vol. 18, 1978, profile 71, pp 291-2.

$A_1$ : 0-10 cm. 10YR 5/4; loamy sand; single grain; loose clear boundary.

$A_3$ : 10-30 cm. 10YR 6/8; sandy loam; single grain; loose; gradual boundary.

$B_1$ : 30-65 cm. 10YR 7/8; sandy loam; weak fine granular structure; very friable; gradual boundary.

$B_{21}$ : 65-90 cm. 7.5YR 6/6; sandy clay loam; weak fine blocky structure; very friable; diffuse boundary.

$B_{22}$ : 90-160 cm. 7.5YR 6/8; sandy clay loam; weak fine blocky structure; very friable.

NOTE : Few fine roots in $A_1$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.0 | 3.8 | 0.8 | 0.05 | - | 17.7 | 63 |
| $A_3$ | 4.1 | 4.1 | 0.6 | 0.04 | - | 30.0 | 48 |
| $B_1$ | 5.6 | 4.3 | 0.3 | 0.04 | - | 17.0 | 53 |
| $B_{21}$ | 5.1 | 4.5 | 0.1 | 0.02 | - | 52.5 | 32 |
| $B_{22}$ | 5.0 | 4.7 | 0.1 | 0.01 | - | 99.7 | 0 |

EXCHANGE COMPLEX ( meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.20 | 0.10 | 0.02 | 0.01 | 1.07 | 0.4 | 0.33 | 1.80 |
| 0.20 | 0.05 | 0.01 | 0.01 | 0.77 | 0.3 | 0.27 | 1.34 |
| 0.12 | 0.03 | 0.01 | 0.01 | 0.88 | 0.2 | 0.17 | 1.25 |
| 0.14 | 0.05 | 0.01 | 0.08 | 0.19 | 0.1 | 0.28 | 0.57 |
| 0.20 | 0.07 | 0.02 | 0.01 | 0.01 | - | 0.30 | 0.31 |

## LAND SYSTEM 384, Facet 1.

Classification: Latossolo Amarelo Epialico-Acrustox.

Location: 2.5Km from Abonari, on BR-174, towards Caracaraí, Municipio of Airao, Amazonas State, Brazil.

Physiography: Elevated plain surface.

Topography: Undulating.

Drainage: Well drained.

Vegetation: Dense forest.

Parent material: Pre-Cambrian granites.

Source: Proj. Radambrasil, Vol. 18, 1978, profile 74, pp 281-2.

$O_2$ : 5-0 cm.

$A_1$ : 0-5 cm. 10YR 5/8; caly loam; moderate fine granular structure; friable; diffuse boundary.

$A_3$ : 5-25 cm, 7.5YR 5/8; clay; weak fine blocky structure; friable; diffuse boundary.

$B_1$ : 25-50 cm. 7.5YR 5/8; clay; weak fine blocky structure; friable; diffuse boundary.

$B_{21}$ : 50-80 cm. 7.5YR 6/8; clay ; weak fine blocky structure; friable; diffuse boundary.

$B_{22}$ : 80-120 cm. 5YR 5/8; clay; weak fine blocky structure; firm; diffuse boundary.

$B_{23}$ : 120-150 cm+. 5YR 6/8; clay; weak fine blocky structure, firm.

NOTE : There are concretions from 145 cm. depth.

| HOR | pH $H_2O$ | pH KCl | C % | M.O. % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 3.6 | 3.6 | 2.6 | 4.5 | 6 | 7 | 72 |
| $A_3$ | 4.1 | 4.0 | 1.2 | 2.1 | 3 | 8 | 70 |
| $B_1$ | 4.5 | 4.2 | 0.8 | 1.4 | 3 | 9 | 60 |
| $B_{21}$ | 4.8 | 4.1 | 0.6 | 1.0 | - | 9 | 43 |
| $B_{22}$ | 5.2 | 5.1 | 0.4 | 0.7 | - | 9 | 32 |
| $B_{23}$ | 5.3 | 5.3 | 0.3 | 0.5 | - | 8 | 30 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.15 | 0.24 | 0.14 | 0.12 | 2.19 | 1.67 | 0.65 | 8.71 |
| 0.10 | 0.05 | 0.04 | 0.24 | 1.40 | 1.02 | 0.43 | 5.63 |
| 0.15 | 0.05 | 0.07 | 0.16 | 0.87 | 0.65 | 0.43 | 4.79 |
| 0.15 | 0.02 | 0.02 | 0.16 | 0.49 | 0.26 | 0.35 | 3.81 |
| 0.10 | 0.02 | 0.03 | 0.17 | 0.37 | 0.16 | 0.32 | 3.42 |
| 0.07 | 0.02 | 0.03 | 0.14 | 0.29 | 0.11 | 0.26 | 3.38 |

## LAND SYSTEM 385, Facet 1.

Classification: Latossolo Vermelho Amarelo Epiálico-Acrorthox.

Location: Lat. 0 19'S - Long. 69 51'W.

Physiography: Elevated plain surface.

Topography: Gently undulating.

Drainage: Well drained.

Vegetation: Campinarama - Forest interface.

Parent material: Pre-Cambrian rocks of Gayana Complex.

Source: Proj. Radambrasil, Vol. 18, 1978, profile 35, page 281.

$A_1$ : 0-5 cm 5YR 5/8; clay; weak fine granular structure; friable; gradual boundary.

$A_3$ : 5-25 cm. 5YR 5/8; clay; weak fine granular structure; friable; gradual boundary.

$B_1$ : 25-50 cm. 7.5YR 5/8; clay; massive, friable; gradual boundary.

$B_{21}$ : 50-90 cm. 7.5YR 6/8; clay, massive, friable;gradual boundary.

$B_{22}$ : 90-130 cm. 7.5YR 6/8; clay; massive, friable; gradual boundary.

$B_{23}$ : 130-160 cm. 7.5YR 6/8; clay;massive, friable.

NOTE : Common fine and medium roots in $A_1$; few in $A_3$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 3.3 | 3.5 | 1.9 | 0.15 | - | 20 | 53 |
| $A_3$ | 3.7 | 3.8 | 1.4 | 0.10 | - | 11 | 53 |
| $B_1$ | 4.1 | 4.0 | 1.1 | 0.07 | - | 15 | 26 |
| $B_{21}$ | 4.7 | 4.2 | 1.0 | 0.05 | - | 11 | 37 |
| $B_{22}$ | 4.9 | 4.4 | 0.6 | 0.04 | - | 9 | 39 |
| $B_{23}$ | 4.9 | 4.5 | 0.5 | 0.03 | - | 13 | 20 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.37 | 0.03 | 0.05 | 0.03 | 2.38 | 0.7 | 0.48 | 2.93 |
| 0.25 | 0.15 | 0.03 | 0.02 | 3.99 | 0.6 | 0.45 | 4.95 |
| 0.30 | 0.09 | 0.02 | 0.02 | 3.08 | 0.3 | 0.43 | 3.54 |
| 0.25 | 0.02 | 0.01 | 0.01 | 2.76 | 0.2 | 0.29 | 3.20 |
| 0.17 | 0.01 | 0.01 | 0.01 | 2.93 | 0.2 | 0.20 | 3.33 |
| 0.30 | 0.04 | 0.01 | 0.01 | 2.53 | 0.1 | 0.36 | 2.90 |

## LAND SYSTEM 389, Facet 1.

Classification: Podzólico Vermelho Amarelo Alico-Plintico-Plinthudult.

Location: Lat. 2°56'S - Long. 63°37'W.

Topography: Level, 0-1% slope.

Drainage: Moderately well drained.

Vegetation: Dense forest.

Parent material: Mixed sediments of Solimoes Formation, Plio-Pleistocene.

Source: Proj. Radambrasil, Vol. 18, 1978, profile 88, page 295.

$O_2$ : 3-0 cm.

$A_1$ : 0-3 cm. 10YR 5/6; silty loam; weak fine granular structure; very friable; clear boundary.

$A_3$ : 3-15 cm. 10YR 6/6; silty loam; weak fine granular structure.

$B_1$ : 15-35 cm. 7.5YR 6/8; silty loam; weak fine granular structure; friable; gradual boundary.

$B_{21}$ : 35-70 cm. 7.5YR 5/8; silty clay loam; moderate very fine granular structure; firm; gradual boundary.

$B_{22}$ : 70-100 cm. 5YR 5/8 silty clay; moderate very fine blocky structure; firm; clear boundary.

$B_{23}pl$ : 100-150 cm. 10YR 6/1, 10YR 7/8 and 10R 4/8; silty clay; moderate very fine blocky structure; very firm.

NOTE : Many roots in $A_1$, common in $A_3$.

| HOR | pH $H_2O$ | pH KCl | C % | N % | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|
| $A_1$ | 3.8 | 3.5 | 4.2 | 0.34 | 6.1 | 35 |
| $A_3$ | 3.5 | 3.9 | 2.1 | 0.18 | 5.3 | 55 |
| $B_1$ | 4.0 | 3.8 | 1.0 | 0.11 | 7.0 | 47 |
| $B_{21}$ | 4.2 | 3.7 | 0.5 | 0.08 | 7.8 | 55 |
| $B_{22}$ | 4.3 | 3.5 | 0.4 | 0.07 | 8.4 | 60 |
| $B_{23}pl$ | 4.3 | 3.5 | 0.1 | 0.01 | 9.3 | 58 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.50 | 0.20 | 0.06 | 0.02 | 14.18 | 0.5 | 0.78 | 15.01 |
| 0.40 | 0.18 | 0.02 | 0.01 | 8.62 | 0.6 | 0.61 | 9.83 |
| 0.60 | 0.04 | 0.04 | 0.01 | 8.99 | 0.6 | 0.68 | 10.27 |
| 0.68 | 0.18 | 0.02 | 0.01 | 7.79 | 0.8 | 0.89 | 4.49 |
| 0.70 | 0.05 | 0.01 | 0.01 | 7.88 | 1.1 | 0.77 | 10.75 |
| 0.60 | 0.10 | 0.03 | 0.01 | 7.78 | 1.1 | 0.74 | 10.62 |

## LAND SYSTEM 394, Facet 1.

Classification: Latossolo Amarelo Alico-Haplorthox.

Location: Lat. 6°07'S - Long 60°27'W.

Topography: Level, site slope 0-2%.

Drainage: Well drained.

Vegetation: Dense tropical forest.

Parent material: Mixed sediments of Solimoes Formation, Plio-Pleistocene.

Source: Proj. Radambrasil, Vol. 17, 1978, profile 70, page 246.

$O_1$ : 10-0 cm.

$A_1$ : 0-10 cm. 10YR 6/4; clay, massive, very firm; gradual boundary.

$A_3$ : 10-30 cm. 10YR 7/6; heavy clay; massive, firm; diffuse boundary.

$B_1$ : 30-70 cm. 10YR 7/6; heavy clay; massive, firm; diffuse boundary.

$B_{21}$ : 70-110 cm. 10YR 7/8; heavy clay; massive, firm; diffuse boundary.

$B_{22}$ : 110-180 cm. 10YR 7/8; heavy clay; massive, firm.

| HOR | pH $H_2O$ | pH KCl | C % | M.O. % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 3.4 | 3.3 | 3.3 | 5.68 | 21 | 4 | 81 |
| $A_3$ | 3.7 | 3.7 | 1.5 | 2.58 | 9 | 9 | 72 |
| $B_1$ | 4.1 | 3.9 | 0.8 | 1.37 | 6 | 7 | 76 |
| $B_{21}$ | 4.5 | 3.9 | 0.4 | 0.68 | 3 | 9 | 68 |
| $B_{22}$ | 4.6 | 3.9 | 0.3 | 0.51 | 3 | 10 | 66 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.18 | 0.14 | 0.16 | 0.08 | 4.87 | 2.42 | 0.56 | 13.18 |
| 0.25 | 0.28 | 0.06 | 0.06 | 3.17 | 1.68 | 0.65 | 7.39 |
| 0.18 | 0.14 | 0.04 | 0.06 | 2.16 | 1.33 | 0.42 | 6.26 |
| 0.18 | 0.24 | 0.04 | 0.04 | 1.84 | 1.11 | 0.50 | 5.38 |
| 0.25 | 0.17 | 0.03 | 0.06 | 1.58 | 1.01 | 0.51 | 4.91 |

## LAND SYSTEM 397, Facet 1.

Classification: Podzólico Vermelho Amarelo Alico- Paleudult.

Location: Lat. 7°18'S - Long. 66°40'W.

Topography: Level to gently undulating, site slope 0-2%.

Drainage: Well to moderately well drained.

Parent material: Mixed sediments of Solimoes Formation; Plio- Pleistocene.

Source: Proj. Radambrasil, Vol. 15, 1977, profile 100, page 197.

$A_1$ : 0-5 cm. 10YR 5/4; loam; massive, friable; gradual boundary.

$A_3$ : 5-20 cm. 10YR 5/6; loam, massive, friable; gradual boundary.

$B_1$ : 20-40 cm. 10YR 6/6; loam, massive; slightly hard, friable; gradual boundary.

$B_{21}$ : 40-70 cm. 10YR 6/8; loam, massive, hard, firm; gradual boundary.

$B_{22}$ : 70-110 cm. 10YR 6/8; clay loam; massive, hard, firm; gradual boundary.

$B_3$ : 110-160 cm. 2.5YR 4/6, and 10YR 6/6; clay; weak fine blocky structure; hard, firm.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.0 | 3.5 | 1.63 | 0.17 | 3 | 4 | 88 |
| $A_3$ | 3.7 | 3.5 | 0.97 | 0.09 | <1 | 3 | 94 |
| $B_1$ | 4.1 | 3.5 | 0.31 | 0.04 | <1 | 8 | 88 |
| $B_{21}$ | 4.4 | 4.0 | 0.34 | 0.04 | <1 | 3 | 96 |
| $B_{22}$ | 4.7 | 4.0 | 0.07 | 0.03 | <1 | 2 | 97 |
| $B_3$ | 4.8 | 4.0 | 0.12 | 0.03 | <1 | 1 | 98 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.12 | 0.09 | 0.16 | 0.06 | 6.86 | 3.20 | 0.43 | 10.49 |
| 0.02 | 0.05 | 0.08 | 0.04 | 3.07 | 3.20 | 0.19 | 6.46 |
| 0.23 | 0.06 | 0.04 | 0.04 | 1.49 | 2.80 | 0.37 | 4.66 |
| 0.01 | 0.01 | 0.04 | 0.05 | 1.12 | 3.00 | 0.11 | 4.23 |
| 0.01 | 0.02 | 0.03 | 0.03 | 1.62 | 3.00 | 0.09 | 4.71 |
| 0.02 | 0.01 | 0.04 | 0.04 | 1.66 | 5.60 | 0.11 | 7.37 |

## LAND SYSTEM 400, Facet 1.

Classification: Haplorthox.

Location: Km 3 of Cobija-Porvenir road, Pando Department, Porvenir Canton, Bolivia.

Land form: Crest.

Topography: Gently undulating at the profile site.

Drainage: Well drained.

Vegetation: Induced pasture from semi-evergren seasonal forest.

Parent material: Tertiary sediments.

Source: Cochrane, T.T. 1973, Land Systems of Bolivia, profile VIIIa-15, pp 728-9.

0-4 cm. Reddich brown; loam; weak fine blocky structure; slightly sticky, slightly plastic, few red mottles; clear smooth boundary.

4-10 cm. Yellowish red; sandy loam; weak fine blocky structure; slightly sticky, slightly plastic; many red yellow mottles; clear smooth boundary.

10-40 cm. Reddish brown; sandy loam; weak fine blocky structure; slightly sticky, slightly plastic; few pores; few mottles; gradual smooth boundary.

40-80 cm. Red; sandy loam; weak fine blocky structure; slightly sticky, slightly palstic; gradual smooth boundary.

| Depth (cm) | pH | E.C. Umhos | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|
| 0- 4 | 5.6 | 28 | 1.0 | 79 | - |
| 4-10 | 5.1 | 22 | 0.3 | 41 | - |
| 15-25 | 4.9 | 16 | 0.3 | 37 | - |
| 30-40 | 5.2 | 10 | 0.3 | 28 | 15 |
| 55-70 | 5.3 | 9 | 0.3 | 18 | 73 |

EXCHANGE COMPLEX ( meq/100 g )

| Ca | Mg | Na | K | Ac | Al | H | TEB | CEC |
|---|---|---|---|---|---|---|---|---|
| 1.2 | 0.4 | 0.14 | 0.15 | 0.5 | - | 0.5 | 1.9 | 2.4 |
| 0.6 | 0.2 | 0.15 | 0.08 | 1.5 | - | 1.5 | 1.1 | 2.6 |
| 0.4 | 0.4 | 0.16 | 0.09 | 1.7 | - | 1.7 | 1.0 | 2.7 |
| 0.4 | 0.4 | 0.15 | 0.08 | 2.5 | 0.6 | 1.9 | 1.0 | 3.5 |
| 0.4 | 0.3 | 0.18 | 0.10 | 4.2 | 2.6 | 1.6 | 0.9 | 5.1 |

Note: Ac= Exch. acidity.

## LAND SYSTEM 402, Facet 1.

Classification: Haplorthox.

Location: Lat. 11°09'S - Long 64°44'W. Municipality of Guajara- Mirim, Rondonia, Brazil.

Topography: Level.

Drainage: Well drained.

Vegetation: Dense forest.

Parent material: Quaternary sediments.

Source: Proj. Radambrasil, Vol. 16, 1978, profile 184, pp 280-1.

$A_1$ : 0-15 cm. 10YR 4/3; sandy clay loam; weak fine granular structure; very friable; slightly plastic, slightly sticky; gradual boundary.

$A_3$ : 15-35 cm. 10YR 5/3; sandy clay loam; weak fine granular structure; very friable; slightly sticky, plastic; diffuse boundary.

$B_1$ : 35-65 cm. 10YR 5/4; sandy clay loam; weak fine granular structure; plastic, slightly sticky; diffuse boundary.

$B_2$ : 65-100 cm. 10YR 6/4; sandy clay loam; weak fine blocky structure; friable, plastic, sticky; diffuse boundary.

$B_3$ : 100-150 cm. 10YR 6/4; sandy clay loam; weak medium blocky structure; friable, plastic and sticky.

| HOR | pH $H_2O$ | pH KCl | C | N | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 3.7 | 3.4 | 1.37 | 0.17 | 5 | 9 | 68 |
| $A_3$ | 3.8 | 3.5 | 0.55 | 0.09 | 1 | 6 | 88 |
| $B_1$ | 3.9 | 3.6 | 0.41 | 0.08 | 1 | 3 | 92 |
| $B_2$ | 4.4 | 3.9 | 0.29 | 0.07 | 1 | 4 | 92 |
| $B_2$ | 4.6 | 3.7 | 0.23 | 0.06 | 1 | 5 | 89 |
| $B_3$ | 5.1 | 3.9 | 0.20 | 0.06 | 1 | 6 | 86 |

EXCHANGE COMPLEX (meq/100 g)

| Ca + | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.5 | | 0.07 | 0.02 | 4.6 | 1.3 | 0.6 | 6.5 |
| 0.2 | | 0.01 | 0.01 | 2.0 | 1.4 | 0.2 | 3.6 |
| 0.1 | | 0.01 | 0.02 | 1.9 | 1.2 | 0.1 | 3.2 |
| 0.1 | | 0.01 | 0.01 | 1.3 | 1.1 | 0.1 | 2.5 |
| 0.1 | | 0.01 | 0.01 | 1.3 | 0.8 | 0.1 | 2.2 |
| 0.1 | | 0.01 | 0.01 | 1.0 | 0.6 | 0.1 | 1.7 |

## LAND SYSTEM 405, Facet 1.

Classification: Tropaquept.

Location: Tres Islas, Perú.

Physiography: Low terrace.

Topography: Level, site slope 0-2%.

Drainage: Imperfectly drained.

Vegetation: Virgen forest; cituye, caña brava, shimbiyo and unguruhui species.

Parent material: Alluvial.

Source: ONERN.

$A_1$ : 0-20 cm. 10YR 3/1; silty loam; granular structure; friable; common roots; diffuse boundary.

AC : 20-60 cm. 10YR 4/1; mottles; silty loam; massive, firm, few roots; clear boundary.

Cg : 60-150 cm. 10YR 6/1; silty clay massive, firm.

| HOR | pH | $P_2O_5$ Kg/Ha | O.M. % | N % | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|
| $A_1$ | 5.9 | 29.31 | 1.31 | 0.04 | 75 | 0 |
| AC | 5.5 | 21.06 | 2.07 | 0.09 | 73 | 0 |
| Cg | 5.4 | 29.31 | 1.45 | 0.06 | 72 | 1 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 6.20 | 0.20 | 0.16 | 0.06 | - | 6.62 | 8.80 |
| 5.20 | 0.76 | 0.20 | 0.08 | - | 6.24 | 8.56 |
| 6.40 | 0.92 | 0.16 | 0.10 | 0.10 | 7.68 | 10.72 |

## LAND SYSTEM 406, Facet 1.

Classification: Tropofluvent.

Land form: Alluvial terrrace.

Topography: Level.

Drainage: Well drained.

Vegetation: Semi-evergreen seasonal forest.

Parent material: Alluvium.

Source: Cochrane, T.T. 1973, Land Systems Map of Bolivia; profile VIIr-2 - 1, pp 716, 7.

3-0 cm. Mainly decomposing leaf litter.

0-2.5 cm. Very dark grayish brown; sandy loam; moderate medium crumb structure; non plastic, non sticky; many roots; clear smooth boundary.

2.5-8 cm. Drak brown; loamy sand; weak medium blocky structure; non sticky, non plastic; common pores; many roots; clear smooth boundary.

8-40 cm, Brown to dark brown; sandy single grain; non plastic, non sticky; many pores and roots; gradual smooth boundary.

40-80 cm. Brown; sandy; single grain; non plastic, non sticky, many pores and roots; gradual smooth boundary.

80 cm+. Reddish yellow; sandy; single grain; non plastic, non sticky; few roots; common pores.

| Depth (cm) | pH | E.C. Umhos | P ppm | B.S. % |
|---|---|---|---|---|
| 0- 2 | 6.9 | 420 | - | 96 |
| 4- 8 | 7.0 | 152 | 29 | 96 |
| 15- 25 | 7.0 | 34 | 7 | 72 |
| 55- 65 | 6.9 | 16 | 12 | 67 |
| 85- 95 | 6.8 | 15 | 11 | 94 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 25.8 | 4.1 | 0.6 | 2.2 | 1.2 | 32.8 | 34.0 |
| 11.2 | 1.6 | 0.3 | 0.7 | 0.6 | 13.7 | 14.3 |
| 3.7 | 9.4 | 0.1 | 0.1 | 1.5 | 3.8 | 5.3 |
| 1.7 | 0.3 | 0.1 | 0.04 | 1.0 | 2.1 | 3.1 |
| 1.3 | 1.2 | 0.1 | 0.01 | 0.1 | 2.6 | 2.7 |

NOTE: AC= Exchangeable acidity.

## LAND SYSTE 408, Facet 1.

Classification: Tropaquept.

Location: Heath Pampas, Perú.

Physiography: Middle terrace.

Topography: Level, 0-5% slope.

Drainage: Poorly drained.

Vegetation: Palms.

Parent material: Alluvial.

Source: ONERN, Inambari and Madre de Dios region, profile Serie Heath, pages 39, 40, 43.

$A_1$ : 0-50 cm. 10YR 2.5/1, structureless; friable, common roots; clear boundary.

$B_{21}g$ : 50-65 cm. Clay loam; massive, sticky; many mottles common roots; diffuse boundary.

$B_{22}g$ : 10YR 5/1; clay loam; massive, sticky; many mottles 5YR 4/4; water table to 80 cm depth.

| HOR | pH H:O | O.M. % | N % | $P_2O_5$ Kg/Ha | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|
| $A_1$ | 4.2 | 8.13 | 0.39 | 4.80 | 32 | 67 |
| $B_{21}g$ | 4.4 | 4.14 | 0.20 | 0.70 | 22 | 78 |
| $B_{22}g$ | 4.6 | 1.03 | 0.04 | 0.70 | 24 | 75 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 2.00 | 0.13 | 0.10 | 0.08 | 4.90 | 2.31 | 7.21 |
| 1.20 | 0.11 | 0.04 | 0.06 | 5.10 | 1.41 | 6.51 |
| 0.80 | 0.06 | 0.04 | 0.04 | 2.90 | 0.94 | 3.84 |

## LAND SYSTEM 410, Facet 1.

Classification: Tropaqualf.

Location: Trinidad Experimental Station, Beni Department, Bolivia.

Land form: Nearly level, slightly concave.

Topography: Level.

Drainage: Poorly drained.

Vegetation: Poorly drained pastures ( arrocilla).

Parent material: Alluvium.

Source: Cochrane, T.T. 1973, Land Systems Map of Bolivia; profile VII a 1-2, pp 705-6.

0-15 cm. Very dark gray; clay; strong medium blocky structure; very plastic, very sticky; few pores; many roots; many mottles; smooth boundary.

15-30 cm. Very dark gray; clay; moderate medium blocky structure; very plastic, very sticky; few pores; few roots, few mottles; iron concretions; smooth boundary.

30- cm. Dark gray; clay; moderate medium blocky structure; very plastic, very sticky; few pores, few roots; many mottles.

| Depth ( cm ) | pH | E. C. Umhos | P ppm | B. S. % |
|---|---|---|---|---|
| 3 -12 | 5.2 | 100 | 5.0 | 67 |
| 18 -28 | 5.3 | 120 | 0.3 | 46 |
| 40 -50 | 5.2 | 350 | 0.3 | 61 |
| 70 -90 | 5.3 | 450 | 0.3 | 68 |

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 3.3 | 2.2 | 0.88 | 0.46 | 3.4 | 6.9 | 10.3 |
| 2.8 | 2.2 | 1.63 | 0.30 | 8.0 | 6.9 | 14.9 |
| 3.7 | 4.4 | 2.52 | 0.44 | 7.2 | 11.1 | 18.3 |
| 5.1 | 6.4 | 4.00 | 0.50 | 7.4 | 16.0 | 23.4 |

Note: AC= Exch. acidity.

## LAND SYSTEM 411, Facet 2.

Classification: Tropaqualf.

Location: 14°31'S - Long. 66°46'W. Canton San Borja, Beni Department, Bolivia.

Land form: Level.

Drainage: Poorly drained.

Vegetation: Native pasture including Sporobolis. sp.

Parent material: Alluvial.

Source: Cochrane, T.T. 1973, Land Systems Map of Bolivia, profile VII a 2-3, pp 709-10.

0-15 cm. Dark grayish brown; sandy clay loam; weak fine blocky structure; sticky, plastic; many pores, many roots; wavy gradual boundary.

15-43 cm. Brown; silty clay loam; weak medium blocky structure; sticky, plastic; many roots, many pores; irregular gradual boundary.

43- cm. Borwn; clay; moderate coarse blocky structure; very plastic, very sticky; many pores; few roots; many mottles; few Mn-concretions.

| Depth ( cm ) | pH | E. C. Umhos | P ppm | B. S. % |
|---|---|---|---|---|
| 1- 9 | 5.3 | 26 | 9 | 38 |
| 21-36 | 5.8 | 12 | 6 | 17 |
| 51-66 | 6.9 | 48 | 6 | 97 |

NOTE : AC= Exch. acidity.
E.C.= 1:5, soil: water.

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 0.6 | 1.1 | 0.2 | 0.4 | 3.7 | 2.3 | 6.0 |
| 0.2 | 0.3 | 0.1 | 0.3 | 4.6 | 1.0 | 5.6 |
| 2.8 | 4.0 | 0.5 | 0.9 | 0.4 | 12.0 | 12.4 |

## LAND SYSTEM 413, Facet 1.

Classification: Tropudult.

Location. Lat. 14°08' S. - Long. 67°37'W. Canton Reyes, Beni Department, Bolivia.

Land form: Nearly flat.

Microtopography: Gilgai.

Drainage: Imperfectly drained.

Vegetation: Semi-evergreen seasonal forest.

Parent material: Alluvium.

Source: Cochrane, T.T. Land Systems Map of Bolivia, 1973, profile VII b 3-1, pp 712-3.

2- 0 cm. Plant residues in decomposition.

0- 1 cm. Very dark grayish brown; loam; moderate fine crumb structure; slightly sticky, slightly plastic; many roots, abrupt wavy boundary.

1- 7 cm. Grayish brown; loam; moderate medium blocky structure; slightly sticky, plastic; many roots; frequent pores; gradual smooth boundary.

8-35 cm Pale brown; loam; weak medium blocky structure; plastic, sticky; frequent pores; many roots; fine gravel; diffuse smooth boundary.

35- cm Brown; clay loam; weak medium blocky structure; plastic, sticky; many pores; few roots; fine gravel; many mottles.

| Depth ( cm ) | pH | E. C. Umhos | P ppm | B. S. % |
|---|---|---|---|---|
| 0- 1 | 5.9 | 355 | 29 | 95 |
| 2- 6 | 5.6 | 76 | 10 | 67 |
| 15-25 | 5.3 | 11 | 25 | 26 |
| 40-50 | 5.5 | 9 | 10 | 35 |
| 70-80 | 5.7 | 8 | 7 | 60 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 23.6 | 4.9 | 0.5 | 2.2 | 1.6 | 31.1 | 32.7 |
| 4.1 | 1.4 | 0.2 | 0.4 | 3.1 | 6.3 | 9.4 |
| 0.5 | 0.8 | 0.1 | 0.1 | 4.3 | 1.4 | 5.6 |
| 1.0 | 1.6 | 0.2 | 0.2 | 5.7 | 3.1 | 8.8 |
| 1.6 | 1.9 | 0.3 | 0.3 | 3.2 | 4.9 | 8.1 |

.357'

## LAND SYSTEM 415, Facet 1.

Classification: Eutropept.

Location: Lat. 14°07'S - Long 68°47'W. Canton Tumapasa, La Paz Department, Bolivia.

Topography: Nearly flat.

Drainage: Moderately well drained.

Vegetation: Semi-evergreen seasonal forest.

Parent material: Alluvium.

Source: Cochrane, T.T. Land Systems Map of Bolivia, 1973, profile Vd 2-1, pp 652-3.

0- 3 cm. Very dark grayish brown; loam; moderate medium crumb structure; slightly plastic, slightly sticky; frequent pores; many roots; abrupt wavy boundary.

3-20 cm. Brown; loam; weak fine blocky structure; slightly sticky, slightly plastic; many pores; many roots; gradual smooth boundary.

20-45 cm. Brown; loamy sand; structureless; slightly plastic, slightly sticky; many pores, many roots; diffuse smooth boundary.

45-60 cm. Brown; loamy sand; structureless; non plastic, non sticky; frequent pores; few roots; gravel; gradual smooth boundary.

60- cm. Brown; sandy; structureless; single grain; non plastic; non sticky; frequent pores; few roots; gravel.

| Depth ( cm ) | pH | E. C. Umhos | P ppm | B. S. % |
|---|---|---|---|---|
| 0- 3 | 6.1 | 9 | 24 | 96 |
| 5-15 | 6.8 | 8 | 9 | 83 |
| 25-35 | 6.1 | 13 | 10 | 97 |
| 50-60 | 6.5 | 13 | 15 | 97 |
| 70-80 | 6.3 | 9 | 15 | 100 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 11.7 | 3.6 | 0.3 | 1.2 | 0.7 | 15.3 | 16.0 |
| 4.2 | 1.3 | 0.2 | 0.2 | 1.3 | 6.2 | 7.5 |
| 2.9 | 1.3 | 0.2 | 0.2 | 0.2 | 5.1 | 5.3 |
| 3.1 | 1.4 | 0.2 | 0.2 | 0.1 | 5.0 | 5.1 |
| 2.0 | 2.2 | 0.2 | 0.2 | - | 5.0 | 5.0 |

## LAND SYSTEM 417, Facet 1.

Classification: Haplorthox.

Location: Lat. 14°23'S. - Long 67°42'W. Canton San Buena Ventura, La Paz Department, Bolivia.

Land form: Slightly uplifted and dissected.

Topography: Nearly flat at the site.

Drainage: Moderately well drained.

Vegetation: Semi-evergreen seasonal forest.

Source: Cochrane, T.T. 1973, Land Systems Map of Bolivia, profile Vb 1-1, pp 642-3.

5- 2 cm. Leaves in decomposition.

0- 2 cm. Dark grayish brown; clay loam; weak fine crumb structure; plastic, sticky; frequent pores; many roots;abrupt wavy boundary.

2-15 cm. Dark yellowish brown; clay loam; weak medium blocky structure; sticky, plastic; frequent pores; many roots; gradual smooth boundary.

15-45 cm. Dark yellowish brown; clay loam; weak medium blocky structure; frequent pores, common roots; diffuse smooth boundary.

45-70 cm. Brown; sandy clay loam; weak coarse blocky structure; plastic, sticky; few pores, few roots; many mottles; gradual smmoth boundary.

70- cm. Pale brown; sandy clay loam; weak coarse blocky structure; plastic, sticky; few pores, few roots; many mottles; occasionally Mn concretions.

| Depth ( cm ) | pH | E. C. Umhos | P ppm | B. S. % |
|---|---|---|---|---|
| 0- 2 | 5.1 | 365 | 18 | 80 |
| 5-12 | 5.5 | 29 | 7 | 33 |
| 20-30 | 5.3 | 14 | 9 | 16 |
| 50-60 | 5.7 | 8 | 7 | 33 |
| 75-90 | 5.7 | 7 | 12 | 41 |

NOTE: AC= Exch. acidity.
E.C. = 1:5 soil; water.

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 0.9 | 3.4 | 0.6 | 1.3 | 1.6 | 6.2 | 7.8 |
| 0.9 | 1.0 | 0.4 | 0.2 | 5.0 | 2.4 | 7.4 |
| 0.6 | 0.7 | 0.2 | 0.04 | 7.6 | 1.5 | 9.1 |
| 1.0 | 1.1 | 0.2 | 0.1 | 4.7 | 2.4 | 7.1 |
| 1.0 | 1.9 | 0.2 | 0.1 | 4.3 | 3.1 | 7.4 |

## LAND SYSTEM 418, Facet 2.

Classification: Trupudalf.

Location: Lat. 14°44'S. - Long 67°04'W. Canton San Borja, Beni Department, Bolivia.

Land form: Nearly level.

Drainage: Imperfectly drained.

Vegetation: Semi-evergreen seasonal forest.

Parent material: Alluvial.

Source: Cochrane, T.T. 1973, Land Systems Map of Bolivia, profile Vd 3-1,pp 655-6.

0- 2.5 cm. Dark brown; silty clay loam;fine moderate crumb structure; plastic, sticky;many pores; many roots; clear smooth boundary.

2.5-15 cm. Dark brown; clay loam; moderate medium blocky structure; plastic, sticky; clear smooth boundary.

15- 40 cm. Dark brown; clay loam; moderate medium blocky structure; plastic, sticky; many pores; few roots; clear smooth boundary.

40- 66 cm. Strong brown; clay loam; moderate medium blocky structure; plastic, sticky; frequent pores, few roots; few mottles; clear boundary.

66-100 cm. Dark reddish brown; silty clay; fine strong blocky structure; very plastic, very sticky; very few roots.

100- cm. Yellowish red; sandy loam; weak medium blocky structure; non plastic, non sticky; many pores very few roots; many faint mottles.

| Depth ( cm ) | pH | E. C. Umhos | P ppm | B. S. % |
|---|---|---|---|---|
| 0- 2 | 6.5 | 155 | 20 | 82 |
| 5- 15 | 6.2 | 18 | 5 | 75 |
| 25- 40 | 6.2 | 12 | 10 | 70 |
| 46- 61 | 6.3 | 11 | 8 | 80 |
| 76- 91 | 6.3 | 12 | 13 | 85 |
| 105-120 | 6.4 | 10 | 10 | 96 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 17.8 | 3.0 | 0.3 | 0.6 | 1.9 | 21.2 | 23.1 |
| 5.0 | 3.1 | 0.2 | 0.3 | 8.9 | 2.7 | 11.6 |
| 4.3 | 3.4 | 0.2 | 0.2 | 2.2 | 8.4 | 10.6 |
| 3.8 | 2.8 | 0.2 | 2.1 | 1.7 | 6.6 | 8.3 |
| 6.7 | 4.0 | 0.1 | 0.3 | 1.4 | 11.6 | 13.0 |
| 3.0 | 2.0 | 0.1 | 0.2 | 0.3 | 5.8 | 6.1 |

## LAND SYSTEM 430, Facet 1.

Classification: Tropofluvent.

Location: Lat. 16°59'S. - Long. 65°23'W. Canton Palmar, Cochabamba Department, Bolivia.

Land form: Undulating.

Topography: Gentlu undulating at the site.

Vegetation: Crops including coca and cassava from Tropical rain forest.

Drainage: Somewhat excessively drained.

Parent material: Alluvial.

Source: Cochrane, T.T. 1973, Land Systems Map of Bolivia, profile Va 6-1, pp 641-2.

0-20 cm. Dark brown; loamy sand; weak fine blocky structure; slightly plastic, slightly sticky; many pores, many roots; clear smooth boundary.

20-50 cm. Yellowish red; loamy sand; weak fine blocky structure; slightly plastic, slightly sticky; many pores; many roots; diffuse smooth boundary.

50-90 cm. Reddish yellow; sandy loam; weak medium blocky structure; non plastic, non sticky; many pores; few roots; diffuse smooth boundary.

90- cm. Sandy; with many stones.

| Depth ( cm ) | pH | E. C. Umhos | P ppm | B. S. % |
|---|---|---|---|---|
| 1-15 | 4.7 | 19 | 10 | 17 |
| 25-40 | 5.0 | 9 | - | 16 |
| 70-85 | 5.5 | 8 | 5 | 17 |

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| - | 0.9 | 0.03 | 0.1 | 4.3 | 0.9 | 5.2 |
| - | - | - | 0.1 | 4.0 | 0.8 | 4.8 |
| 0.4 | 0.6 | 0.1 | 0.1 | 6.0 | 1.3 | 7.3 |

## LAND SYSTEM 435, Facet 2.

Classification: Tropudult.

Location: Lat. 17°03'S - Long 64°59'W. Canton V. Tunari, Cochabamba Department, Bolivia.

Land form: Undulating, convex slope.

Drainage: Moderately well drained.

Vegetation: Semi-evergreen seasonal forest.

Parent material: Sandy alluvial terrace.

Source: Cochrane, T.T. 1973, Land System Map of Bolivia, profile Va 1-1, pp 635-6.

3- 2 cm. Dry leaves.

2- 0 cm. Layer of leaves in decomposition with root mat.

0- 3 cm. Dark brown; sandy loam; weak fine blocky structure; slightly plastic, slightly sticky; many roots; clear smooth boundary.

3-11 cm. Dark brown; sandy loam; weak fine blocky structure; slightly plastic, slightly sticky; many pores, many roots; clear irregular boundary.

11-85 cm. Yellowish brown; weak medium blocky structure; plastic, sticky; many pores; many roots; diffuse smooth boundary.

85- cm. Yeloowish brown; sandy loam; weak medium blocky strcuture; plastic, sticky; many pores; few roots; few mottles.

| Depth ( cm ) | pH | E. C. Umhos | P ppm | B. S. % |
|---|---|---|---|---|
| 15- 30 | 4.7 | 10 | 18 | 17 |
| 45- 60 | 4.6 | 9 | 6 | 27 |
| 95-105 | 4.7 | 10 | 7 | 18 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 1.3 | 0.1 | 0.1 | 0.1 | 11.5 | 2.3 | 13.8 |
| 0.8 | 0.3 | - | 0.2 | 11.8 | 4.3 | 16.1 |
| 0.9 | 0.3 | - | 0.2 | 14.6 | 3.3 | 17.9 |

NOTE: AC = Exch. acidity.
E.C. - 1:5, soil: water.

## LAND SYSTEM 436, Facet 1.

Classification: Tropofluvent.

Location: Lat. 17°10'S - Long. 64°18'W. Canton Puerto Grether, Santa Cruz Department, Bolivia.

Land form: Terrace.

Drainage: Moderately well drained.

Vegetation: Semi-evergreen seasonal forest; changing to gallery forest near the river.

Parent material: Recent alluvium of Ichilo River.

Source: Cochrane, T.T. 1973, Land Systems Map of Bolivia; profile Ve 9-1, page 675.

3- 1 cm. Dry leaves.

1- 0 cm. Layer of organic matter in decomposition.

0-18 cm. Dark yellowish brown; silty clay;moderate fine blocky structure; plastic, sticky; many roots; gradual smooth boundary.

18-60 cm. Yellowish brown; silty clay; weak medium blocky structure; plastic, sticky; many roots; gradual smooth boundary.

60- cm. Yellowish brown; clay; weak medium blocky structure; plastic, sticky; earth worms to 120 cm. depth.

| Depth. ( cm ) | pH | E. C. umhos | P ppm | B. S. % |
|---|---|---|---|---|
| 0-10 | 6.4 | 110 | 10 | 71 |
| 12-18 | 6.3 | 56 | 5 | 38 |
| 20-42 | 6.2 | 40 | 3 | 30 |
| 60-75 | 6.1 | 26 | 1 | 38 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 3.5 | 5.2 | 0.2 | 0.3 | 5.2 | 13.0 | 18.2 |
| 2.6 | 1.4 | 0.2 | 0.1 | 9.7 | 6.0 | 15.7 |
| 2.4 | 1.2 | 0.2 | 0.2 | 10.4 | 4.6 | 15.0 |
| 2.5 | 1.2 | 0.2 | 0.1 | 6.5 | 4.0 | 10.5 |

## LAND SYSTEM 437, Facet 1.

Classification: Acrorthox.

Location: Lat. 17°10'S. - Long. 64°33'W. Canton Vandiola, Cochabamba Department, Bolivia.

Land form: Hilly; undulating to strongly undulating.

Drainage: Well drained.

Vegetation: Semi-evergreen seasonal forest.

Parent material: Old eroded flat surface of alluvial origin.

Source: Cochrane, T.T. 1973,Land Systems Map of Bolivia, profile Va 2-1, page 636.

3- 1 cm. Dry leaves.

1- 0 cm. Layer of leaves in decomposition and root mat.

0- 1.5cm. Brown; moderate medium blocky structure; plastic, sticky; many roots; abrupt smooth boundary.

1.5-9 cm. Yellowish brown; loam; moderate medium blocky structure; plastic, sticky; many fine pores; gradual smooth boundary.

9-45 cm. Yellowish brown; loam; moderate medium blocky structure; plastic, sticky; many roots; diffuse smooth boundary.

45- cm. Strong brown; silty clay loam; moderate medium blocky structure; firm, few roots.

| Depth ( cm ) | pH | E. C. Umhos | P ppm | B. S. % |
|---|---|---|---|---|
| 0- 1.5 | 4.5 | 95 | 45 | 37 |
| 2- 8 | 4.3 | 43 | 7 | 7 |
| 15-30 | 4.6 | 23 | 19 | 14 |
| 50-65 | 4.7 | 11 | 1 | 6 |
| 85-100 | 4.7 | 10 | 4 | 10 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 0.9 | 1.6 | 0.1 | 0.3 | 12.7 | 7.3 | 20.0 |
| | 0.6 | 0.1 | 0.1 | 9.3 | 0.7 | 10.0 |
| | 0.8 | 0.1 | 0.1 | 4.9 | 0.8 | 5.7 |
| | 0.3 | 0.03 | 0.1 | 8.1 | 0.5 | 8.6 |
| | 0.9 | 0.1 | 0.1 | 7.7 | 0.9 | 8.6 |

## LAND SYSTEM 441, Facet 1.

Classification: Tropofluvent.

Location: Lat. 16°42'S. - Long. 64°33'W. Canton Cuatro Ojos; Santa Cruz Department, Bolivia.

Land form: Plain.

Drainage: Moderate to imperfectly drained.

Vegetation: Semi-evergreen seasonal forest.

Parent material: Alluvium from Yapacani river.

Source: Cochrane, T.T. 1973, Land Systems Map of Bolivia, profile Ve 13-1, pp 679-80.

0-2.5 cm. Very dark brown; silty clay loam; moderate medium granular structure; plastic, sticky;many roots; clear smooth boundary.

2.5-14 cm. Dark brown; silty; weak medium blocky structure; plastic and sticky, many pores; many roots; clear smooth boundary.

13-30 cm. Yellowish brown; silty loam;weak medium blocky structure; plastic, sticky; many pores; many roots; gradual smooth boundary.

30-50 cm. Yellowish brown; silty loam; weak medium blocky structure; plastic, sticky; common pores; many roots, many mottles; diffuse smooth boundary.

50-80 cm. Pale yellowish brown; silty clay loam; weak medium blocky structure; many roots, many mottle: diffuse smooth boundary.

80- cm. Pale brown; silty; moderate coarse blocky structure; plastic, sticky; many roots, many mottles.

| Depth ( cm ) | pH | E. C. Umhos | P ppm | B. S. % |
|---|---|---|---|---|
| 0- 2.5 | 7.0 | 271 | 100 | 54 |
| 3-13 | 6.9 | 13 | 86 | 72 |
| 15-26 | 6.3 | 14 | 8 | 89 |
| 30-43 | 5.9 | 13 | 5 | 65 |
| 60-75 | 5.9 | 37 | 2 | 100 |
| 85-95 | 5.6 | 45 | 7 | 63 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 22.5 | 3.8 | 0.2 | 0.6 | 23.2 | 27.1 | 50.3 |
| 20.0 | 2.2 | 0.2 | 0.6 | 8.7 | 23.8 | 32.5 |
| 5.4 | 2.1 | 0.1 | 0.8 | 1.0 | 8.3 | 9.3 |
| 4.4 | 1.3 | 0.2 | 0.2 | 3.3 | 6.0 | 9.3 |
| 12.9 | 10.1 | 0.2 | 0.1 | 0.5 | 23.2 | 23.7 |
| 5.9 | 2.7 | 0.1 | 0.1 | 5.1 | 8.5 | 13.6 |

NOTE: AC= Exch acidity
E.C. - 1:5, soil: water.

## LAND SYSTEM 442, Facet 1.

Classification: Tropofluvent.

Location: Lat. 17°22'S. - Long. 63°49'W. Canton Buena Vista, Santa Cruz Department, Bolivia.

Land form: Plain.

Drainage: Moderately well drained.

Vegetation: Semi-evergreen seasonal forest.

Parent material: Alluvium from Yapacani River.

Source: Cochrane, T.T. 1973, Land Systems Map of Bolivia, profile Ve 12-1, pp 677-8.

0- 6 cm. Dark yellowish brown; clay loam; weak fine blocky structure; plastic, sticky; many roots; regular boundary.

6-20 cm. Yellowish brown; sandy clay loam; weak fine blocky structure; plastic, sticky; many roots; regular boundary.

20-34 cm. Yellowish brown; sandy loam; weak fine blocky structure; few roots; diffuse smooth boundary.

34- cm. Yellowish red; loamy sand; fine granular structure; fine roots.

| Depth ( cm ) | pH | E. C. umhos | P ppm | B. S. % |
|---|---|---|---|---|
| 2- 5 | 4.7 | 130 | 38 | 30 |
| 10-15 | 4.9 | 21 | 12 | 29 |
| 25-30 | 5.1 | 18 | - | 47 |
| 40-50 | 5.4 | 8 | - | 58 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 4.1 | 1.3 | 0.2 | 0.3 | 7.8 | 6.3 | 14.1 |
| 2.4 | 0.1 | 0.2 | 0.1 | 6.7 | 2.8 | 9.5 |
| 1.9 | 1.2 | 0.2 | 0.1 | 3.7 | 3.4 | 7.1 |
| 1.1 | 0.6 | 0.2 | 0.04 | 1.7 | 2.3 | 4.0 |

## LAND SYSTEM 443, Facet 1.

Classification: Tropaquept.

Location: Lat. 16°44'S. - Long. 63°55'W. Cantón Cuatro Ojos, Santa Cruz Department, Bolivia.

Land form: Plain.

Drainage: Moderately drained.

Vegetation: Semi-evergreen seasonal forest.

Parent material: Alluvium from Palacios River.

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Source: Cochrane, T.T. Land Systems Map of Bolivia, profile Ve 14-3, pp 684-5.

2.5-0.5 cm. Dry leaves.

0.5- 0 cm. Layer of leaves in decomposition.

0-3.5 cm. Dark grayish brown; silty loam; moderate fine blocky structure; plastic, sticky; many roots, clear smooth boundary.

3.5-20 cm. Brown; silty loam; weak medium blocky structure; plastic, sticky, many roots; gradual smooth boundary.

20-35 cm. Dark brown; silty loam; weak medium blocky structure; plastic, sticky; many roots; gradual smooth boundary.

35- cm. Brown; silty loam; weak medium blocky structure; plastic, sticky; many roots; many mottles.

| Depth ( cm ) | pH | E. C. umhos | P ppm | B. S. % |
|---|---|---|---|---|
| 0- 3 | 6.5 | 170 | 6 | 78 |
| 5-20 | 5.0 | 11 | 19 | 41 |
| 40-65 | 5.0 | 8 | 17 | 61 |
| 70-85 | 5.0 | 7 | 2 | 84 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 12.2 | 3.4 | 0.3 | 0.9 | 6.4 | 23.8 | 30.2 |
| 5.4 | 1.2 | 0.1 | 0.4 | 9.8 | 6.8 | 16.6 |
| 5.8 | 3.8 | 0.3 | 0.3 | 8.6 | 13.3 | 21.9 |
| 4.8 | 3.5 | 0.4 | 0.6 | 2.8 | 14.3 | 17.1 |

## LAND SYSTEM 444, Facet 1.

Classification: Eutropept.

Location: Lat. 16°44'S. - Long. 63°55'W. Cantón Cuatro Ojos, Santa Cruz Department, Bolivia.

Land form: Plain.

Drainage: Well drained.

Vegetation: Semi-evergreen seasonal forest.

Parent material: Alluvium from Palacios River.

Source: Cochrane, T.T. 1973, Land Systems Map of Bolivia, profile Ve 14-3, pp 684-5.

2.5- 0.5 cm. Dry leaves.

0.5- 0 cm. Layer of leaves in decomposition.

0-3.5 cm. Dark grayish brown; silty loam; moderate fine blocky structure; plastic, sticky; many roots, clear smooth boundary.

3.5-20 cm. Brown to dark brown; silty loam;weak medium blocky structure; plastic, sticky; many roots; gradual smooth boundary.

| Depth ( cm ) | pH | E. C. umhos | P ppm | B. S. % |
|---|---|---|---|---|
| 0- 3 | 6.5 | 170 | 6 | 78 |
| 5-20 | 5.0 | 11 | 19 | 41 |
| 40-65 | 5.0 | 8 | 17 | 61 |
| 70-85 | 5.0 | 7 | 2 | 84 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 12.2 | 3.4 | 0.3 | 0.9 | 6.4 | 23.8 | 30.2 |
| 5.4 | 1.2 | 0.1 | 0.4 | 9.8 | 6.8 | 16.6 |
| 5.8 | 3.8 | 0.3 | 0.3 | 8.6 | 13.3 | 21.9 |
| 4.8 | 3.5 | 0.4 | 0.6 | 2.8 | 14.3 | 17.1 |

## LAND SYSTEM 445, Facet 1.

Classification: Haplustult.

Location: Lat. 17°00'S. - Long. 63°41'W. Cantón Santa Rosa, Santa Cruz Department, Bolivia.

Land form: Strongly undulating.

Drainage: Well drained.

Vegetation: Semi-evergreen seasonal to deciduous forest.

Parent material: Probably sandstone of Tertiary age.

Source: Cochrane, T.T. 1973, Land Systems Map of Bolivia, Profile Va 4-1, pp 639-40.

Note : AC= Exch. acidity.
E.C.- 1:5, soil: water.

2.5-1.5 cm. Dry leaves.

1.5- 0 cm. Layer of leaves in decomposition.

0- 3 cm. Very dark brown; sandy loam; weak medium crumb structure; plastic, sticky; many roots; clear smooth boundary.

3-14 cm. Very dark grayish brown; loamy sand; weak fine blocky structure; plastic, sticky; many pores, many roots; few mottles; diffuse smooth boundary.

14-85 cm. Pale yellowish brown; sandy loam; weak medium blocky structure; plastic, sticky;many pores; many roots; few mottles; diffuse smooth boundary.

85- cm. Pinky gray; clay; moderate medium blocky structure; very plastic, very sticky; many red mottles.

| Depth ( cm ) | pH | E. C. umhos | P ppm | B. S. % |
|---|---|---|---|---|
| 0- 3 | 6.2 | 150 | 30 | 81 |
| 3-13 | 5.6 | 57 | 25 | 60 |
| 18-33 | 5.0 | 14 | 20 | 38 |
| 45-60 | 4.9 | 8 | 6 | 7 |
| 95-110 | 5.6 | 8 | 1 | 14 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 11.9 | 1.9 | 0.1 | 0.4 | 3.2 | 14.4 | 17.6 |
| 4.0 | 1.5 | 0.1 | 0.2 | 4.0 | 6.0 | 10.0 |
| 0.5 | 0.5 | 0.03 | 0.1 | 3.2 | 2.0 | 5.2 |
| 0.1 | 0.4 | - | - | 3.0 | 1.8 | 4.8 |
| 0.1 | 0.1 | 0.2 | - | 8.3 | 1.8 | 10.1 |

## LAND SYSTEM 450, Facet 2.

Classification: Haplustalf.

Location: Lat.17°37'S. - Long. 63°17'W. Cantón Colpa, Santa Cruz Department , Bolivia.

Land form: Undulating to strongly undulating, top of hill.

Drainage: Well drained.

Vegetation: Two year-crop of sugarcane.

Parent material: Alluvium and colluvium from the piedmont.

Source: Cochrane, T.T. 1973, Land Systems of Bolivia, profile Vc 1-1, pp 651-2.

0-12 cm. Dark grayish brown; sandy loam; moderate fine blocky structure; slightly plastic, slightly sticky; few pores; many roots; gradual smooth boundary.

12-40 cm. Brown; sandy loam; weak fine blocky structure; slightly plastic, slightly sticky; common pores, many roots; diffuse smooth boundary.

40-60 cm. Sandy clay loam; weak medium blocky structure; plastic, sticky; common pores; few roots; few mottles; gradual smooth boundary.

60- cm. Yellowish brown; sandy clay loam; weak medium blocky structure; plastic, sticky; common pores, few roots; many mottles.

| Depth ( cm ) | pH | E. C. umhos | P ppm | B. S. % |
|---|---|---|---|---|
| 0- 8 | 7.2 | 24 | 8 | 100 |
| 15-25 | 7.4 | 25 | 4 | 38 |
| 44-55 | 7.4 | 10 | 4 | 77 |
| 70-80 | 6.8 | 87 | 4 | 89 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 9.0 | 2.0 | 0.2 | 1.8 | - | 12.9 | 12.3 |
| 2.3 | 0.2 | 0.1 | 0.1 | 4.3 | 2.8 | 7.1 |
| 4.3 | 0.8 | 1.8 | 2.4 | 2.6 | 9.2 | 11.8 |
| 6.1 | 0.6 | 2.6 | 2.0 | 1.6 | 13.0 | 14.6 |

## LAND SYSTEM 452, Facet 1.

Classification: Ustorthent.

Location: Lat. 17°55'S. - Long. 63°17'W. Cantón Colpa, Santa Cruz Department, Bolivia.

Land form: Moderately steep to steep.

Drainage: Well drained.

Vegetation: Semi-evergreen seasonal forest.

Parent material: Old alluvial-colluvial deposits from Sub-Andean sandstones.

Source. Cochrane, T.T. 1973, Land Systems of Bolivia, profile Nc 1-1, pp 625-6.

0- 8 cm. Dark reddish brown; loam; weak blocky to single grain structure; many roots; clear smooth boundary.

8-20 cm. Dark reddish brown; loam; weak blocky structure; plastic, sticky; few pores; many roots; gradual smooth boundary.

20-50 cm. Dark reddish brown; clay loam;weak blocky to single grain structure; few pores; many roots; gradual wavy boundary.

50- cm. Red; clay loam; weak medium blocky structure; plastic, sticky; few roots, stony; angular sandstones increasing with depth.

| Depth ( cm ) | pH | E. C. umhos | P ppm | B. S. % |
|---|---|---|---|---|
| 0- 5 | 7.2 | 131 | 24 | 55 |
| 10-20 | 7.3 | 51 | 75 | 98 |
| 25-35 | 7.5 | 20 | 75 | 100 |
| 60-80 | 6.8 | 9 | 0 | 100 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 23.0 | 5.1 | 0.4 | 3.4 | 25.9 | 31.4 | 57.3 |
| 12.8 | 3.3 | 0.3 | 1.8 | 0.3 | 18.0 | 18.9 |
| 14.4 | 2.8 | 0.4 | 1.2 | 0.0 | 18.1 | 19.1 |
| 15.1 | 2.8 | 0.4 | 1.3 | 0.0 | 20.5 | 20.5 |

## LAND SYSTEM 456, Facet 1.

Classification: Ustipsamment.

Location: Lat. 17°48'S. - Long. 63°10'W. Cantón Izutu, Santa Cruz Department, Bolivia.

Land form: Level to gently undulating.

Vegetation: "Pampa" - natural grassland.

Parent material: Recent alluvium from Piray River, high content of quartz.

Source: Cochrane, T.T. 1973, Land Systems of Bolivia, profile Ve 16-1, pp 687 -8.

0- 5 cm. Reddish brown; loamy sand; weak medium blocky structure; common roots.

5-20 cm. Yellowish red; sandy loam; single grain; very friable; common roots; diffuse boundary.

NOTE: AC= Exch. acidity.
C.E.- 1:5, soil: water.

20-40 cm. Yellowish red; sandy; single grain; many roots; diffuse boundary.

40-75 cm. Reddish yellow; sandy; single grain; many roots.

75-105 cm. Red; loamy sand; single grain; few roots; mottles.

105- cm. Yellowish red; loamy sand; weak fine blocky structure; few roots.

| Depth ( cm ) | pH | E. C. umhos | P ppm | B.S. % |
|---|---|---|---|---|
| 0- 5 | 6.2 | 18 | 15 | 85 |
| 8- 18 | 5.8 | 13 | 6 | 65 |
| 25- 35 | 5.8 | 17 | 4 | 65 |
| 45- 60 | 5.8 | 5 | 6 | 71 |
| 80- 95 | 6.1 | 5 | 22 | 75 |
| 115-130 | 6.5 | 7 | 63 | 87 |
| 170-180 | 6.7 | 6 | 81 | 87 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 1.6 | 0.6 | 0.1 | 0.3 | 0.4 | 2.6 | 3.0 |
| 1.3 | 0.4 | 0.1 | 0.2 | 1.1 | 1.9 | 3.0 |
| 0.8 | 0.5 | 0.1 | 0.1 | 0.7 | 1.4 | 2.1 |
| 0.7 | 0.5 | 0.1 | 0.1 | 0.5 | 1.3 | 1.8 |
| 2.5 | 0.5 | 0.2 | 0.2 | 1.2 | 3.4 | 4.6 |
| 3.5 | 1.1 | 0.1 | 0.3 | 0.8 | 5.0 | 5.8 |
| 3.9 | 1.4 | 0.4 | 0.3 | 0.2 | 8.0 | 8.2 |

## LAND SYSTEM 457, Facet 1.

Classification: Ustipsamment.

Location: Lat. 17°19'S. - Long. 63°10'W. Cantón Guabirá, Santa Cruz Department, Bolivia.

Land form: Level to gently undulating.

Drainage: Moderately well drained.

Vegetation: Pasture (Yaragua); previously sugar cane.

Parent material: Sandy alluvium rich in quartz.

Source: Cochrane, T.T. 1973, Land Systems Map of Bolivia, profile Ve 18-1, pp 691-2.

0-12 cm. Dark brown; loamy sand; weak fine blocky structure; non plastic, non sticky; few pores; many roots; gradual smooth boundary.

12-30 cm. Dark brown; loamy sand; single grain; non plastic, non sticky; few pores; many roots; diffuse irregular boundary.

30-60 cm. Strong brown; sandy loam; single grain; non plastic, non sticky; few pores; many roots; few mottles; diffuse smooth boundary.

60- cm. Pale brown; sandy loam; single grain; non plastic, non sticky; few pores; few roots; many mottles.

| Depth ( cm ) | pH | E. C. umhos | P ppm | B.S. % |
|---|---|---|---|---|
| 0- 6 | 6.8 | 25 | 40 | 98 |
| 15- 25 | 6.8 | 13 | 15 | 64 |
| 35- 45 | 5.9 | 7 | 2 | 70 |
| 70- 85 | 5.9 | 4 | 5 | 45 |
| 100-115 | 6.1 | 5 | 28 | 28 |
| 140-150 | 6.0 | 5 | 27 | 93 |

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EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 3.1 | 0.8 | 0.1 | 0.3 | 0.1 | 4.3 | 4.4 |
| 1.9 | 0.5 | 0.1 | 0.2 | 1.4 | 2.4 | 3.8 |
| 0.9 | 0.8 | 0.1 | 0.2 | 0.9 | 1.9 | 2.8 |
| 0.8 | 0.1 | 0.1 | 0.1 | 1.8 | 1.5 | 3.3 |
| 2.0 | 0.4 | 0.1 | 0.2 | 0.2 | 2.6 | 2.8 |
| 2.2 | 0.6 | 0.1 | 0.2 | 0.2 | 2.9 | 3.1 |

## LAND SYSTEM 459, Facet 1.

Classification: 86Km Southward from Santa Cruz, towards Seco River, Bolivia.

Land form: A nearly flat plain.

Drainage: Poorly drained.

Vegetation: Deciduous forest.

Parent material: Alluvium from Río Grande River.

Source: Cochrane, T.T. 1973, Land Systems map of Bolivia, profile Xc 11-1, page 754.

0- 4 cm. Dark brown; clay loam; weak fine blocky structure; plastic, sticky; many pores; many roots; clear smooth boundary.

4-15 cm. Brown; clay loam; weak medium blocky structure; plastic, sticky; many pores; many roots; gradual smooth boundary.

15-85 cm. Dark reddish brown; clay; strong coarse blocky structure; very plastic, very stcky; few pores; common roots; diffuse smooth boundary.

85- cm. Reddish brown; moderate coarse blocky structure; very plastic, very sticky; few pores; very few roots; frequent mottles.

NOTE : No analytical data recorded.

## LAND SYSTEM 460, Facet 1.

Classification: Usti

Location: Lat. 17°13'S - Long. 62°40'W. Cantón Todos Santos, Santa Cruz Department, Bolivia.

Land form: Nearly level.

Drainage: Moderately well drained.

Vegetation: Grasses (cultivated, Yaraguá). Originally deciduous forest.

Parent material: Silty sediments from Grande River.

Source: Cochrare, T.T. 1973, Land Systems of Bolivia, profile Vc 5-1, pp 751-2.

0-12 cm. Dark grayish brown; silty, moderate medium blocky structure; friable; many roots.

12-22 cm. Yellowish brown; silty; moderate medium blocky structure; friable; many roots.

22-37 cm. Yellowish brown; sandy fine loam; weak blocky to single grain structure; friable; many roots.

37-58 cm. Yellowish brown; silty; weak medium blocky structure; friable; many roots.

58-72 cm. Yellowish brown; silty clay; weak fine blocky structure; friable; many roots.

72-90 cm. Brown; sandy fine loam; weak blocky structure; friable; many roots.

| Depth. ( cm ) | pH | E. C. umhos | P ppm | B.S. % |
|---|---|---|---|---|
| 0-12 | 7.1 | 90 | 220 | 79 |
| 12-22 | 7.3 | 43 | 320 | 71 |
| 26-36 | 6.9 | 69 | 245 | 97 |
| 36-57 | 7.2 | 151 | 240 | 85 |
| 58-70 | 8.2 | 42 | 170 | 96 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 8.1 | 3.5 | 0.2 | 1.3 | 3.5 | 13.1 | 16.6 |
| 5.5 | 1.2 | 0.3 | 0.9 | 1.8 | 7.8 | 9.6 |
| 5.2 | 1.2 | 0.3 | 0.5 | 0.2 | 7.2 | 7.4 |
| 14.7 | 3.0 | 0.4 | 0.6 | 1.3 | 7.2 | 8.5 |
| 4.9 | 2.8 | 0.3 | 0.2 | 0.3 | 8.2 | 8.5 |

NOTE: AC= Exch. acidity.
E.C. -1:5, soil:water.

## LAND SYSTEM 462, Facet 1.

Classification: Ustifluvent.

Location: Near La Esperanza. Cantón La Rochela, Santa Cruz Department, Bolivia.

Land form: Plain.

Drainage: Well to moderately well drained.

Vegetation: Sugar-cane and cotton.

Parent material: Alluvium from Río Grande.

Source: Cochrane, T.T. Land Systems Map of Bolivia, profile Xc 6-1, pp 754-1

0- 15 cm. Dark reddish brown; silty clay loam; weak fine blocky structure; slightly plastic, slightly sticky; many pores; many roots; abrupt smooth boundary.

15- 40 cm. Dark red; clay loam; weak medium blocky structure; plastic, sticky; many pores; few roots; abrupt smooth boundary.

40- 89 cm. Reddish brown; clay loam; weak fine blocky structure; slightly plastic, slightly sticky; few pores, very few roots; gradual smooth boundary.

89-128 cm. Yellowish brown; clay; moderate blocky structure; plastic, sticky; few pores; very few roots; nodules of carbonates; gradual wavy boundary.

128-150 cm. Yellowish red; sandy loam; structureless; non sticky, slightly plastic; many pores, many few roots; gradual wavy boundary.

150-210 cm. Deep white sand, no roots.

| Depth ( cm ) | pH | E. C. umhos | P ppm | B.S. % |
|---|---|---|---|---|
| 0- 10 | 7.1 | 160 | 17 | 100 |
| 20- 30 | 6.6 | 74 | 1 | 67 |
| 55- 65 | 6.7 | 70 | 3 | 73 |
| 100-110 | 8.3 | 165 | 1 | 98 |
| 130-140 | 8.4 | 200 | 1 | 100 |
| 160-170 | 8.3 | 100 | 4 | 100 |
| 200-210 | 8.5 | 60 | 3 | 100 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 12.0 | 3.8 | 0.35 | 0.69 | - | 16.8 | 16.8 |
| 12.4 | 4.4 | 0.35 | 0.28 | 8.4 | 17.4 | 25.8 |
| 11.0 | 4.0 | 0.33 | 0.45 | 5.7 | 15.8 | 21.5 |
| 29.6 | 3.4 | 0.85 | 0.35 | - | 34.2 | 34.8 |
| 28.8 | 4.4 | 0.94 | 0.34 | 0.6 | 34.5 | 34.5 |
| 5.4 | 1.8 | 0.24 | 0.11 | - | 7.6 | 7.6 |
| 3.6 | 0.6 | 0.18 | 0.05 | - | 4.4 | 4.4 |

## LAND SYSTEM 463, Facet 1.

Classification: Ustifluvent.

Location: Lat. 17°35'S - Long. 62°51'W. Cantón Puerto Banegas, Santa Cruz Department, Bolivia.

Land form: Plain.

Drainage: Moderately well drained.

Vegetation: Originally semi-evergreen seasonal forest.

Parent material: Silty alluvium from Grande River.

Source: Cochrane, T.T. Land Systems Map of Bolivia, profile Xc 5-2, pp 753-4.

1.5-0 cm. Layer of leaves in decomposition.

0-4 cm. Dark yellowish brown; silty loam; weak fine blocky structure; slightly plastic, slightly sticky; many roots; clear smooth boundary.

4-12 cm. Dark yellowish brown; silty loam; weak fine blocky structure; many roots; gradual smooth boundary.

12-55 cm. Yellowish brown; silty loam; weak fine blocky structure; plastic, sticky; many roots; gradual smooth boundary.

55-75 cm. Pale brown; silty loam; weak fine blocky structure; plastic, sticky; many roots; few mottles; gradual smooth boundary.

75- cm. Pale brown; silt; weak fine blocky structure; plastic, sticky; few roots.

| Depth ( cm ) | pH | E.C. umhos | P ppm | B.S. % |
|---|---|---|---|---|
| 0- 4 | 7.5 | 270 | 200 | 100 |
| 4-12 | 7.0 | 66 | 160 | 95 |
| 15-25 | 6.5 | 30 | 170 | 94 |
| 30-40 | 6.9 | 17 | 166 | 80 |
| 60-70 | 7.2 | 25 | 113 | 99 |
| 85-95 | 7.4 | 50 | 240 | 100 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 21.8 | 4.6 | 0.2 | 0.9 | - | 27.0 | 27.0 |
| 7.2 | 1.2 | 0.1 | 0.7 | 0.5 | 10.5 | 11.0 |
| 4.0 | 2.8 | 0.1 | 0.5 | 0.2 | 7.4 | 7.9 |
| 2.4 | 2.4 | 0.2 | 0.2 | 0.3 | 5.2 | 6.4 |
| 3.6 | 4.0 | 0.1 | 0.3 | 0.2 | 8.8 | 8.8 |
| 4.1 | 2.0 | 0.1 | 0.2 | - | 7.4 | 7.4 |

## LAND SYSTEM 464, Facet 1.

Classification: Ustifluvent.

Location: Lat. 16°49'S - Long. 63°28'W. Cantón Chané Independencia, Santa Cruz Department, Bolivia.

Land form: Plain.

Drainage: Moderately well drained.

Vegetation: Semi-evergreen seasonal forest.

Parent material: Alluvium from Rio Grande.

Source: Cochrane, T.T. 1973, Land Systems Map of Bolivia, profile Xc 1-1, pp 749-50

0- 3 cm. Brown; silt; moderate medium crumb structure; plastic, sticky; many roots; clear smooth boundary.

3- 8 cm. Yellowish brown; silty clay; moderate fine blocky structure; very plastic, very sticky, many roots; gradual irregular boundary.

8-22 cm. Brown; silty clay; strong medium blocky structure; very plastic, very sticky;many pores; many roots; clear irregular boundary.

22-45 cm. Yellowish brown; silt; weak medium blocky structure; plastic, sticky; many roots; gradual wavy boundary.

45-65 cm. Brown; silty clay; moderate medium blocky structure; very plastic, very sticky; many pores, many roots; gradual wavy boundary.

85- cm. Pale yellowish brown; silty loam; moderate fine platy structure; very plastic, very sticky; few roots; few brownish yellow mottles.

| Depth ( cm ) | pH | E. C. umhos | P ppm | B.S. % |
|---|---|---|---|---|
| 1- 3 | 7.4 | 320 | 42 | 87 |
| 3- 8 | 6.9 | 95 | 42 | 80 |
| 10- 20 | 6.7 | 35 | 46 | 87 |
| 25- 35 | 6.7 | 11 | - | 78 |
| 55- 65 | 6.9 | 14 | - | 65 |
| 70- 80 | 6.7 | 18 | - | 64 |
| 105-120 | 7.8 | 72 | - | 98 |

NOTE: AC= Exch. acidity.
E.C.= 1:5, soil: water

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 18.7 | 3.4 | 0.2 | 0.6 | 3.5 | 23.8 | 27.3 |
| 10.0 | 4.9 | 0.2 | 0.[illegible] | 18.2 | 1.6 | 19.8 |
| 8.5 | 2.2 | 0.2 | 0.4 | 1.8 | 12.5 | 14.3 |
| 3.8 | 1.1 | 0.1 | 0.2 | 1.3 | 4.6 | 5.9 |
| 6.8 | 1.0 | 0.1 | 0.2 | 4.3 | 8.0 | 12.3 |
| 6.1 | 1.0 | 0.1 | 0.3 | 4.5 | 8.0 | 12.5 |
| 14.1 | 2.3 | 0.2 | 0.4 | 0.4 | 17.0 | 17.4 |

## LAND SYSTEM 470, Facet 1.

Classification: Tropofluvent.

Loation: Lat. 16°45'S - Long. 62°37'W. Santa Cruz Department, Bolivia.

Land form: Nearly level to gently undulating.

Drainage: Well drained.

Vegetation: Deciduous forest.

Parent material: Alluvium from San Julián river.

Source: Cochrane, T.T. 1973. Land Systems Map of Bolivia, profile VII-c-10-1, pp 720-1.

2.5-0 cm. Dry leaves.

0.5-0 cm. Layer of leaves in decomposition.

0- 8 cm. Dark brown; silty loam; moderate medium granular structure; slightly plastic, slightly sticky; few pores; many roots; clear smooth boundary.

8-30 cm. Dark brown; silty loam; moderate fine blocky structure; slightly plastic, slightly sticky; many pores, many roots; gradual smooth boundary.

30-65 cm. Dark yellowish brown; silty clay loam; weak medium blocky structure; plastic, sticky; many pores; many roots; clear smooth boundary.

65- cm. Yellowish brown; sandy loam; structureless; slightly sticky, non plastic, few pores; few roots.

| Depth. ( cm ) | pH | E. C. umhos. | P ppm | B.S. % |
|---|---|---|---|---|
| 0- 5 | 6.8 | 370 | 111 | 90 |
| 1[illegible]- 25 | 6.6 | 57 | 92 | 84 |
| 40- 55 | 6.4 | 16 | 27 | 73 |
| 70- 85 | 6.8 | 14 | 56 | 81 |
| 100-110 | 6.0 | 18 | 76 | 80 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 23.7 | 5.4 | 0.3 | 3.5 | 2.4 | 23.0 | 25.4 |
| 5.8 | 2.5 | 0.1 | 0.2 | 1.8 | 8.8 | 10.6 |
| 4.2 | 3.5 | 0.2 | 0.1 | 3.1 | 8.1 | 11.2 |
| 2.5 | 3.1 | 0.1 | 0.1 | 1.3 | 5.9 | 7.2 |
| 3.1 | 2.0 | 0.2 | 0.1 | 1.3 | 5.4 | 6.7 |

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## LAND SYSTEM 471, Facet 1.

Classification: Tropaquent.

Location: Lat. 16°32'S - Long. 62°39'W. Cantón Santa Rosa Mina, Santa Cruz Department, Bolivia.

Land form: Plain.

Drainage: Moderately well drained.

Vegetation: Seasonal deciduous forest.

Parent material: Alluvium from San Julián River.

Source: Cochrane, T.T. 1973, Land Systems Map of Bolivia, profile VII c 8-2, pp 719-20

7.5- 5 cm. Dry leaves.

5- 0 cm. Layer of plants in decomposition.

0- 10 cm. Dark brown; silty clay loam; weak fine blocky structure; slightly plastic, slightly sticky; few pores, many roots; clear smooth boundary.

10- 55 cm. Very dark brown; clay; weak fine blocky structure; slightly plastic, slightly sticky; few pores; gradual smooth boundary.

55-110 cm. Dark brown; clay; weak fine blocky structure; slightly sticky, plastic; few roots; gradual smooth boundary.

110-130 cm. Very dark brown; weak fine blocky structure; slightly sticky; very plastic; no roots.

| Depth. ( cm ) | pH | E. C. umhos | P ppm | B.S. |
|---|---|---|---|---|
| 0- 5 | 6.8 | 107 | 86 | 78 |
| 15- 25 | 6.7 | 10 | 26 | 84 |
| 35- 45 | 6.6 | 8 | 5 | 54 |
| 65- 75 | 6.2 | 16 | 16 | 67 |
| 85- 95 | 6.8 | 16 | 110 | 90 |
| 115-125 | 7.2 | 18 | 71 | 92 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 22.3 | 0.5 | 0.5 | 2.8 | 8.7 | 31.5 | 40.2 |
| 12.7 | 3.8 | 0.4 | 1.8 | 3.5 | 18.7 | 22.2 |
| 9.5 | 0.8 | 0.3 | 0.1 | 9.6 | 11.5 | 21.1 |
| 11.2 | 0.3 | 0.6 | 2.0 | 6.9 | 14.1 | 21.0 |
| 8.3 | 6.3 | 0.5 | 0.8 | 1.7 | 16.2 | 17.9 |
| 9.3 | 6.3 | 0.7 | 2.0 | 1.6 | 18.8 | 20.4 |

## LAND SYSTEM 472, Facet 1.

Classification: Tropofluvent.

Location: Lat. 16°46'S - Long. 62°28'W. Cantón San Ramón, Santa Cruz Department, Bolivia.

Land form: Alluvial terrace, nearly level.

Drainage: Well drained.

Vegetation: Seasonal deciduous forest.

Parent material: Alluvium from San Julián river.

Source: Cochrane, T.T. 1973, Land Systems Map of Bolivia, profile VII c 8-1, pp 717-8.

3- 1 cm. Dry leaves.

1- 0 cm. Layer of leaves in decomposition.

0- 5 cm. Dark brown; silty loam; moderate fine granular structure; slightly sticky, slightly plastic; frequent pores, many roots; clear boundary.

5-18 cm. Yellowish brown; silty loam; weak medium blocky structure; slightly sticky; non plastic; frequent pores; few roots; gradual boundary.

15-45 cm. Dark brown; silty loam; moderate blocky structure; slightly plastic, slightly sticky; frequent pores; few roots; clear boundary.

45- cm. Dark brown; silty loam; weak medium blocky structure; few pores; few roots; abrupt boundary.

| Depth. ( cm ) | pH | E.C. umhos | P ppm | B.S. % |
|---|---|---|---|---|
| 0- 5 | 5.7 | 40 | 76 | 97 |
| 6-16 | 5.2 | 41 | 51 | 51 |
| 25-35 | 5.4 | 18 | 3 | 80 |
| 50-60 | 7.1 | 19 | 21 | 97 |
| 70-80 | 7.4 | 76 | 16 | 98 |

Note : AC= Exch. acidity.
E.C.= 1:5 soil; water.

EXCHANGE COMPLEX (meq/100 )

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 15.6 | 4.5 | 0.4 | 1.8 | 0.7 | 22.3 | 23.0 |
| 3.2 | 2.2 | 0.2 | 0.3 | 5.5 | 6.0 | 11.5 |
| 4.7 | 3.8 | 0.3 | 0.6 | 2.4 | 9.8 | 12.2 |
| 4.5 | 3.4 | 0.3 | 0.7 | 0.2 | 9.0 | 9.2 |
| 5.3 | 4.3 | 0.3 | 1.1 | 0.2 | 11.0 | 11.2 |

## LAND SYSTEM 484, Facet 1.

Classification: Haploxeralf.

Location: 2.5Km northwards San José, Chiquitos, Santa Cruz Department, Bolivia.

Land form: Valley bottom undulating.

Drainage: Well drained.

Vegetation: Deciduous thorny forest.

Parent material: Sandstones.

Source: Cochrane, T.T. 1973, Land Systems Map of Bolivia, profile IX a 1-1, pp 731-2.

0- 12 cm. Very dark grayish brown; sandy loam; weak fine blocky structure; non plastic, non sticky; frequent pores; many roots; gradual smooth boundary.

12- 22 cm. Dark yellowish brown; sandy loam; moderate fine blocky structure; non plastic, non sticky; frequent pores; few roots; gradual smooth boundary.

22- 44 cm. Yellowish brown; sandy clay loam; strong fine blocky structure; non plastic, non sticky; frequent pores; few roots; gradual smooth boundary.

44- 52 cm. Yellowish brown; sandy clay loam; strong medium prismatic structure; plastic, sticky; frequent pores; few roots; strong cementation; clear smooth boundary.

52- 92 cm. Dark brown; sandy clay; strong medium prismatic structure; plastic, sticky; frequent pores; few roots; strong cementation; clear smooth boundary.

92-150 cm. Yellowish brown; sandy clay; strong medium prismatic structure; plastic, sticky; frequent pores; few roots; strong cementation; clear smooth boundary.

150- cm. Parent rock, sandstone.

| Depth. ( cm ) | pH | E. C. umhos | P ppm | B.S. % |
|---|---|---|---|---|
| 4- 10 | 6.0 | 114 | 14 | 44 |
| 15- 21 | 6.5 | 60 | 1 | 51 |
| 25- 35 | 5.6 | 40 | 2 | 53 |
| 44- 50 | 5.8 | 200 | 0.3 | 61 |
| 60- 75 | 7.4 | 290 | 3 | 70 |
| 110-130 | 7.8 | 220 | 0.3 | 70 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 3.4 | 1.0 | 0.56 | 0.20 | 6.6 | 5.2 | 11.8 |
| 1.7 | 0.9 | 0.20 | 0.15 | 2.8 | 3.0 | 5.8 |
| 1.6 | 1.2 | 0.16 | 0.11 | 2.7 | 3.1 | 5.8 |
| 2.4 | 2.2 | 1.08 | 0.14 | 3.7 | 5.8 | 9.5 |
| 6.8 | 4.4 | 2.40 | 0.28 | 10.1 | 9.9 | 20.0 |
| 5.6 | 4.4 | 2.08 | 0.24 | 5.2 | 12.3 | 17.5 |

## LAND SYSTEM 602, Facet 1. (dominant soil)

Classification: Oxic Paleustalf, fine loam, mixed iso-hypertermic.

Location: 5.5Km from Barinas airport, Barinas State, Venezuela.

Relief: Upper position of the Pleistocene alluvial plain, slope 0.5%.

Drainage: Well drained.

Vegetation: Savanna with trees and shrubs.

Parent material: Pleistocene alluviums from mixed rocks.

Source: Schargel R, 1978 PH.D Thesis, North Carolina S.U., U.S.A.

$A_1$ : 0-8 cm. 5YR 2/2; sandy loam; weak fine blocky structure; hard, very friable; common roots; clear smooth boundary.

$A_3$ : 8-26 cm. 5YR 3/3; sandy clay loam; weak fine blocky structure; hard; friable; few roots; clear smooth boundary.

$B_1$ : 26-47 cm. 2.5YR 3/4 sandy clay loam; weak fine blocky structure; hard, very friable few roots; diffuse smooth boundary.

$B_{21}t$ : 47-100 cm. 2.5YR 3/6; sandy clay; moderate fine blocky structure; hard, very friable; common clay skins; few roots; diffuse smooth boundary.

$B_{22}t$ : 100-160 cm. 2.5YR 3/6; clay; moderate fine blocky structure; hard, friable; common clay skins; few roots; diffuse smooth boundary.

$B_{23}t$ : 160-180 cm. 5YR 4/6; sandy clay; weak fine blocky structure; hard; friable; common clay skins; few roots.

$B_3$ : 180-240 cm. 5YR 4/4; sandy clay; weak coarse blocky structure; slightly plastic, slightly sticky.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.7 | 4.8 | 1.01 | 0.08 | 2.1 | 78 | - |
| $A_3$ | 5.4 | 4.5 | 0.74 | 0.05 | 1.0 | 53 | - |
| $B_1$ | 5.2 | 4.3 | 0.55 | 0.05 | 1.0 | 30 | 10 |
| $B_{21}t$ | 5.4 | 4.6 | 0.23 | 0.03 | 0.4 | 29 | - |
| $B_{22}t$ | 5.6 | 5.0 | 0.08 | 0.03 | 1.0 | 49 | - |
| $B_{23}t$ | 5.6 | 4.9 | 0.04 | - | 0.4 | 58 | - |
| $B_3$ | 5.7 | 5.0 | - | - | 0.4 | 57 | - |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 2.1 | 1.4 | 0.4 | 0.1 | 0.3 | t | 4.0 | 4.3 |
| 1.4 | 0.9 | 0.2 | 0.1 | 0.4 | t | 2.6 | 3.0 |
| 0.9 | 0.6 | 0.1 | 0.1 | 0.4 | 0.2 | 1.7 | 2.3 |
| 1.0 | 0.7 | 0.2 | 0.1 | 0.4 | t | 2.0 | 2.4 |
| 1.6 | 1.4 | 0.3 | 0.1 | 0.2 | t | 3.4 | 3.6 |
| 1.9 | 1.8 | 0.3 | 0.1 | 0.3 | t | 4.1 | 4.4 |
| 2.0 | 1.8 | 0.3 | 0.2 | 0.3 | t | 4.3 | 4.6 |

## LAND SYSTEM 602, Facet 1. (inclusion)

Classification: Oxic Paleustult, clay; mixed, isohyperthermic.

Location: 3Km SW of Socopó, Distrito Pedraza, Barinas State, Venezuela.

Relief: Flattened higher areas of alluvial terraces, site slope 2%.

Drainage: Well drained.

Vegetation: Originally semi-deciduous forest.

Parent material: Pleistocene alluvium derived from mixed rocks.

Source: Schargel, R. 1978. PH.D Thesis, N.C.U.S., USA.

Ap : 0-9 cm. 7.5YR 4/3; clay loam; moderate medium blocky structure; friable, many roots; few Fe-Mn nodules; clear smooth boundary.

Note : AC= Exch.Acidity.
EC= 1:5, soil: water.

$A_3$ : 9-21 cm. 7.5YR 4.5/4; silty clay; moderate medium blocky structure; friable many roots; few Fe-Mn nodules; gradual smooth boundary.

$B_1t$ : 21-32 cm. 5YR 4.5/6; clay; strong fine blocky structure ; friable; few clay skins; common roots; few Fe-Mn nodules; gradual smooth boundary.

$B_{21}t$ : 32-60 cm. 5YR 4/8; clay; strong fine blocky structure; friable; common clay skins; few roots; clear wavy boundary.

$B_{22}t$ : 60-82 cm. 5YR 5/6; clay; strong fine blocky structure; friable; common clay skins; few roots; 2% rock fragments; clear smooth boundary.

$IIB_{23}t$: 5YR 5/6; clay; moderate medium blocky structure; friable; common clay skins; very few roots; 12% rock fragments; nodules; clear smooth boundary.

$IIB_{24}t$: 120-155 cm. 10YR 5/6; clay; mottles 2.5YR 3/6; 5% plinthite nodules; moderate medium blocky structure; very few roots; few nodules; 24% rock fragments; abrupt smooth boundary.

$IIIB_{25}t$: 155-300 cm. 10YR 5/6 and 2.5YR 3/6; clay; 5-10% plinthite nodules; weak blocky structure; friable; 4% rock fragments.

$IIIC_1$ : 300-350 cm. 7.5YR 5/8; clay loam: mottles 2.5YR 5/6 and 10YR 7/8.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| Ap | 5.6 | 4.8 | 1.91 | 0.17 | 0.4 | 76 | - |
| $A_3$ | 4.9 | 3.8 | 0.98 | 0.09 | 1.0 | 38 | 27 |
| $B_1t$ | 4.6 | 3.6 | 0.66 | 0.07 | 0.4 | 20 | 54 |
| $B_{21}t$ | 4.9 | 3.8 | 0.39 | 0.04 | t | 9 | 56 |
| $B_{22}t$ | 5.1 | 4.1 | 0.23 | 0.05 | t | 8 | 58 |
| $B_{23}t$ | 5.1 | 4.1 | 0.16 | 0.04 | t | 8 | 60 |
| $B_{24}t$ | 5.2 | 4.0 | 0.08 | 0.06 | t | 13 | 55 |
| $B_{25}t$ | 5.1 | 4.0 | 0.04 | - | t | 7 | 75 |
| $C_1$ | 5.1 | 3.9 | 0.04 | - | t | 21 | 52 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 6.6 | 0.9 | 0.5 | 0.1 | 0.3 | t | 8.1 | 10.6 |
| 2.5 | 0.5 | 0.2 | 0.1 | 0.4 | 1.2 | 3.3 | 8.8 |
| 1.3 | 0.3 | 0.2 | 0.1 | 0.5 | 2.2 | 1.9 | 9.3 |
| 0.4 | 0.2 | 0.2 | 0.1 | 0.5 | 1.4 | 0.9 | 9.8 |
| 0.2 | 0.1 | 0.1 | 0.1 | 0.4 | 0.7 | 0.5 | 6.0 |
| 0.2 | 0.1 | 0.2 | 0.1 | 0.5 | 0.9 | 0.6 | 7.6 |
| 0.3 | 0.1 | 0.2 | 0.2 | 0.4 | 1.0 | 0.8 | 6.4 |
| 0.1 | 0.1 | 0.1 | 0.1 | 0.4 | 1.2 | 0.4 | 5.4 |
| 0.3 | 0.6 | 0.1 | 0.1 | 0.4 | 1.2 | 1.1 | 5.2 |

## LAND SYSTEM 607, Facet 1.

Classification: Aquultic Haplustalf.

Location: Irrigation System Boconó river, coordinates MOP $S_1$, $W_5$, Barinas State, Venezuela.

Physiography: Oldest surface of the alluvial plain of Boconó river.

Drainage: Imperfectly drained.

Vegetation: Recently deforested terrain.

Parent material: Alluvial.

Source: Schargel, R. 1972, In: Agr. Tropical, No. 4, Vol. XXII, pp 345-71.

$A_1$ : 0-24 cm. 10YR 5.5/2; silty loam; weak medium blocky structure; friable; few roots; clear smooth boundary.

$B_{21}$ : 24-52 cm. 10YR 6/6; mottles 10YR 5/1; silty loam; weak medium prismatic structure; few roots; gradual smooth boundary.

$B_{22}$ : 52-79 cm. clay loam; colour, mottles as above horizon; structure.

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consistence and roots are equal to the above horizon,

$C_1$ : 79-100 cm. Colour like the above horizon; mottles 10YR 5/1; fine sandy loam; moderate medium blocky structure; hard, friable; very few roots; gradual smooth boundary.

$C_2$ : 100-138 cm; loam. The other characteristics are similar to the above horizon.

NOTE : Strong cracks appears when the soil dries. There are many clay skins in the B horizon.

| HOR | pH | | C | N | B.S. |
|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | % |
| $B_{22}$ | 5.5 | 4.6 | 0.44 | 0.05 | 71 |
| $C_1$ | 5.7 | 4.7 | 0.27 | 0.04 | 72 |
| $C_2$ | 5.7 | 4.7 | 0.26 | 0.04 | 73 |

EXCHANGE COMPLEX(meq/100 g)

| Ca | Mg | K | Na | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 6.55 | 3.03 | 0.19 | 0.88 | 0.14 | 10.65 | 14.9 |
| 4.58 | 2.40 | 0.16 | 0.92 | 0.11 | 8.16 | 11.3 |
| 5.46 | 3.00 | 0.17 | 0.92 | 0.13 | 9.55 | 12.9 |

## LAND SYSTEM 607, Facet 2.

Classification: Aquic Haplustoll.

Location: Coordinates MOP E18+500, 59. Barinas State, Venezuela.

Physiography: Intermediate age surface of the Boconó river alluvial plain.

Drainage: Moderately well drained.

Vegetation: Forest.

Source: Schargel, R. 1972. In: Agr. Tropical, No. 4, Vol. XXII, pp 345-371.

$A_{11}$ : 0-15 cm. 10YR 3/1.5; loam;weak medium blocky structure; hard, friable; many roots; gradual smooth boundary.

$A_{12}$ : 15-41 cm. 10YR 3/2; loam; weak medium blocky structure; hard, friable; many roots; clear smooth boundary.

$IIB_{21}$ : 41-74 cm. 10YR 4.5/4; silty loam; moderate medium blocky structure; hard, friable; clear smooth boundary.

$IIB_{22}$ : 74-87 cm. 10YR 4.5/4; many dark gray mottles; moderate medium blocky structure; hard, friable; frequent roots; abrupt smooth boundary.

$IIIC_1$ : 87-120 cm. 10YR 3.5/3; coarse sandy loam; single grain; loose; few roots.

$IIIC_2$ : 120-150 cm. 10YR 4/4; coarse sand; single grain; loose; very few roots.

NOTE : Fe-Mn soft nodules throughout the profile; relatively scarce.

| HOR | pH | | C | N | B.S. |
|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | % |
| $A_{11}$ | 6.9 | 6.4 | 2.3 | 0.15 | 82 |
| $A_{12}$ | 6.5 | 5.6 | 1.1 | 0.08 | 75 |
| $IIB_{21}$ | 6.5 | 5.2 | 0.4 | 0.06 | 68 |
| $IIB_{22}$ | 6.1 | 5.0 | 0.4 | 0.06 | 70 |
| $IIIC_1$ | 6.5 | 5.1 | 0.2 | 0.02 | 67 |
| $IIIC_2$ | 6.4 | 4.9 | 0.1 | 0.01 | 71 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 9.20 | 1.47 | 0.72 | 0.56 | 2.62 | 11.95 | 14.57 |
| 7.49 | 1.12 | 0.68 | 0.36 | 3.18 | 9.75 | 12.83 |
| 4.99 | 2.18 | 0.72 | 0.19 | 3.79 | 6.08 | 11.82 |
| 7.17 | 3.59 | 0.72 | 0.18 | 4.86 | 11.06 | 16.52 |
| 2.11 | 0.92 | 0.37 | 0.07 | 1.68 | 3.47 | 5.15 |
| 1.64 | 0.71 | 0.17 | 0.06 | 1.02 | 2.58 | 3.60 |

## LAND SYSTEM 607, Facet 3.

Classification: Typic Ustifluvent.

Location: Coordinates MOP N7, W7+200, Barinas State, Venezuela.

Physiography: Recent surface of the Boconó river alluvial plain.

Drainage: Moderately well drained.

Vegetation: Originally forest; two years with crops.

Source: Schargel, R. 1972. In: Agr. Tropical, No. 4, Vol. XXII, pp 345-371.

Ap : 0-25 cm. 10YR 3.5/3; silty clay loam; weak medium blocky structure; hard, friable; clear smooth boundary.

$C_1$ : 25-45 cm. 10YR 3.5/3; silty loam; weak medium blocky structure; hard, friable; clear smooth boundary.

$A_1b$ : 45-88 cm. 10YR 3.5/2; mottles 10YR 4/1; silty clay loam; moderate medium blocky structure; hard, firm; clear smooth boundary; few roots.

$IIC_2$ : 88-145 cm. 10YR 3.5/2.5; sandy loam; single grain; loose; very few roots.

$IIIC_3$ : + 145 cm. Boulders.

| HOR | pH | | C | N | B.S. |
|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | % |
| Ap | 6.3 | 5.5 | 1.80 | 0.14 | 72 |
| $C_1$ | 6.2 | 5.1 | 0.63 | 0.08 | 73 |
| $A_1b$ | 6.4 | 5.2 | 0.82 | 0.09 | 72 |
| $IIC_2$ | 6.4 | 5.3 | 0.26 | 0.03 | 82 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | Ac | TEB | CEC |
|---|---|---|---|---|---|---|
| 9.36 | 1.62 | 0.69 | 0.19 | 4.58 | 11.86 | 16.64 |
| 8.42 | 1.34 | 0.69 | 0.12 | 3.93 | 10.57 | 14.50 |
| 10.76 | 1.72 | 0.76 | 0.15 | 4.30 | 13.39 | 17.69 |
| 3.98 | 0.81 | 0.35 | 0.10 | 1.12 | 5.24 | 6.36 |

## LAND SYSTEM 609, Facet 1.

Classification: Oxic Paleustult.

Location: 4Km NE of Hato Nuevo, El Pao Distric, Cojedes State,Venezuela.

Relief: Undulating relicts of alluvial Pleistocene depositions.

Drainage: Well drained.

Vegetation: Savanna with trees.

Source: Schargel, R. 1978. PH.D. Thesis, North Carolina S.U., USA.

$A_1$ : 0-12 cm. 10YR 3.5/3; fine sandy loam; weak fine blocky structure; very friable; common roots; clear wavy boundary.

$B_1$ : 12-36 cm. 10YR 5/6 and 10YR 4/3; clay; weak medium blocky structure; friable; common roots; few clay-skins; diffuse smooth boundary.

$B_{21}t$ : 36-76 cm. 7.5YR 5/6; clay loam; weak medium blocky structure; diffuse smooth boundary.

$B_{22}t$ : 73-106 cm. 7.5YR 5/8; clay; weak medium blocky structure; friable, few roots; few clay skins; many pores; gradual smooth boundary.

$B_{23}t$ : 106-152 cm. 5YR 5/8; clay; weak medium blocky structure; common clay skins; abrupt smooth boundary.

$B_{24}t$ : 152-200 cm. 10YR 6/4; clay; mottles 7.5YR 5/8 and 10YR 7/2; moderate medium blocky structure; very firm; common clay skins; 43 nodules of plinthite.

$B_{3}cn$ : 200-300 cm. 2.5YR 3.5/6 and 10YR 6/4;sandy clay; mottles 10YR 7/2 and 7.5YR 5/8; many hardened plinthite nodules.

NOTE : The five first horizons have Fe nodules.

| HOR | pH | | C | N | P | B.S. | Al.S. |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.4 | 3.6 | 0.82 | 0.05 | 5.7 | 41 | 54 |
| $B_1$ | 4.2 | 3.4 | 0.62 | 0.05 | 10.0 | 20 | 76 |
| $B_{21}t$ | 4.3 | 3.5 | 0.36 | 0.02 | 1.7 | 21 | 75 |
| $B_{22}t$ | 4.6 | 3.7 | 0.23 | - | 0.8 | 20 | 77 |
| $B_{23}t$ | 4.7 | 3.6 | 0.20 | - | 0.8 | 26 | 70 |
| $B_{24}t$ | 4.9 | 3.6 | 0.12 | - | 0.4 | 14 | 84 |

EXCHANGE COMPLEX (meq/100 g)

| Ca | Mg | Na | K | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.4 | 0.4 | 0.1 | 0.2 | 0.3 | 1.3 | 1.1 | 2.7 |
| 0.3 | 0.3 | 0.1 | 0.2 | 0.8 | 2.8 | 0.9 | 4.5 |
| 0.2 | 0.1 | 0.2 | 0.2 | 0.5 | 2.1 | 0.7 | 3.3 |
| 0.1 | 0.1 | 0.2 | 0.2 | 0.4 | 2.0 | 0.6 | 3.0 |
| 0.1 | t | 0.3 | 0.6 | 0.5 | 2.4 | 1.0 | 3.9 |
| 0.2 | 0.1 | 0.1 | 0.1 | 0.5 | 2.7 | 0.5 | 3.7 |

## LAND SYSTEM 617, Facet 1.

Classification: Haplustalf.

Location: Hato El Encuentro, Municipio Las Mercedes, Distrito Infante, Guárico State, Venezuela.

Physiography: Plian.

Slope: Level.

Vegetation: Savanna with trees including: Cují, guásimo, roble and caruto.

Source: Brito, P and C.R. 1975. "Calicatas"No. 250-300, MOP, Venezulla, pp 120-1, profile 295-VEN-63-Gu-30.

$A_1$ : 0-14 cm. 10YR 5/4; sandy; weak fine blocky structure; friable; abrupt smooth boundary.

$A_3$ : 14-32 cm. 2.5YR 5/6; sandy loam; weak fine blocky structure; friable; clear smooth boundary.

$B_{11}$ : 32-60 cm. 2.5YR 4/6; sandy clay loam; moderate medium blocky structure; diffuse smooth boundary.

$B_{12}$ : 60-95 cm. 2.5YR 4/6; sandy clay loam; moderate medium blocky structure; diffuse smooth boundary.

$B_{21}$ : 95-125 cm. 2.5YR 4/8; clay; moderate fine blocky structure; hard, friable; abrupt smooth boundary.

$B_{22}$ : + 195 cm. 5YR 5/6; red mottles; moderate medium blocky structure; hard, friable.

NOTE : The last horizon is largely plinthite. Water-table at 140 cm. depth.

| HOR | pH | | C | N | P | B.S. | Al.S. |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 6.0 | 5.0 | 0.29 | 0.03 | 12 | 10.0 | 41 |
| $A_3$ | 5.6 | 4.5 | 0.15 | 0.02 | 6 | 6.5 | 52 |
| $B_{11}$ | 5.0 | 4.0 | 0.11 | 0.03 | 6 | 3.2 | 29 |
| $B_{12}$ | 5.1 | 4.1 | 0.12 | 0.04 | 6 | 2.8 | 35 |
| $B_{21}$ | 5.3 | 4.0 | 0.17 | - | 1 | - | 21 |
| $B_{22}$ | 5.2 | 4.0 | 0.13 | - | 3 | - | 21 |

EXCHANGE COMPLEX (meq/100 )

| Ca | Mg | Na | K | H | TEB | CEC |
|---|---|---|---|---|---|---|
| 0.80 | 0.10 | 0.36 | 0.20 | 2.40 | 1.46 | 3.54 |
| 1.40 | 0.10 | 0.44 | 0.20 | 2.40 | 2.14 | 4.12 |
| 0.80 | 0.10 | 0.34 | 0.18 | 3.66 | 1.42 | 4.83 |
| 1.30 | 0.10 | 0.38 | 0.08 | 3.68 | 1.98 | 5.73 |
| 1.10 | 0.10 | 0.28 | 0.08 | 5.12 | 1.56 | 7.38 |
| 1.10 | 0.10 | 0.36 | 0.06 | 5.28 | 1.62 | 7.60 |

## LAND SYSTEM 619, Facet 2.

Classification: Tropofluvent.

Location: Asentamiento IAN-Campo Alegre, San Carlos Department, Cojedes State, Venezuela.

Physiography: Alluvial plain.

Drainage: Imperfectly drained to well drained.

Vegetation: Deciduous forest- (Samán, guásimo)

Source: "Calicatas", MOP, Venezuela, 1975. Profile 273-VEN-63-CO, pp 60-3.

$A_1$ : 0-13 cm. 5Y 4/1; clay loam; weak medium blocky structure; very hard, friable; abrupt smooth boundary.

$C_1$ : 13-38 cm. 5Y 6/2; silty clay; weak coarse blocky structure; very hard, firm; abrupt smooth boundary.

$A_1b_1$ : 38-50 cm. 5Y 4/1; silty clay loam; weak coarse blocky structure; extremely hard, friable; gradual smooth boundary.

$C_2b_1$ : 50-93 cm. 5Y 5/3; silty clay; gray mottles; weak coarse blocky structure; gradual smooth boundary.

$C_2b_1$ : 93-130 cm. 5Y 5/3; silty clay; gray mottles; weak coarse blocky structure; very hard, friable; gradual smooth boundary.

$C_3b_1$ : 130 cm+. 5Y 5/3; silty clay; gray mottles; weak coarse blocky structure.

| HOR | pH | | C | N | C/N | B.S. |
|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | % | % |
| $A_1$ | 6.5 | 5.5 | 2.58 | 0.19 | 13.48 | 72 |
| $C_1$ | 6.9 | 5.6 | 1.12 | 0.13 | 8.17 | 91 |
| $A_1b_1$ | 7.0 | 5.7 | 1.10 | 0.12 | 8.76 | 86 |
| $C_1b_1$ | 8.1 | 6.8 | 0.40 | 0.11 | 3.49 | 99 |
| $C_2b_1$ | 8.1 | 6.9 | 0.46 | 0.12 | 3.90 | 99 |
| $C_3b_1$ | 7.8 | 6.7 | 0.28 | 0.12 | 2.28 | 99 |

EXCHANGE COMPLEX ( meq/100 g )

| Ca | Mg | Na | K | H | TEB | CEC |
|---|---|---|---|---|---|---|
| 14.1 | 2.05 | 0.31 | 0.14 | 7.00 | 16.3 | 23.0 |
| 18.0 | 0.99 | 0 34 | 0.06 | 3.70 | 19.4 | 21.2 |
| 16.7 | 0.74 | 0.35 | 0.06 | 3.70 | 17.9 | 20.8 |
| 14.0 | 0.55 | 0.33 | 0.05 | 1.30 | 14.9 | 15.0 |
| 17.5 | 0.67 | 0.39 | 0.05 | 1.50 | 18.6 | 19.0 |
| 19.0 | 0.73 | 0.46 | 0.06 | 1.25 | 20.3 | 20.9 |

## LAND SYSTEM 620, Facet 2.

Classification: Haplustalf.

Location: El Rosario, Municipio Santa Teresa, Distrito Paz Castillo, Miranda State, Venezuela.

Physiography: Undulating high terrace.

Drainage: Well drained.

Parent material: Colluvium.

Source: "Calicatas", MOP, Venezuela, 1975. Profile 287-

VEN-63-MI-36, pp 100-2.

$A_{11}$ : 7.5YR 4/4; clay loam; strong medium blocky structure; slightly hard, very friable; clear smooth boundary.

$A_{12}$ : 15-45 cm. 5YR 4/8; loam; strong fine blocky structure; slightly hard, very friable; diffuse smooth boundary.

$B_{11}$ : 45-74 cm. 5YR 4/8; loam; strong fine blocky structure; slightly hard, very friable; diffuse smooth boundary.

$B_{12}$ : 75-118 cm. 5YR 4/8; clay loam; strong medium bloky structure; diffuse smooth boundary.

$B_{21}$ : 118-170 cm. 5YR 4/9; clay loam; strong medium bloky structure; slightly hard, very friable; abrupt smooth boundary.

| HOR | pH $H_2O$ | pH KCl | C % | N % | C/N | B.S. % |
|---|---|---|---|---|---|---|
| $A_{11}$ | 6.4 | 6.4 | 0.78 | 0.13 | 5.95 | 52 |
| $A_{12}$ | 5.0 | 5.1 | 0.46 | 0.08 | 5.29 | - |
| $B_{11}$ | 5.0 | 5.3 | 0.33 | 0.05 | 5.89 | - |
| $B_{12}$ | 5.0 | 5.1 | 0.19 | 0.05 | 3.39 | - |
| $B_{21}$ | 5.0 | 5.1 | 0.20 | - | - | - |
| . | 4.6 | 4.6 | 0.13 | - | - | 42 |

| Ca | Mg | Na | K | H | TEB | CEC |
|---|---|---|---|---|---|---|
| 4.00 | 0.21 | 0.20 | 0.46 | 3.68 | 4.87 | 9.37 |
| 1.50 | - | 0.26 | 0.26 | 6.40 | - | 8.46 |
| 1.60 | - | 0.28 | 0.18 | 4.96 | - | 6.91 |
| 1.60 | - | 0.34 | 0.12 | 4.48 | - | 7.16 |
| 1.70 | - | 0.40 | 0.10 | 4.96 | - | 7.38 |
| 2.50 | 0.21 | 0.40 | 0.14 | 5.12 | 3.25 | 7.81 |

## LAND SYSTEM 620, Facet 3.

Classification: Eutropept intergrade to Tropofluvent.

Location: Charallave road, Urdaneta Department, Miranda State, Venezuela.

Physiography: First terrace in a valley.

Vegetation: Jobo, jabillo, orore, and ceiba.

Parent material: Alluvial.

Source: "Calicatas", MOP, Venezuela, 1975. Profile 291-VEN-63-MI-40, pp 110-2.

$A_{11}$ : 0-12 cm. 10YR 4/3; silty loam; weak coarse blocky structure; strongly calcareous; clear smooth boundary.

$A_{12}$ : 12-28; 10YR 4/3; silty loam; moderate coarse blocky structure; strongly calcareous; abrupt smooth boundary.

$C_1$ : 28-50 cm. 10YR 4/3; silty loam; moderate coarse blocky structure; strongly calcareous; abrupt smooth boundary.

$C_2sa$ : 50-68 cm. 10YR 5/3; silty loam; moderate coarse blocky structure; strongly calcareous; abrupt smooth boundary.

$C_3sa$ : 68-97 cm. 10YR 5/3; silty loam; moderate coarse blocky structure; strongly calcareous; abrupt smooth boundary.

$C_4$ : 97-107 cm. 10YR 5/3; sandy; structureless; loose.

$A_1b_1$ : 107-125 cm. 10YR 5/3; loam; weak coarse blocky structure; strongly calcareous; clear smooth boundary.

$C_1b_1$ : 125-150 cm. 10YR 4/3; silty loam; moderate medium blocky structure; clear smooth boundary.

$C_2b_1$ : 150-176 cm. 10YR 4/3; loam; weak coarse blocky structure; strongly calcareous; clear smooth boundary.

$C_3b_1$ : + 176 cm. 10YR 4/3; sandy; structureless; strongly calcareous.

| HOR | pH $H_2O$ | pH KCl | C % | N % | C/N |
|---|---|---|---|---|---|
| $A_{11}$ | 7.9 | 7.0 | 0.46 | 0.10 | 4.22 |
| $A_{12}$ | 8.0 | 7.0 | 0.54 | 0.12 | 4.35 |
| $C_1$ | 7.9 | 7.2 | 0.51 | 0.12 | 4.11 |
| $C_2sa$ | 7.8 | 7.3 | 0.45 | 0.11 | 3.95 |
| $C_3sa$ | 7.7 | 7.3 | 0.47 | - | - |
| $C_4$ | 7.7 | 7.3 | 0.15 | - | - |
| $A_1b_1$ | 7.7 | 7.2 | 0.41 | - | - |
| $C_1b_1$ | 8.0 | 7.0 | 0.62 | - | - |
| $C_2b_2$ | 8.3 | 7.2 | 0.38 | - | - |
| $C_3b_1$ | 7.7 | 7.7 | 0.11 | - | - |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | Na | K | TEB | CEC |
|---|---|---|---|---|---|
| 12.5 | - | 0.30 | 0.10 | 12.9 | 22.3 |
| 13.4 | 0.21 | 0.36 | 0.12 | 14.0 | 14.3 |
| 13.1 | 0.21 | 0.08 | 0.08 | 14.2 | 14.1 |
| 10.7 | - | 1.24 | 0.08 | - | 11.9 |
| 12.5 | 0.21 | 1.32 | 0.08 | 14.1 | 12.7 |
| 6.5 | - | 0.66 | 0.18 | - | 7.1 |
| 10.5 | 0.63 | 0.98 | 0.16 | 12.2 | 11.4 |
| 16.3 | 1.88 | 1.04 | 0.14 | 19.3 | 17.7 |
| 12.0 | 0.63 | 0.64 | 0.14 | 13.4 | 12.3 |
| 7.7 | 0.21 | 0.50 | 0.18 | 8.5 | 8.0 |

## LAND SYSTEM 621, Facet 1.

Classification: Fluventic Haplustoll.

Location: CNIA, Maracay, Aragua State, Venezuela

Elevation: 400-500 m amsl.

Drainage: Well drained.

Vegetation: Dry forest, submontane.

Source: Avilán R.L. and M.F. In: Agr. Tropical, No. 5, Vol. XXVII, pp 491-4; 1977.

Ap : 0-30 cm. 10YR 3/1; clay loam; moderate medium blocky structure; friable; slightly plastic, slightly sticky.

C : 30-60 cm. 10YR 3/1; mottles 10YR 3/3; moderate fine blocky structure; friable; loam; plastic, sticky.

$A_1b_1$ : 60-100 cm. 10YR 3/2; loam; moderate fine blocky structure; friable; plastic, sticky.

C : 100- 130 cm. 10YR 3/2; loam; moderate fine blocky structure; friable; plastic, sticky.

$A_1b_2$ : 130 cm+. 10YR 3/2; loam; moderate fine blocky structure; friable; plastic, sticky.

| HOR | pH | O.M % |
|---|---|---|
| Ap | 7.7 | 3.40 |
| C | 7.7 | 2.63 |
| $A_1b$ | 7.7 | 2.80 |

PPM

| P | K | Ca | $NO_3$ |
|---|---|---|---|
| 28 | 72 | 1000 | 14 |
| 26 | 60 | 980 | 10 |
| 24 | 48 | 1000 | 14 |

## LAND SYSTEM 626 (inclusion)

Classification: Tropofibrist.

Location: Buena Vista depression, Bajo Casanay; delta area of the Gulf, Venezuela,

Drainage: Poorly drained.

Vegetation: Enea (Typha Sp ), cortadora (Scleria Sp) and juncos (Cyperus, Sp ).

Parent material: Turf over clay.

Source: Jahn, R.E. 1970. In: Agr. Tropical, No. 5, Vol. XX, pp 299-309.

0-270 cm. Fibrist organic deposit. Gray N 5/1 (dry) and N 2/2 (moist); very slight to "soft". Porous. Many little roots, reddish. Non calcareous.

270-400 cm. Caly; 10YR 4/3; to N 2/1; hard, firm; very plastic; non calcareous.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % |
|---|---|---|---|---|---|---|
| 0-270 | 7.5 | 6.45 | 29.04 | 1.95 | 872 | 100 |
| 270-400 | 7.45 | 7.25 | 4.22 | 0.32 | 639 | 100 |

EXCHANGE COMPLEX ( meq/100 g )

| Ca | Mg | K | Na | TEB | CEC |
|---|---|---|---|---|---|
| 89.4 | 15.6 | 1.1 | 6.4 | 112.51 | 112.51 |
| 33.5 | 3.1 | 0.8 | 2.1 | 39.53 | 39.53 |

## LAND SYSTEM 628, Facet 1.

Classification: Typic Paleustult, fine loam; siliceous, isohypertermic.

Locat :: Maturin District, Monagas State, Venezuela. Cabaña Viboral, Las Piedritas.

Relief: Nearly level to gently undulating.

Physicgraphy: Alluvail terraces of Mesa Formation.

Drainage: Well drained.

Vegetation: Sàvanna with few scattered trees.

Parent material: Pleistocene alluvium derived from sedimentary rocks.

Source: Schargel, R. 1978. PH.D. Thesis, North Carolina S.U., USA.

$A_{11}$ : 0-11 cm. 10YR 3/1; very weak medium blocky structure; soft, very friable; non plastic, non sticky; few Fe-nodules; gradual smooth boundary.

$A_{12}$ : 11-51 cm. 10YR 3/1; sandy loam; weak medium blocky structure; hard, very friable; slightly plastic, slightly sticky; common fine roots; gradual wavy boundary.

$B_1$ : 51-78 cm. 5YR 4.5/8; sandy clay loam; moderate medium blocky structure; hard, friable; plastic, sticky; many clay skins; very few roots; very few rock fragments; gradual smooth boundary.

$B_{21}t$ : 78-147 cm. 2.5YR 4.5/8; sandy clay loam; moderate medium blocky structure; hard, friable; plastic, sticky; many clay skins; very few roots; very few rock fragments; gradual smooth boundary.

$B_{22}t$ : 147-200 cm. 2.5YR 4/8; sandy clay; moderate medium blocky structure; hard, friable; plastic and sticky; many clay skins; very few rock fragments.

$B_{23}t$ : 200-305 cm. 10R 4/8; sandy loam; very friable; plastic and sticky; very few rock fragments.

$B_3$ : 305-350 cm. 2.5YR 4/8; sandy loam; very friable; slightly sticky, slightly plastic; very few rock fragments.

IIC : 350-370 cm. 2.5YR 5.5/8; sandy loam; 50% rock fragments.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_{11}$ | 4.8 | 3.7 | 1.09 | 0.05 | 2.8 | 44 | 50 |
| $A_{12}$ | 4.5 | 3.7 | 0.70 | 0.02 | 1.7 | 29 | 65 |
| $B_1$ | 4.6 | 3.6 | 0.27 | - | 1.0 | 27 | 68 |
| $B_{21}$ | 4.9 | 3.6 | 0.12 | - | 0.4 | 32 | 64 |
| $B_{22}$ | 4.9 | 3.5 | 0.08 | - | 0.4 | 26 | 70 |
| $B_{23}$ | 4.7 | 3.4 | 0.08 | - | t | 25 | 72 |
| $B_3$ | 4.8 | 3.5 | t | - | 0.4 | 27 | 66 |

EXCHANGE COMPLEX ( meq/100 g )

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.6 | 0.4 | 0.1 | 0.1 | 0.3 | 1.2 | 1.2 | 2.7 |
| 0.4 | 0.2 | 0.1 | 0.1 | 0.5 | 1.5 | 0.8 | 2.8 |
| 0.5 | 0.2 | 0.1 | 0.1 | 0.5 | 1.9 | 0.9 | 3.3 |
| 0.6 | 0.7 | 0.1 | 0.1 | 0.5 | 2.7 | 1.5 | 4.7 |
| 0.5 | 0.7 | 0.1 | 0.1 | 0.5 | 3.4 | 1.4 | 5.3 |
| 0.8 | 0.7 | 0.1 | 0.1 | 0.7 | 4.3 | 1.7 | 6.7 |
| 0.3 | 0.3 | 0.1 | 0.1 | 0.6 | 1.6 | 0.8 | 3.0 |

## LAND SYSTEM 629, Facet 1 (dominant)

Classification: Grossarenic Psammentic Haplustox.

Location: Mesa de Guanipa, Anzoategui State, Venezuela.

Physiography: Erosional glacis; intermediate position in the topo-sequence.

Drainage: Well drained.

Vegetation: Grasslands, with low density of shrubs.

Parent material: Sediments derived from Guayanas Shield, deposited by a Paleo-Orinoco river.

Source: Luque, M.O. 1977. In: Suelos Ecuatoriales, V Congr. Lat. Ciencia Suelo, Medellín, Colombia, pp 423-7.

$A_{11}$ : 0-14 cm. 10YR 3/3; sandy; massive; gradual smooth boundary.

$A_{21}$ : 14-46 cm. 10YR 5/8; sandy; massive; diffuse smooth boundary.

$A_{22}$ : 46-70 cm. 7.5YR 5/8; sandy; massive; gradual smooth boundary.

$B_1$ : 70-92 cm. 5YR 5/8; sandy; weak fine blocky structure; clear smooth boundary.

$B_{21}$ : 92-126 cm. 5YR 5/8; sandy; weak very fine blocky structure; diffuse smooth boundary.

$B_{22}$ : 126-160 cm. 5YR 5/8; sandy loam; weak very fine blocky structure; diffuse smooth boundary.

$B_{23}$ : 160-190 cm. 5YR 5/8; sandy loam; weak very fine blocky structure.

| HOR | C | N | C/N | $F_2O_5$ |
|---|---|---|---|---|
| $A_{11}$ | 0.53 | 0.02 | 27 | 17 |
| $A_{21}$ | 0.27 | 0.01 | 27 | 7 |
| $A_{22}$ | 0.28 | 0.02 | 14 | 11 |
| $B_1$ | 0.25 | 0.02 | 12 | 10 |
| $B_{21}$ | 0.13 | - | - | 10 |
| $B_{22}$ | 0.15 | - | - | 11 |
| $B_{23}$ | 0.13 | - | - | 11 |

| Prof. ( cm ) | pH $H_2O$ | pH KCl | B.S. % | CEC |
|---|---|---|---|---|
| 0- 14 | 5.2 | 4.1 | 48 | 2.0 |
| 14- 46 | 5.1 | 4.1 | 70 | 1.6 |
| 46- 70 | 4.9 | 3.9 | 50 | 1.8 |
| 70- 92 | 5.1 | 3.9 | 65 | 1.8 |
| 92-126 | 5.2 | 4.1 | 68 | 1.3 |
| 126-160 | 5.3 | 4.1 | 52 | 1.3 |
| 160-190 | 5.5 | 4.0 | 47 | 1.4 |

## LAND SYSTEM 629, Facet 1 (inclusion)

Classification: Typic Paleustult.

Location: Mesa de Guaripa, Anzoategui State, Venezuela.

Physiography: Erosional glacis, upper position of the toposequence.

Drainage: Well drained.

Vegetation: Grasslands, with low density of shrubs.

Parent material: Sediments derived from the Guayanês Shield, deposited by a Paleo-Orinoco river.

Source: Luque, M.O. 1977. In: Suelos Ecuatoriales, V Congr. Latinoam. Ciencia Suelo, Medellín, Colombia, pp 423-7.

$A_{11}$ : 0-12 cm. 10YR 3/2; sandy; weak,very fine blocky structure; clear smooth boundary.

$A_{21}$ : 12-40 cm. 10YR 5/0; sandy; weak very fine blocky structure; abrupt smooth boundary.

$B_{11}t$ : 40-74 cm. 5YR 5/0; sandy loam; weak fine blocky structure; clear smooth boundary.

$B_{21}t$ : 74-100 cm. 5YR 5/8; mottles 7.5YR 5/6; sandy loam; moderate fine blocky structure; clear smooth boundary.

$B_{22}t$ : 100-140 cm. 2.5YR 4/6; mottles 7.5YR 7/6;sandy loam; moderate medium blocky structure; diffuse smooth boundary.

$B_{23}t$ : 140-200 cm. 2.5YR 4/6; mottles 7.5YR 5/6; sandy loam; moderate medium blocky structure.

| HOR | C | N | C/N | $P_2O_5$ |
|---|---|---|---|---|
| | % | % | | |
| $A_{11}$ | 0.57 | 0.03 | 19 | 13 |
| $A_{21}$ | 0.47 | 0.02 | 24 | 13 |
| $B_{11}$ | 0.31 | 0.02 | 16 | 7 |
| $B_{21}$ | 0.26 | 0.02 | 13 | 10 |
| $B_{22}$ | 0.17 | - | - | 10 |
| $B_{23}$ | 0.14 | - | - | 7 |

| pH | | B.S. | CEC |
|---|---|---|---|
| $H_2O$ | KCl | % | % |
| 5.1 | 4.0 | 49 | 2.6 |
| 5.1 | 4.0 | 40 | 2.0 |
| 5.3 | 4.0 | 22 | 2.8 |
| 5.3 | 4.0 | 35 | 2.0 |
| 5.5 | 4.0 | 23 | 1.8 |
| 5.6 | 3.9 | 20 | 1.2 |

## LAND SYSTEM 629, Facet 3.

Classification: Ustoxic Quartzipsamment.

Location: Mesa de Guanipa, Anzoategui State, Venezuela.

Physiography: Small colluvium-alluvium valley.

Drainage: Well drained.

Vegetation: Grasslands, low density of shrubs.

Parent material:Colluvium -alluvium redeposited.

Source: Luque, M.O. 1977. In: Suelos Ecuatoriales, V Congr. Lat. Ciencia Suelo,Medellín, Colombia, pp 423-7.

$A_{11}$ : 0-15 cm. 10YR 3/2; massive; clear wavy boundary; sandy.

$A_{12}$ : 15-42 cm. 5YR 3/4; massive; clear smooth boundary.

$A_{21}$ : 42-90 cm. 5YR 3/4; massive; clear smooth boundary.

$A_{22}$ : 90-150 cm. 5YR 4/6; massive; sandy; clear smooth boundary.

$A_{23}$ : 150-190 cm. 2.5YR 5/6; massive; sandy; clear smooth boundary.

$B_1$ : 190-290 cm. Sand.

| HOR | C | N | C/N | $PO_4$ |
|---|---|---|---|---|
| | % | % | | |
| $A_{11}$ | 0.29 | 0.04 | 7.25 | 11 |
| $A_{12}$ | 0.25 | 0.01 | 14.7 | 14 |
| $A_{21}$ | 0.17 | - | - | 11 |
| $A_{22}$ | 0.09 | - | - | 11 |
| $A_{23}$ | 0.07 | - | - | 14 |
| $B_1$ | 0.09 | - | - | 14 |

| pH | | B.S. | CEC |
|---|---|---|---|
| $H_2O$ | KCl | % | |
| 5.5 | 4.3 | 17 | 0.9 |
| 5.4 | 4.4 | 19 | 1.0 |
| 5.4 | 4.5 | 6 | 0.9 |
| 5.3 | 4.3 | 20 | 0.9 |
| 5.4 | 4.4 | 30 | 0.2 |
| 5.2 | 4.2 | 30 | 0.8 |

## LAND SYSTEM 630, Facet 1 (dominant)

Classification: Psammentic Haplustox.

Location: Guanipa, region El Tigre, central portion of the Mesas, Venezuela.

Physiography: Level area to slightly convex.

Drainage: Well drained.

Vegetation: Grasslands ( Axonopus, Trachipogon ) and few trees ( chaparro, alcornoque ).

Parent material: Pleistocene alluvium (Mesa Formation ).

Source: Comerma, J. y A. Chirinos, 1976. In: Agr. Tropical, No. 2, Vol. XXVII, pp 181-206.

$A_1$ : 0-10 cm. 10YR 3/3; very friable; massive to single grain; clear smooth boundary.

$B_{11}$ : 10-30 cm. 10YR 5/8; very friable; massive to single grain; gradual smooth boundary.

$B_{12}$ : 30-50 cm. 7.5YR 5/8; massive to single grain; gradual smooth boundary.

$B_{13}$ : 50-80 cm. 5YR 5/8; friable; massive to weak fine blocky structure; diffuse smooth boundary.

$B_{21}$ : 80-110 cm. 5YR 5/8; friable; massive to weak fine blocky structure; diffuse smooth boundary.

$B_{22}$ : 110-170 cm. 5YR 5/8; friable; massive to weak fine blocky structure; diffuse smooth boundary.

$B_{23}$ : 170-250 cm. 2.5YR 4/6; friable; moderate medium blocky structure.

| HOR | pH | | C | $Fe_2O_3$ | B.S. | Al.S. |
|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | % | % |
| $A_1$ | 5.6 | 4.7 | 0.33 | - | 35 | 14 |
| $B_{11}$ | 5.5 | 4.4 | 0.28 | - | 30 | 42 |
| $B_{12}$ | 5.3 | 4.2 | 0.20 | 1.0 | 36 | 35 |
| $B_{13}$ | 5.3 | 4.1 | 0.20 | - | 17 | 56 |
| $B_{21}$ | 5.3 | 4.1 | 0.17 | 1.0 | 35 | 32 |
| $B_{22}$ | 5.3 | 4.1 | 0.11 | - | 43 | 28 |
| $B_{23}$ | 5.4 | 4.2 | 0.10 | 1.0 | 16 | 0 |

EXCHANGE COMPLEX ( meq/100 g )

| Ca | Mg | K | Na | Ac | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.4 | 0.2 | 0.04 | 0.02 | 1.6 | 0.11 | 0.66 | 1.2 |
| 0.2 | 0.1 | 0.03 | 0.02 | 0.8 | 0.26 | 0.35 | 1.1 |
| 0.3 | 0.2 | 0.03 | 0.02 | 1.0 | 0.30 | 0.35 | 1.8 |
| 0.1 | 0.1 | 0.03 | 0.02 | 1.2 | 0.32 | 0.25 | 1.5 |
| 0.5 | 0.1 | 0.03 | 0.02 | 1.2 | 0.31 | 0.65 | 2.0 |
| 0.7 | 0.2 | 0.03 | 0.02 | 1.2 | 0.38 | 0.95 | 1.8 |
| 0.3 | 0.2 | 0.03 | 0.02 | 2.8 | 0.00 | 0.55 | 1.6 |

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## LAND SYSTEM 630, Facet 1 (associate)

Classification: Oxic Paleustult, clay, caolinitic, isohyperthermic.

Location: Guanipa, El Tigre region, central portion of the Mesas, Venezuela.

Physiography: Slight depression, concave.

Drainage: Well drained.

Vegetation: Grasslands (Axonopus, Trachipogon) and few trees (chaparro, alcornoque).

Parent material: Pleistocene alluvium (Mesa Formation).

Source: Comerma, J. amd A. Chirinos, 1976. In: Agr. Tropical, No. 2, Vol. XXVII, pp 181-206.

$A_1$ : 0-25 cm. 10YR 2/3; very friable; weak fine blocky structure; clear smooth boundary.

$A_{21}$ : 25-55 cm. 10YR 5/8; friable; weak fine blocky structure; clear smooth boundary.

$A_{22}$ : 55-70 cm. 5YR 5/8; weak medium blocky structure; clear smooth boundary.

$B_1$ : 70-90 cm. 5YR 5/8; weak medium blocky structure; friable; common clay skins; irregular boundary.

$B_{21}t$ : 90-120 cm. 2.5YR 4/6; firm; moderate medium blocky structure; common clay skins; clear irregular boundary.

$B_{22}t$ : 120-160 cm. 2.5YR 4/6; firm; moderate medium blocky structure; common clay skins; clear irregular boundary.

$B_{23}t$ : 160-200 cm. 2.5YR 4/6; firm; moderate medium blocky structure; common clay skins; diffuse smooth boundary

| HOR | pH $H_2O$ | pH KCl | C % | $Fe_2O_3$ % | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|
| $A_1$ | 6.4 | 5.6 | 0.62 | - | 83 | 8 |
| $A_{21}$ | 4.8 | 3.9 | 0.42 | - | 24 | 22 |
| $A_{22}$ | 4.7 | 4.1 | 0.19 | 1.4 | 49 | 14 |
| $B_1$ | 5.1 | 4.1 | 0.17 | 1.6 | 51 | 21 |
| $B_{21}t$ | 5.4 | 4.1 | 0.17 | - | 31 | 14 |
| $B_{22}t$ | 5.8 | 4.0 | 0.13 | 3.2 | 23 | 16 |
| $B_{23}t$ | 5.7 | 4.0 | 0.13 | 2.4 | 18 | 17 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | Na | K | Ac | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 1.4 | 0.4 | 0.05 | 0.05 | 0.4 | 0.17 | 1.90 | 2.0 |
| 0.6 | 0.1 | 0.07 | 0.05 | 2.6 | 0.23 | 0.82 | 3.1 |
| 0.9 | 0.2 | 0.12 | 0.05 | 1.2 | 0.21 | 1.27 | 3.0 |
| 0.5 | 0.2 | 0.10 | 0.05 | 0.8 | 0.23 | 0.85 | 2.6 |
| 0.6 | 0.4 | 0.05 | 0.05 | 2.4 | 0.18 | 1.10 | 5.0 |
| 0.3 | 0.3 | 0.05 | 0.05 | 3.0 | 0.14 | 0.70 | 4.9 |
| 0.3 | 0.2 | 0.03 | 0.05 | 2.6 | 0.12 | 0.68 | 4.9 |

## LAND SYSTEM 631, Facet 1 (dominant)

Classification: Psammentic Haplustox, sandy, siliceous, isohyperthermic.

Location: Charaguanas area, Llanos Orientales de Venezuela.

Physiography: Midslope, 1.5% slope, southern portion of the Mesas.

Drainage: Well drained.

Vegetation: Grasslands ( Axonopus, Trachypogon ) and few trees ( chaparro, alcornoque).

Parent material: Pleistocene alluvium of Mesa Formation.

Source: Comerma, J. and A. Chirinos, 1976. In: Agr. Tropical, No. 2, Vol. XXVII, pp 181-206.

$A_1$ : 0-10 cm. 7.5YR 4/4; very friable; single grain; clear smooth boundary.

$B_{11}$ : 10-40 cm. 5YR 5/6; very friable; massive to weak blocky structure; clear smooth boundary.

$B_{12}$ : 40-60 cm. 5YR 4/8; very friable; massive to weak blocky structure; gradual smooth boundary.

$B_{13}$ : 60-85 cm. 5YR 4.5/8; very friable; massive to weak blocky structure; diffuse smooth boundary.

$B_{21}$ : 85-110 cm. 5YR 5/8; friable; massive to weak blocky struxture; gradual smooth boundary.

$B_{22}$ : 110-150 cm. 5YR 5.5/8; very friable; massive to weak blocky structure; diffuse smooth boundary.

$B_{23}$ : 150-180 cm. 5YR 5.5/8; very friable; massive to blocky structure; diffuse smooth boundary

$B_{24}$ : 180-200 cm. 5YR 5.5/8; very friable; massive to weak blocky structure; clear smooth boundary.

$B_{25}$ : 200-280 cm. 2.5YR 5/8; friable.

$B_{26}$ : 280-300 cm. 2.5YR 5/8; friable.

| HOR | pH $H_2O$ | pH KCl | C % | $Fe_2O_3$ % | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|
| $A_1$ | 5.1 | 4.1 | 0.38 | - | 45 | 3 |
| $B_{11}$ | 4.9 | 4.0 | 0.30 | - | 43 | 47 |
| $B_{12}$ | 5.0 | 4.0 | 0.28 | 0.8 | 33 | 32 |
| $B_{13}$ | 5.1 | 4.1 | 0.26 | - | 23 | 41 |
| $B_{21}$ | 5.4 | 4.2 | 0.24 | 1.4 | 36 | 33 |
| $B_{22}$ | 5.4 | 4.2 | 0.16 | - | 49 | 30 |
| $B_{23}$ | 5.5 | 4.3 | 0.10 | 1.2 | 40 | 38 |
| $B_{24}$ | 5.5 | 4.3 | 1.10 | - | 39 | 8 |
| $B_{25}$ | 5.4 | 4.2 | 0.17 | 3.3 | 34 | 23 |
| $B_{26}$ | 5.5 | 4.2 | 0.17 | - | 27 | 39 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | Na | K | Ac | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.5 | 0.3 | 0.16 | 0.06 | 1.2 | 0.04 | 1.02 | 1.9 |
| 0.5 | 0.3 | 0.10 | 0.03 | 1.2 | 0.19 | 0.93 | 1.5 |
| 0.3 | 0.2 | 0.07 | 0.02 | 1.2 | 0.23 | 0.59 | 1.6 |
| 0.2 | 0.2 | 0.07 | 0.02 | 1.6 | 0.34 | 0.49 | 1.8 |
| 0.4 | 0.2 | 0.06 | 0.02 | 1.2 | 0.34 | 0.68 | 2.0 |
| 0.4 | 0.3 | 0.05 | 0.02 | 0.8 | 0.33 | 0.79 | 1.8 |
| 0.3 | 0.3 | 0.05 | 0.02 | 1.0 | 0.41 | 0.67 | 1.6 |
| 0.4 | 0.3 | 0.07 | 0.02 | 1.2 | 0.07 | 0.79 | 1.8 |
| 1.0 | 0.6 | 0.01 | 0.04 | 3.2 | 0.51 | 1.65 | 4.9 |
| 0.7 | 0.5 | 0.01 | 0.04 | 3.4 | 0.82 | 1.25 | 4.6 |

## LAND SYSTEM 631, Facet 1 (associate)

Classification: Oxic Paleustult, loam, caolinitic, isohyperthermic.

Location: Charaguamas area, Llanos Orientales of Venezuela.

Physiography: Level site to slightly convex, in the southern portion of the Mesas.

Drainage: Well drained.

Vegetation: Grasslands (Axonopus, Trachypogon) with few trees (chaparro, alcornoque).

Parent material: Pleistocene alluvium (Mesa Formation).

Source: Comerma, J. and A. Chirinos, 1976. In: Agr. Tropical, No. 2, Vol. XXVII, pp 181-206.

$A_1$ : 0-20 cm. 10YR 5/6; friable; massive to single grain; clear smooth boundary.

$A_2$ : 20-52 cm. 7.5YR 5/8; friable; massive to single grain; gradual smooth boundary.

$B_{21}t$ : 52-94 cm. 7.5YR 5/8; friable; massive to single grain; few clay skins; gradual smooth boundary.

$B_{22}t$ : 94-134 cm. 7.5YR 5/8; friable; massive to blocky structure; few clay skins; gradual smooth boundary.

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$B_{23}t$ : 134-190 cm. 5YR 5/8; friable; weak medium blocky structure; common clay skins; gradual smooth boundary.

$B_{24}t$ : 190-210 cm. 5YR 5/8; weak medium blocky structure; common clay skins; gradual smooth boundary.

$B_3$ : 210-240 cm. 5YR 4/6; friable; abrupt smooth boundary.

| HOR | pH $H_2O$ | pH KCl | C % | $Fe_2O_3$ % | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|
| $A_1$ | 4.9 | 4.1 | 0.44 | - | 24 | 46 |
| $A_2$ | 5.2 | 4.2 | 0.29 | 1.5 | 25 | 33 |
| $B_{21}$ | 5.5 | 4.3 | 0.16 | 2.1 | 29 | 44 |
| $B_{22}$ | 5.6 | 4.3 | 0.20 | 2.3 | 30 | 50 |
| $B_{23}$ | 5.5 | 4.2 | 0.19 | 3.4 | 30 | 50 |
| $B_{24}$ | 5.3 | 4.2 | 0.17 | - | 40 | 37 |
| $B_3$ | 5.4 | 4.7 | 0.17 | 4.8 | 34 | 0.7 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | Na | K | Ac | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.3 | 0.2 | 0.08 | 0.04 | 2.0 | 0.54 | 0.62 | 1.9 |
| 0.3 | 0.2 | 0.07 | 0.02 | 1.8 | 0.30 | 0.59 | 2.1 |
| 0.4 | 0.2 | 0.06 | 0.02 | 1.6 | 0.54 | 0.68 | 3.0 |
| 0.4 | 0.3 | 0.15 | 0.05 | 2.0 | 0.89 | 0.90 | 3.5 |
| 0.4 | 0.5 | 0.06 | 0.02 | 2.2 | 0.98 | 0.98 | 4.3 |
| 0.9 | 0.8 | 0.02 | 0.05 | 2.6 | 1.05 | 1.77 | 4.0 |
| 0.9 | 0.5 | 0.02 | 0.05 | 2.8 | 0.01 | 1.47 | 2.7 |

## LAND SYSTEM 635, Facet 1.

Classification: Fluventic Ustropept-Birvaca Serie.

Location: Recría Center, Birvaca Municipy; Apure State, Venezuela.

Physiography: Profile located between basins and sandy banks.

Drainage: Imperfectly drained.

Parent material: Silty alluvium.

Source: Luque, O. 1971. Estudio Centro Recría, Biruaca, Apure State, MAC, Venezuela, 36 pages.

$A_{11}$ : 0-30 cm. 10YR 4/1; mottles 10YR 4/6; silty clay loam; moderate fine blocky structure; very hard, firm; gradual smooth boundary.

$A_{12}$ : 30-50 cm. 10YR 5/4; mottles 10YR 6/1; silty clay; moderate prismatic structure; very hard, firm; clear smooth boundary.

$B_1$ : 50-70 cm. 10YR 4/3, 10YR 5/6, 10YR 5/8; silty loam; strong prismatic structure; very hard,firm; clear smooth boundary.

$B_{21}$ : 70-100 cm. 10YR 7/6; mottles 7.5YR 5/6; silty loam; strong prismatic structure; very hard,firm; clear smooth boundary.

$C_1$ : 100-140 cm. 10YR 6/6; mottles 10YR 5/2; loam; weak fine blocky structure; hard, friable; gradual smooth boundary.

$C_2$ : 140-160 cm. 10YR 4/4; mottles 10YR 5/2; silty loam; weak fine blocky structure; very hard,firm; gradual smooth boundary.

$C_3$ : 160 cm+. 10YR 6/6; mottles 10YR 5/2; sandy loam; structureless; cemented; slightly hard; very friable.

NOTE : The $C_2$ horizon presents soft Fe-Al nodules.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % |
|---|---|---|---|---|---|---|
| $A_{11}$ | 5.6 | 4.7 | 1.85 | 0.19 | 112 | 83 |
| $A_{12}$ | 5.7 | 4.4 | 0.52 | 0.10 | 33 | 60 |
| $B_1$ | 5.7 | 4.4 | 0.39 | 0.06 | 50 | 67 |
| $B_{21}$ | 4.6 | 3.7 | 0.47 | 0.08 | 24 | 61 |
| $C_1$ | 5.4 | 4.3 | 0.23 | - | 50 | 74 |
| $C_2$ | 5.4 | 4.3 | 0.33 | - | 36 | 82 |
| $C_3$ | 5.9 | 4.4 | 0.14 | - | 76 | 82 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | H | TEB | CEC |
|---|---|---|---|---|---|---|
| 12.0 | 3.2 | 0.32 | 0.36 | 8.2 | 15.88 | 19.2 |
| 7.9 | 3.5 | 0.26 | 0.44 | 5.0 | 12.10 | 15.6 |
| 7.1 | 4.0 | 0.30 | 0.50 | 8.7 | 11.90 | 17.8 |
| 4.8 | 3.2 | 0.24 | 0.40 | 7.0 | 8.64 | 14.2 |
| 2.9 | 1.8 | 0.14 | 0.30 | 3.2 | 5.14 | 6.9 |
| 3.6 | 2.8 | 0.18 | 0.52 | 3.6 | 7.10 | 8.7 |
| 1.5 | 1.2 | 0.12 | 0.30 | 2.0 | 3.12 | 3.6 |

## LAND SYSTEM 635, Facet 2.

Classification: Typic Ustropept, Serie Recría.

Location: Centro Recría, Municipio Birvaca, Apure State, Venezuela.

Physiography: Dikes and basins.

Drainage: Moderately well drained.

Parent material: Alluvial.

Source: Luque, O. 1971. Estudio Centro Recría Birvaca, Apure State, Venezuela.

$A_1$ : 0-30 cm. 10YR 4/1; silty loam; weak fine blocky structure; friable; diffuse boundary.

AB : 30-60 cm. 10YR 5/4; silty loam; moderate fine blocky structure; hard, friable; gradual smooth boundary.

$B_{21}$ : 60-85 cm. 10YR 5/4; silty loam; hard, friable; strong prismatic structure; gradual smooth boundary.

$B_{22}$ : 85-140 cm. 10YR 5/3; mottles 5YR 5/6; silty clay loam; hard, friable; strong coarse prismatic structure; abrupt smooth boundary.

$A_1b$ : 140-160 cm. 10YR 5/2; mottles 10YR 4/1; clay; moderate coarse prismatic structure; very hard, firm; abrupt smooth boundary.

C : 160-200 cm. 10YR 5/8; mottles 10YR 5/3; silty clay loam; strong coarse prismatic structure; very hard, firm.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % |
|---|---|---|---|---|---|---|
| $A_1$ | 6.3 | 5.4 | 2.14 | 0.25 | 443 | 92 |
| AB | 5.7 | 4.7 | 0.58 | 0.08 | 47 | 73 |
| $B_{21}$ | 5.3 | 4.3 | 0.38 | 0.07 | 43 | 70 |
| $B_{22}$ | 5.3 | 4.1 | 0.36 | 0.06 | 44 | 78 |
| $A_1b$ | 5.1 | 4.0 | 0.91 | - | 39 | 83 |
| C | 5.5 | 4.5 | 0.41 | - | 29 | 79 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | H | TEB | CEC |
|---|---|---|---|---|---|---|
| 13.6 | 2.8 | 0.78 | 0.16 | 4.4 | 17.34 | 18.9 |
| 5.2 | 2.4 | 0.44 | 0.60 | 4.8 | 8.64 | 11.9 |
| 4.1 | 3.0 | 0.28 | 0.56 | 5.2 | 7.10 | 11.4 |
| 4.1 | 4.4 | 0.26 | 0.34 | 5.4 | 9.30 | 11.9 |
| 8.8 | 8.2 | 0.30 | 0.36 | 6.4 | 17.66 | 21.4 |
| 4.3 | 4.0 | 0.20 | 0.50 | 5.0 | 9.00 | 11.4 |

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## LAND SYSTEM 635, Facet 3.

Classification: Chromustert (TRopaquept ?)

Location: Centro de Recría, Birvaca Municipy; Apure State, Venezuela.

Physiography: Basins in flood plain.

Drainage: Imperfectly drained.

Vegetation: Forage grasses, like "lambedora" (Leersia hexandra) and "paja de agua" (Echinocla Sp).

Parent material: Alluvium.

Source: Luque, O. 1971. Recría Center Birvaca, Apure State, MAC, Venezuela, 36 pages.

Pericoco Serie:

$A_1$ : 0-20 cm. 10YR 3/2; mottles 7.5YR 5/6; clay; moderate coarse blocky structure; clear smooth boundary.

AB : 20-40 cm. 10YR 4/2; mottles 7.5YR 5/8; clay; moderate medium blocky structure; gradual smooth boundary.

B : 40-80 cm. 10YR 5/3; mottles 7.5YR 5/8; silty clay loam; moderate medium blocky structure; clear smooth boundary.

Cg : 80-95 cm. 10YR 5/9; mottles 7.5YR 5/8; clay; moderate medium blocky structure; abrupt smooth boundary.

IIAb : 95-120 cm. 10YR 4/1; mottles 7.5YR 5/8; sandy loam; structureless; abrupt smooth boundary.

C : 120 cm+. 10YR 7/2; sandy; structureless; single grain; loose.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % |
|---|---|---|---|---|---|---|
| $A_1$ | 4.8 | 3.8 | 1.02 | 0.13 | 47 | 65 |
| AB | 4.7 | 3.6 | 0.70 | 0.12 | 33 | 59 |
| B | 5.1 | 4.0 | 0.41 | 0.08 | 37 | 80 |
| Cg | 5.3 | 4.1 | 0.36 | 0.09 | 34 | 93 |
| Ab | 4.5 | 3.6 | 0.33 | - | 41 | 53 |
| C | 4.3 | 3.9 | 0.04 | - | 11 | - |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | H | TEB | CEC |
|---|---|---|---|---|---|---|
| 8.5 | 4.2 | 0.86 | 0.34 | 12.4 | 13.8 | 21.4 |
| 5.5 | 3.8 | 0.74 | 0.26 | 10.6 | 10.3 | 17.4 |
| 5.2 | 4.4 | 0.52 | 0.46 | 6.0 | 10.6 | 13.2 |
| 6.7 | 6.0 | 0.44 | 0.40 | 1.4 | 13.5 | 14.6 |
| 1.3 | 1.2 | 0.16 | 0.26 | 3.2 | 2.92 | 5.5 |
| - | - | - | - | | - | |

## LAND SYSTEM 637, Facet 1.

Classification: Hapludoll.

Location: 1.2Km from Lagunita, Ricaurte Department, Cojedes State, Venezuela.

Physiography: Alluvial plain.

Drainage: Moderate to well drained.

Vegetation: Samanes, guásimo.

Parent material: Alluvium from Cojedes river.

Source: "Calicatas", 1975. MOP, Venezuela. Profile 274-VEN-63-Co, pp 63-5.

$A_{11}$ : 0-15 cm. 2.5YR 4/2; silty clay loam; moderate medium blocky structure; clear smooth boundary.

$A_{12}$ : 15-32 cm. 5Y 5/2; silty loam; moderate medium blocky structure; clear smooth boundary.

$A_{13}$ : 32-52 cm. 5Y 5/4; silty clay; weak medium blocky structure; moderately calcareous; gradual irregular boundary.

$C_1$ : 52-75 cm. 2.5Y 6/4; silty clay; weak medium blocky structure; strongly calcareous; gradual smooth boundary.

$C_2$ : 75-115 cm. 5Y 6/6; silty clay; weak medium blocky structure; very strongly calcareous; few mottles; clear smooth boundary.

$C_3$ : 115-140 cm. 5Y 6/4; clay; very strongly calcareous; few mottles; clear smooth boundary.

$C_4$ : 140-165 cm. 2.5Y 6/6; silty clay; weak medium blocky structure; very strongly calcareous; abrupt smooth boundary.

$A_1b$ : 165-175 cm. 5Y 6/4; clay; weak medium blocky structure; strongly calcareous; abrupt smooth boundary.

$C_1b$ : 175 cm+. 2.5Y 6/8; clay loam; weak medium blocky structure; non calcareous.

| HOR | pH $H_2O$ | pH KCl | C % | N % | C/N | $CaCO_3$ % | B.S. % |
|---|---|---|---|---|---|---|---|
| $A_{11}$ | 7.4 | 6.6 | 3.57 | 0.22 | 15.7 | 2.7 | 81 |
| $A_{12}$ | 6.8 | 5.6 | 1.31 | 0.12 | 10.7 | 2.2 | 74 |
| $A_{13}$ | 6.7 | 5.5 | 0.65 | 0.11 | 5.8 | 1.6 | 75 |
| $C_1$ | 8.0 | 7.0 | 0.34 | 0.10 | 3.3 | 6.4 | 96 |
| $C_2$ | 7.7 | 7.1 | 0.31 | 0.09 | 3.2 | 13.3 | 100 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | H | TEB | CEC |
|---|---|---|---|---|---|---|
| 24.3 | 1.38 | 0.11 | 0.26 | 5.25 | 26.05 | 32.1 |
| 15.8 | 1.03 | 0.05 | 0.29 | 5.75 | 17.17 | 23.1 |
| 14.1 | 0.64 | 0.04 | 0.25 | 4.75 | 15.03 | 20.6 |
| 13.0 | - | 0.04 | 0.36 | - | 13.40 | 13.9 |
| 17.0 | 0.64 | 0.03 | 0.25 | - | 17.92 | 17.9 |

## LAND SYSTEM 642, Facet 1.

Classification: Haplic Acrustox, clay, caolinitic, isohyperthermic.

Location: 6Km southward Caicará, de Orinoco, Cedeño District; Bolivar State, Venezuela.

Relief: Nearly level, site slope 1%.

Drainage: Well drained.

Vegetation: Savanna with few trees, and shrubs.

Parent material: Alluvium derived from granite.

Source: Schargel, R. 1978. PH.D. Thesis; North Caroline S.U., USA.

$A_1$ : 0-6 cm. 10YR 3/1; sandy clay loam; weak fine blocky structure; many fine roots; abrupt smooth boundary.

$A_3$ : 6-20 cm. 7.5YR 4/4; sandy clay loam; weak fine blocky structure; common fine roots; gradual smooth boundary.

$B_1$ : 20-42 cm. 5YR 4/6; sandy clay loam; weak fine blocky structure; common fine roots; 5% gravel; diffuse smooth boundary.

$B_{21}$ : 42-97 cm. 5YR 4/8; sandy clay; weak fine blocky structure; few fine roots; 11% fine gravel; diffuse smooth boundar .

$B_{22}$ : 97-250 cm. 5Y 4/8; c ay; weak medium blocky structure; 8% fine gravel; diffuse smooth boundary.

$B_3$ : 250-335 cm. 5YR 5/6; sandy clay loam; 7% fine gravel.

$C_1$ : 335-360 cm. 7.5YR 6/8; sandy loam; mottles 2.5YR 4/8; 2% fine gravel.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.7 | 3.8 | 0.59 | 0.04 | 2.8 | 56 | 15 |
| $A_3$ | 4.4 | 3.7 | 0.39 | 0.02 | 1.0 | 29 | 55 |
| $B_1$ | 4.4 | 3.9 | 0.23 | 0.02 | 0.4 | 36 | 43 |
| $B_{21}$ | 4.8 | 4.0 | 0.12 | 0.02 | 0.4 | 38 | 44 |
| $B_{22}$ | 5.0 | 4.0 | 0.16 | - | 0.4 | 20 | 66 |
| $B_3$ | 5.3 | 4.2 | 0.12 | - | 1.0 | 33 | 60 |
| $C_1$ | 5.5 | - | - | - | - | - | - |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.4 | 0.3 | 0.1 | 0.1 | 0.4 | 0.3 | 0.9 | 1.6 |
| 0.1 | 0.1 | 0.1 | 0.1 | 0.5 | 0.5 | 0.4 | 1.4 |
| 0.2 | 0.1 | t | 0.1 | 0.4 | 0.3 | 0.4 | 1.1 |
| 0.2 | 0.1 | 0.1 | 0.1 | 0.4 | 0.4 | 0.5 | 1.3 |
| 0.1 | t | t | 0.1 | 0.4 | 0.4 | 0.2 | 1.0 |
| 1.0 | t | 0.1 | - | 0.3 | 0.3 | 0.2 | 0.9 |

## LAND SYSTEM 649, Facet 2.

Classification: Typic Acrorthox, clay, mixed, isohyperthermic.

Location: 8Km Westward of cabaña Santa Bárbara, Atabapo Department, Amazonas Territory, Venezuela.

Physiography: Nearly level; gently undulating along the drainage ways. Site slope 0.5 .

Vegetation: Evergreen wet forest.

Drainage: Well drained.

Parent material: Pleistocene alluvium derived from mixed rocks.

Source: Schargel,R. 1978. PH.D. Thesis, North Carolina S.U., USA.

$A_{11}$ : 0-9 cm. 10YR 5/3; sandy clay; weak fine granular structure; many roots forming a net work; clear smooth boundary.

$A_{12}$ : 9-28 cm. 10YR 5/3; sandy clay; weak fine blocky structure; many fine and medium roots; clear smooth boundary.

$A_3$ : 28-53 cm. 10YR 5/4; clay; weak fine blocky structure; common fine roots; clear wavy boundary.

$B_1$ : 53-72 cm. 10YR 5.5/6; clay; weak fine blocky structure; few fine roots; clear gradual boundary.

$B_{21}$ : 72-132 cm. 10YR 6/6; clay; very weak fine blocky structure; few fine roots; diffuse smooth boundary.

$B_{22}$ : 132-250 cm. 10YR 6/6; clay; massive; few very fine roots; diffuse smooth boundary.

$B_{23}$ : 250-350 cm. 7.5YR 5/7; clay; massive.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_{11}$ | 4.0 | 3.6 | 2.77 | 0.19 | 7.4 | 18 | 76 |
| $A_{12}$ | 4.4 | 3.9 | 1.68 | 0.10 | 4.2 | 22 | 73 |
| $A_3$ | 4.4 | 4.2 | 1.05 | 0.06 | 0.4 | 31 | 55 |
| $B_1$ | 4.5 | 4.4 | 0.62 | 0.03 | 1.4 | 43 | 40 |
| $B_{21}$ | 5.2 | 4.0 | 0.35 | - | 1.4 | 50 | - |
| $B_{22}$ | 5.2 | 5.3 | 0.27 | - | t | 67 | - |
| $B_{22}$ | 5.3 | 5.4 | 0.23 | - | t | 60 | - |
| $B_{23}$ | 5.6 | 5.6 | 0.16 | - | t | 50 | - |
| $B_{23}$ | 5.6 | 5.6 | 0.12 | - | t | 60 | - |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.2 | 0.1 | 0.2 | 0.1 | 0.8 | 1.9 | 0.6 | 3.3 |
| 0.2 | t | 0.1 | 0.1 | 0.3 | 1.1 | 0.4 | 1.8 |
| 0.2 | t | 0.1 | 0.1 | 0.4 | 0.5 | 0.4 | 1.3 |
| 0.2 | t | t | 0.1 | 0.2 | 0.2 | 0.3 | 0.7 |
| 0.2 | t | 0.1 | 0.1 | 0.4 | t | 0.3 | 0.8 |
| 0.2 | t | 0.1 | 0.1 | 0.2 | t | 0.3 | 0.6 |
| 0.2 | t | t | 0.1 | 0.2 | t | 0.3 | 0.5 |
| 0.1 | t | t | 0.1 | 0.2 | t | 0.2 | 0.4 |
| 0.2 | t | t | 0.1 | 0.2 | t | 0.3 | 0.5 |

## LAND SYSTEM 651, Facet 1 (50%)

Classification: Typic Ustipsamment.

Location: Fundo El Porvenir, Puerto Ayacucho area, Amazonas Territory; Venezuela.

Physiography: Residual plain from old sediments of Orinoco river, mixed with altered granites.

Drainage: Well to somewhat excessively drained.

Relief: Nearly level, slope less than 2%.

Vegetation: Tropical Rain Forest.

Source: Blancaneaux , P. et al. 1977. MARNR, Venezuela. Sector Puerto Ayacucho Study. Profile 117, page 120.

$A_{11}$ : 0-15 cm. Loamy sand; 10YR 5/6; single grain; many fine and coarse roots; abrupt boundary.

$A_{12}$ : 15-45 cm. Loamy sand; 10YR 5/6; single grain; many roots; gradual boundary.

$C_1$ : 45-205 cm. Loamy sand to sandy loam; 10YR 5/8; weak blocky to single grain structure; many roots to 100 cm. depth and more; abrupt boundary.

Cr : 205-260 cm. Coarse elements level, (Fe-nodules in sandy loam matrix); no roots.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| 0- 10 | 4.3 | 4.6 | 0.25 | 0.01 | 3 | 14 | 55 |
| 30- 40 | 4.5 | 4.7 | 0.16 | 0.007 | 1 | 13 | 55 |
| 80-100 | 4.4 | 4.7 | 0.18 | - | 1 | 17 | 52 |
| 180-200 | 4.8 | 5.0 | 0.12 | - | 1 | 7 | 52 |

| Ca | Mg | K | Na | Ac | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.1 | 0.1 | 0.04 | 0.03 | 1.6 | 0.31 | 0.27 | 1.8 |
| 0.1 | 0.1 | 0.03 | 0.02 | 1.6 | 0.31 | 0.25 | 1.2 |
| 0.1 | 0.1 | 0.03 | 0.02 | 1.2 | 0.27 | 0.25 | 1.4 |
| 0.1 | 0.1 | 0.03 | 0.02 | 3.2 | 0.27 | 0.25 | 2.8 |

## LAND SYSTEM 651, Facet 1 (50%)

Classification: Tropeptic Haplustox, clay; caolinitic; isohyperthermic.

Location: 7Km Soutleastern Puerto Ayacucho airport, Amazonas Territory, Venezuela.

Relief: Gently undulating, site slope 3%.

Drainage: Well drained.

Vegetation: Wet semi-deciduous forest. Re-growth of five years old.

Source: Schargel, R. 1978. PH.D. Thesis, North Caroline S.U., USA.

$A_{1cn}$ : 0-6 cm. 10YR 4/3; clay; moderate fine blocky structure; many roots; abrupt smooth boundary.

$A_3cn$ : 6-24 cm. 10YR 5/4; sandy clay; mottles 5YR 4/4; moderate medium blocky structure; clear smooth boundary.

$B_1cn$ : 24-45 cm. 10YR 5/5; clay; weak fine blocky structure; few roots; few clay skins; clear wavy boundary.

$B_2cn$ : 45-80 cm. 10YR 5/6; sandy clay; weak fine blocky structure; few roots; very few clay skins; clear irregular boundary.

$IIB_3$ : 80-165 cm. 5YR 5/6; sandy clay loam; very weak coarse blocky structure; few clay skins; clear wavy boundary.

$IIC_1$ : 165-250 cm. 5YR 5/6; sandy clay loam; massive; few roots; very few clay skins.

$IIC_2$ : 250-330 cm. 7.5YR 4/4; coarse sandy loam; few clay nodules.

NOTE : Stoniness throughout the profile, formed by concretions and rock fragments cemented by iron oxdes.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.4 | 3.9 | 1.25 | 0.10 | 1.0 | 35 | 55 |
| $A_3$ | 4.3 | 4.0 | 0.82 | 0.10 | 0.4 | 19 | 78 |
| $B_1$ | 4.3 | 4.0 | 0.74 | 0.08 | 0.4 | 18 | 78 |
| $B_2$ | 4.6 | 4.1 | 0.31 | 0.03 | t | 33 | 55 |
| $B_3$ | 4.9 | 4.3 | t | - | t | 38 | 40 |
| $C_1$ | 4.9 | 4.4 | t | - | t | 33 | 50 |
| $C_2$ | 4.9 | 4.3 | t | - | t | 40 | 33 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.4 | 0.1 | 0.2 | 0.1 | 0.5 | 1.0 | 0.8 | 2.3 |
| 0.1 | t | 0.1 | 0.1 | 0.2 | 1.1 | 0.3 | 1.6 |
| 0.1 | t | 0.1 | 0.1 | 0.3 | 1.1 | 0.3 | 1.7 |
| 0.2 | t | 0.1 | 0.1 | 0.3 | 0.5 | 0.4 | 1.2 |
| 0.3 | t | t | t | 0.3 | 0.2 | 0.3 | 0.8 |
| 0.1 | t | t | 0.1 | 0.2 | 0.2 | 0.2 | 0.6 |
| 0.1 | t | t | 0.1 | 0.2 | 0.1 | 0.2 | 0.5 |

## LAND SYSTEM 651, Facet 3.

Classification: Ustic Dystropept.

Location: Caño Pavón margin, Northward Puerto Ayacucho, Amazonia Territory, Venezuela.

Physiography: Bank of the river.

Relief: Nearly level with wavy microrelief.

Drainage: Somewhat poorly drained.

Vegetation: Gallery forest with thorny shrubs.

Source: Blancaneaux, P. et al, 1977. MARN, Venezuela. Sector Puerto Ayacucho Study, porfile 107, page 120.

$A_{11}$ : 0-20 cm. 10YR 3/1; sandy loam; weak blocky structure; many roots; gradual boundary.

$A_3$ : 20-65 cm. 10YR 5/2; single grain; few roots; loamy sand; diffuse boundary.

Cg : 65-120 cm. Loamy sand; 10YR 4/2; mottles; very few roots.

| HOR | pH $H_2O$ | C % | B.S. % |
|---|---|---|---|
| 0- 10 | 3.5 | 1.72 | 2.70 |
| 30- 40 | 3.6 | 4.64 | 9.50 |
| 100-110 | 3.9 | 0.60 | - |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | H + Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 0.1 | t | 0.1 | 0.1 | 10.5 | 0.3 | 10.8 |
| 0.1 | t | t | 0.1 | 1.9 | 0.2 | 2.1 |

## LAND SYSTEM 802, Facet 1.

Classification: Tropofluvent, Serie Yahuahua.

Location: Ceneapa-Alto Marañón Area, Perú.

Physiography: Low terraces with flat topography.

Relief: Level (0-2% slope).

Drainage: Moderately drained.

Parent material: Low forest.

Source: ONERN, 1976. Inventarios Recursos Zona Ceneapa-Alto Marañón, Serie Yahuahua, pp 26-28.

$A_1$ : 0-15 cm. 10YR 3/3; silty loam; weak fine blocky structure; many fine roots; clear boundary.

AC : 15-30 cm. 10YR 4/3; silty loam; massive; frequent roots; clear boundary.

$C_1$ : 30-120 cm. 10YR 4/4; sandy loam; structureless; mottles; few roots; water-table at 100 cm. depth.

$C_2$ : + 120 cm. Fine sanoy layer with many mottles.

| HOR | pH $H_2O$ | C % | N % | $P_2O_5$ ppm | B.S. % | $CaCO_3$ % |
|---|---|---|---|---|---|---|
| $A_1$ | 7.2 | 7.17 | 0.306 | 4.7 | 100 | 0.12 |
| AC | 7.2 | 1.93 | 0.090 | 1.2 | 100 | 0.12 |
| $C_1$ | 7.6 | 1.17 | 0.052 | 2.2 | 100 | 0.76 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | TEB | CEC |
|---|---|---|---|---|---|
| 20.1 | 0.98 | 0.28 | 0.16 | 21.5 | 21.5 |
| 10.2 | 0.82 | 0.04 | 0.10 | 11.2 | 11.2 |
| 5.3 | 0.62 | 0.04 | 0.06 | 6.0 | 6.0 |

## LAND SYSTEM 804, Facet 1.

Classification: Typic Dystropept.

Location: Uchichiangos Serie, between Quinquiza and Achuaga rivers, Ceneapa-Alto Marañón Area, Perú.

Physiography: Hilly landscape.

Relief: Slopes between 15% and 70%.

Drainage: Excessively drained.

Parent material: Shales and silty rocks, red, Tertiary age.

Source: ONERN, 1976. Inventario Recursos Zona Ceneapa-Alto Marañón, pp 35-6.

$A_1$ : 0-10 cm. 5YR 3/4; loam; weak fine granular structure; frequent roots; clear boundary.

B : 10-40 cm. 5YR 4/6; clay loam; massive; few roots; gradual boundary.

C : 40-90 cm. 2.5YR 5/4; clay loam; massive; clear boundary.

CR : + 90 cm. Decomposing shales.

| HOR | pH $H_2O$ | C % | N % | $P_2O_5$ ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|
| $A_1$ | 5.9 | 8.27 | 0.38 | 6.0 | 98 | - |
| B | 4.9 | 0.76 | 0.03 | 0.7 | 34 | 55 |
| C | 4.9 | 0.41 | 0.01 | 0.7 | 42 | 45 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 34.0 | 1.34 | 0.22 | 0.40 | 0 | 35.16 | 35.9 |
| 6.8 | 0.93 | 0.11 | 0.28 | 10.0 | 8.16 | 18.1 |
| 8.4 | 1.29 | 0.13 | 0.28 | 8.0 | 10.1 | 18.1 |

## LAND SYSTEM 808, Facet 1.

Classification: Humoxic Tropohumult.

Location: Lat. 3°45'S - Long. 73°11'W. Iquitos, Perú.

Physiography: Non-flooded terraces, convex topography.

Drainage: Well drained.

Vegetation: Mixed evergreen forest.

Parent material: Tertiary-Quaternary non-consolidated sediments.

Source: Flores, P. et al. 1978. In: Turrialba, Vol. 28, No. 2, pp 99-103.

$A_1$ : 0-10 cm. Sandy, bulk density 1.96.

$A_2$ : 10-20 cm. Sandy; bulk density 1.58.

$A_3$ : 20-70 cm. Loamy sand; bulk density 1.48.

$B_1$ : 70-135 cm. Loamy sand; bulk density 2.20.

$B_2$ : 135-150 cm. Loamy sand; bulk density 2.39.

| HOR | pH | | C | N | P | B.S. | Al.S. |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | | | ppm | % | % |
| $A_1$ | 3.7 | 3.2 | 1.63 | 0.10 | 8 | 21 | 78 |
| $A_2$ | 3.9 | 3.5 | 2.26 | 0.13 | 4 | 16 | 89 |
| $A_3$ | 4.3 | 3.9 | 1.79 | 0.12 | 4 | 23 | 77 |
| $B_1$ | 4.3 | 3.9 | 0.20 | 0.05 | 1 | 25 | 74 |
| $B_2$ | 4.5 | 3.7 | 0.04 | 0.03 | 1 | 17 | 86 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.23 | 0.05 | 0.10 | 0.05 | 0.85 | 0.80 | 0.22 | 2.8 |
| 0.27 | 0.07 | 0.09 | 0.04 | 1.15 | 1.35 | 0.16 | 4.6 |
| 0.15 | 0.06 | 0.07 | 0.05 | 0.54 | 0.56 | 0.16 | 4.6 |
| 0.17 | 0.06 | 0.08 | 0.04 | 0.55 | 0.50 | 0.17 | 2.3 |
| 0.17 | 0.05 | 0.07 | 0.04 | 0.57 | 1.05 | 0.17 | 2.3 |

## LAND SYSTEM 808, Facet 2.

Classification: Ustic Tropaquod.

Location: Lat. 3°45'S - Long. 73°11'W. Iquitos, Perú.

Physiography: Alluvial terraces, concave topography.

Drainage: Poorly drained.

Vegetation: Mixed evergreen forest, "varillal" type.

Parent material: Tertiary-Quaternary non-consolidated sediments.

Source: Flores, P. et al. 1978. In: Turrialba, Vol. 28, No. 2, pp 99-103.

$A_2$ : 0-40 cm. Loamy sand; part. density 2.63.

$A_3$ : 40-55 cm. Sandy loam;part. density 2.55.

$B_1$ : 55-80 cm. Sandy loam; part. density 2.52.

$B_2mh$ : 80-110 cm. Sandy loam; part. density 2.48.

$B_{21}$ : 110-150 cm. Sandy clay loam; part. density 2.56.

| HOR | pH | | C | N | P | B.S. | Al.S. |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_2$ | 5.2 | 4.4 | - | - | 1 | 64 | |
| $A_3$ | 4.0 | 3.2 | 2.61 | 0.07 | 1 | 11 | 89 |
| $B_1$ | 4.0 | 3.4 | 2.69 | 0.07 | 1 | 9 | 91 |
| $B_2h$ | 4.2 | 3.6 | 3.27 | 0.07 | 11 | 5 | 95 |
| $B_{21}$ | 4.4 | 4.0 | 1.75 | 0.03 | 3 | 15 | 83 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 0.17 | 0.04 | 0.07 | 0.04 | 0.18 | - | 0.16 | 0.15 |
| 0.31 | 0.05 | 0.03 | 0.05 | 2.10 | 2.10 | 0.26 | 5.9 |
| 0.15 | 0.03 | 0.26 | 0.06 | 2.84 | 2.84 | 0.26 | 10.9 |
| 0.11 | 0.05 | 0.07 | 0.06 | 3.15 | 3.15 | 0.15 | 14.3 |
| 0.13 | 0.08 | 0.07 | 0.05 | 0.88 | 0.88 | 0.17 | 3.2 |

## LAND SYSTEM 822, Facet 1.

Classification: Typic Tropofluvent.

Location: Exito area; Pucallpa-Abujao Area, Perú.

Physiography: Basin-dykes complex, alluvial plain.

Parent material: Recent alluvium from Ucayali river.

Vegetation: Capirona, tamamuri, renaco and lupuna.

Source: ONERN, 1978. Inventario Recursos Zona Pucallpa-Abujao, pp 77-8.

$A_1$ : 0-20 cm. 10YR 4/2; silty loam; weak fine blocky structure; 10% mottles 10YR 5/6; clear boundary.

$C_1$ : 20-50 cm. 10YR 4/2; silty loam; 10% mottles 5YR 3/3; gradual boundary, massive.

$C_2$ : 50-80 cm. 10YR 4/3; silty loam; massive; 20% mottles 10YR 5/8; gradual boundary.

$C_3$ : 80-120 cm. 10YR 4/3; massive; friable.

| HOR | pH | C | N | P | B.S. |
|---|---|---|---|---|---|
| | $H_2O$ | % | % | ppm | % |
| $A_1$ | 7.0 | 0.7 | 0.06 | 9 | 100 |
| $C_1$ | 7.2 | 0.4 | 0.03 | 5 | 100 |
| $C_2$ | 7.2 | 0.4 | 0.02 | 2 | 100 |
| $C_3$ | 7.3 | 0.3 | 0.02 | 2 | 100 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | TEB | CEC |
|---|---|---|---|---|---|
| 9.51 | 1.75 | 0.48 | 0.10 | 11.84 | 11.84 |
| 8.22 | 1.73 | 0.29 | 0.08 | 10.32 | 10.32 |
| 5.20 | 1.48 | 0.20 | 0.08 | 6.96 | 6.96 |
| 5.02 | 1.46 | 0.16 | 0.08 | 6.72 | 6.72 |

## LAND SYSTEM 824, Facet 1.

Classification: Podzólico Vermelho Amarelo Alico-Allic Dystropeptic Orthoxic Tropudult.

Location: Lat 5°43'S - Long. 72°18'W. Atalaia do Norte Municipio; Amazonas State, Brazil.

Physiography: Upper slope.

Relief: Undulating to strongly undulating, 20% slope.

Drainage: Moderately drained.

Vegetation: Open forest.

Parent material: Clay sediments from solimoes Formation, Plio-Pleistocene .

Source: Proj. Radambrasil, Vol. 13; Javari-Contamana; 1977. Profile 12, pp 204-5.

$A_1$ : 0-10 cm 5YR 4/4; loam; weak fine granular structure; friable; plastic and sticky; gradual boundary.

$A_3$ : 10-20 cm. 5YR 4/6; loam; weak fine granular structure; friable; clear boundary.

$B_1$ : 20-35 cm. 2.5YR 4/6; loam; weak fine granular structure; gradual boundary.

$B_2$ : 35-50 cm. 2.5YR 4/8; clay; moderate fine blocky structure; gradual boundary.

$B_3$ : 50-65 cm+. 2.5YR 4/8; mottles 7.5YR 5/8; clay; moderate fine blocky structure; firm.

| HOR | pH $H_2O$ | pH KCl | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 3.7 | 3.5 | 1.73 | 0.25 | 2 | 9 | 85 |
| $A_3$ | 4.2 | 3.6 | 0.83 | 0.16 | 1 | 8 | 89 |
| $B_1$ | 4.6 | 3.6 | 0.62 | 0.12 | 1 | 7 | 91 |
| $B_2$ | 4.6 | 3.5 | 0.55 | 0.13 | 1 | 4 | 95 |
| $B_3$ | 4.9 | 3.4 | 0.41 | 0.11 | 1 | 4 | 96 |

EXCHANGE COMPLEX (meq/100 g )

| Ca + Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 0.9 | 0.10 | 0.01 | 4.4 | 5.8 | 1.0 | 11.2 |
| 0.6 | 0.05 | 0.01 | 2.5 | 5.4 | 0.7 | 8.6 |
| 0.5 | 0.04 | 0.01 | 1.3 | 6.4 | 0.6 | 8.3 |
| 0.4 | 0.04 | 0.01 | 1.9 | 10.1 | 0.5 | 12.5 |
| 0.4 | 0.08 | 0.01 | 2.1 | 11.1 | 0.5 | 13.7 |

## LAND SYSTEM 825, Facet 1.

Classification: Typic Paleudult, fine loam, Siliceous; isohyperthermic.

Location: Profile YU-13, Experimental Station Yurimaguas, Perú.

Source: Tyler, E.J. 1975. PH.D. Thesis, North Caroline, U.S., USA.

| Depth. ( cm ) | Ph $H_2O$ | Clay | Sand | C % | Al.S. % |
|---|---|---|---|---|---|
| 0- 5 | 3.8 | 6 | 80 | 1.3 | 59 |
| 5- 13 | 3.7 | 10 | 70 | 0.8 | 96 |
| 13- 43 | 3.9 | 15 | 61 | 0.4 | 96 |
| 43- 77 | 4.0 | 17 | 57 | 0.3 | 97 |
| 77-140 | 4.1 | 25 | 51 | 0.2 | 98 |
| 140-220 | 4.4 | 24 | 54 | 0.2 | 96 |

EXCHANGE COMPLEX (meq/110 g )

| Ca | Mg | K | Al | CEC |
|---|---|---|---|---|
| 0.84 | 0.37 | 0.20 | 2.0 | 3.4 |
| 0.05 | 0.03 | 0.04 | 2.6 | 2.7 |
| 0.05 | 0.03 | 0.03 | 3.1 | 3.2 |
| 0.03 | 0.02 | 0.02 | 3.1 | 3.2 |
| 0.03 | 0.01 | 0.03 | 4.5 | 4.6 |
| 0.06 | 0.03 | - | 3.8 | 3.9 |

## LAND SYSTEM 826, Facet 1.

Classification: Paleudult Aquic, clay; caolinitic, isohyperthermic.

Location: Profile P-2, Pucallpa Serie, IVITA, Pucallpa, Perú.

Source: Sánchez, P. et al. 1975. In: Investigaciones Agropecuarias, Vol. V, page 77.

| Depth. HOR(cm) | pH $H_2O$ | Clay | Sand | O.M. % | B.S. % | P ppm |
|---|---|---|---|---|---|---|
| 0- 3 | 5.2 | 27 | 35 | 6.3 | 97 | 2 |
| 3.21 | 4.3 | 45 | 17 | 1.9 | 49 | 1 |
| 21-62 | 4.2 | 59 | 15 | 1.0 | 19 | 1 |
| 62- + | 4.1 | 57 | 21 | 0.5 | 11 | 1 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Al | CEC |
|---|---|---|---|---|
| 4.2 | 2.1 | 0.52 | 0.2 | 7.1 |
| 2.2 | 1.2 | 0.40 | 4.0 | 7.9 |
| 0.8 | 0.9 | 0.32 | 8.7 | 10.8 |
| 0.4 | 0.7 | 0.24 | 11.6 | 13.1 |

## LAND SYSTEM 826, Facet 2.

Classification: Aeric Tropaquept.

Location: Abujao River (low part), Pucallpa region, Perú.

Physiography: Flat terrace.

Drainage: Imperfectly drained.

Vegetation: Purma.

Parent material: Recent alluvium from Abujao river.

Source: ONERN, 1978. Inventario Recurso zona Pucallpa-Abujao, Lima, Perú, pp 85-6.

$A_1$ : 0-15 cm. 10YR 5/6; clay loam; weak fine blocky structure; clear boundary.

$A_3$ : 15-40 cm. 7.5YR 5/6; clay loam; moderate medium blocky structure; mottles 2.5YR 3/6 (5%); clear boundary.

$B_{21}g$ : 40-65 cm. 5Y 6/1; clay; moderate medium blocky structure; 20% mottles 5YR 4/6; clear boundary.

$B_{22}g$ : 65-100 cm. 5Y 6/1; clear gray; massive; clay; 60% mottles 2.5YR 3/6.

| HOR | pH $H_2O$ | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|
| $A_1$ | 4.7 | 1.0 | 0.08 | 2.0 | 44 | 46 |
| $A_3$ | 4.6 | 0.8 | 0.06 | 0.5 | 38 | 57 |
| $B_{21}g$ | 4.6 | 0.6 | 0.05 | 0.5 | 36 | 62 |
| $B_{22}g$ | 4.5 | 0.5 | 0.03 | 0.5 | 35 | 38 |

| Ca | Mg | K | Na | Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 3.20 | 0.47 | 0.13 | 0.07 | 3.2 | 3.87 | 8.80 |
| 2.60 | 0.89 | 0.22 | 0.06 | 5.0 | 3.77 | 9 92 |
| 4.00 | 0.96 | 0.32 | 0.10 | 8.6 | 5.38 | 14.80 |
| 6.20 | 0.62 | 0.32 | 0.12 | 4.4 | 7.26 | 20.64 |

## LAND SYSTEM 828, Facet 2.

Classification: Tropofluvent.

Location: South of Puerto Bermudez, right margin of Yanizu river, Perú.

Physiography: Hight terrace.

Topography: Level, 0.5% slope.

Vegetation: Virgin forest; few crops.

Parent material: Alluvium (clays, silts).

Source: ONERN, 1970. Inventario de Recursos zona Villa Rica-Puerto Pachitea, Honoria Serie, pp 6 and 22.

$A_1$ : 0-15 cm. 7.5YR 3/2; clay loam; weak medium blocky structure; many roots; diffuse boundary.

AC : 15-55 cm. 5YR 3/4; silty clay loam; massive; common roots; diffuse boundary.

C : 55-110 cm. 5YR 3/4; silty clay; massive; friable to firm.

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| HOR | pH | C % | O.M. % | N % | C/N | $P_2O_5$ Kg/Ha |
|---|---|---|---|---|---|---|
| $A_1$ | 6.5 | 3.77 | 6.5 | 0.30 | 13 | 20 |
| AC | 6.9 | 1.39 | 2.4 | 0.11 | 12 | 20 |
| C | 6.8 | 0.98 | 1.7 | 0.06 | 16 | 34 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | CEC |
|---|---|---|---|---|
| 10.2 | 1.0 | 0.18 | 0.24 | 18.10 |
| 7.2 | 0.4 | 0.12 | 0.20 | 12.50 |
| 6.4 | 1.4 | 0.09 | 0.16 | 11.20 |

## LAND SYSTEM 832, Facet 2.

Classification: Tropofluvent éutrico.

Location: Right margin, middle portion, river De Las Piedras, Perú.

Physiography: Low terrace.

Topography: Level, 0-2% slope.

Parent material: Alluvial.

Vegetation: Forest, high and palms.

Source: ONERN, 1972. Inventario Recursos zona Inambari Serie, pp 28-9.

$A_1$ : 0-20 cm. 7.5YR 3/2; loam; massive; common roots; diffuse boundary.

AC : 20-50 cm. 7.5YR 4/4; sandy loam; massive, common roots; clear boundary.

C : 50-200 cm. 7.5YR 6/2; sandy; single grain; few roots.

| HOR | pH | O.M. % | N % | $P_2O_5$ Kg/Ha | Sand | Silt | Clay lla. |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.6 | 5.51 | 0.27 | 25.1 | 36 | 37 | 27 |
| AC | 5.8 | 0.89 | 0.04 | 7.7 | 64 | 19 | 17 |
| C | 6.0 | 0.69 | 0.03 | 12.5 | 92 | 3 | 5 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | CEC |
|---|---|---|---|---|
| 16.20 | 1.39 | 0.54 | 0.24 | 18.37 |
| 7.10 | 1.34 | 0.10 | 0.12 | 8.66 |
| 2.20 | 0.72 | 0.04 | 0.07 | 3.03 |

## LAND SYSTEM 833, Facet 1 (Dystrophic)

Classification: Typic Rhodudult.

Location: Pacarán region; Madre de Dios Department, Perú.

Physiography: Small hills.

Topography: 15% slope.

Vegetation: Forest with palo bastón, azúcar huayo, shiringa, paca and other species.

Parent material: Sedimentary,derived from siliceous red sandstones and plastic shales.

Source: ONERN, 1977. Inventario Recurso Tierra zona Iberia-Iñapari, page 111.

$A_1$ : 0-15 cm. 5YR 3.5/4; loam; weak medium granular structure; gradual boundary.

$A_3$ : 15-30 cm. 5YR 5/6; loam; weak medium blocky structure; gradual boundary.

$B_{21}t$ : 30-45 cm. 2.5YR 3.5/6; clay loam; moderate medium blocky structure; diffuse boundary.

$B_{22}t$ : 45-70 cm. 2.5YR 3/6; clay; strong medium blocky structure; diffuse boundary.

C : 70-100 cm. 2.5YR 3/6; mottles 2.5YR 5/2; clay; massive, very firm.

| HOR | pH | C % | N % | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|
| $A_1$ | 4.2 | 1.91 | 0.144 | 4.8 | 85 | 15 |
| $A_3$ | 4.7 | 1.28 | 0.106 | 1.8 | 49 | 54 |
| $B_{21}$ | 4.8 | 0.59 | 0.045 | 0.9 | 31 | 63 |
| $B_{22}$ | 4.8 | 0.55 | 0.040 | 1.8 | 35 | 54 |
| C | 5.0 | 0.23 | 0.017 | 1.9 | 28 | 75 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | H | Al | TEB | CEC |
|---|---|---|---|---|---|---|---|
| 2.80 | 0.30 | 0.18 | 0.02 | 0.25 | 0.35 | 3.55 | 3.90 |
| 0.80 | 0.30 | 0.09 | 0.02 | 0.05 | 1.20 | 1.26 | 2.46 |
| 0.60 | 0.38 | 0.13 | 0.02 | 0.20 | 2.30 | 1.13 | 3.63 |
| 2.00 | 0.57 | 0.16 | 0.04 | 0.30 | 4.30 | 2.77 | 7.97 |
| 1.80 | 0.67 | 0.18 | 0.07 | 0.25 | 6.75 | 2.72 | 9.69 |

## LAND SYSTEM 833, Facet 1 (Eutrophic)

Classification: Typic Tropudalf.

Location: Alerta zone, Madre de Dios State, Perú.

Physiography: High undulating terrace.

Topography: 3-6% slope.

Vegetation: Burned area-Yansaquiro, paca, topa.

Parent material: Old alluvium.

Source: ONERN, 1977. Inventario Recursos zona Iberia-Iñapari, page 102.

$A_1$ : 0-10 cm. 7.5YR 4/4; loam; weak fine granular structure; diffuse boundary.

$A_3$ : 10-30 cm. 7.5YR 4/4; weak fine blocky structure; loam; clear boundary.

$B_2t$ : 30-60 cm. 5YR 5/6; loam to clay; moderate medium blocky structure; clear boundary.

C : 60-140 cm. 5YR 4/6; clay loam; massive, firm.

| HOR | pH | C % | N % | C/N | P ppm | B.S. % | Al.S. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 6.2 | 0.75 | 0.06 | 12 | 4.0 | 65 | 14 |
| $A_3$ | 6.3 | 0.48 | 0.03 | 13 | 2.3 | 70 | 7 |
| $B_2t$ | 5.7 | 0.44 | 0.03 | 13 | 1.3 | 65 | 24 |
| C | 4.9 | 0.27 | 0.02 | 13 | 2.0 | 62 | 28 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | Al |
|---|---|---|---|---|
| 2.0 | 0.35 | 0.08 | 0.08 | 0.4 |
| 2.0 | 0.38 | 0.10 | 0.05 | 0.2 |
| 2.4 | 0.66 | 0.14 | 0.05 | 1.0 |
| 4.4 | 0.65 | 0.18 | 0.07 | 2.0 |

## LAND SYSTEM 834, Facet 1.

Classification: Tropudult.

Location: Atalaya, right margin Tambo river, Loreto Department, Perú.

Physiography: Hills.

Relief: Steep to mountainuous, 20-50 % slope.

Vegetation: High forest.

Parent material: Yellowish red clays.

Source: ONERN, 1968. Inventario Recursos zona Río Tambo-Gran Pajonal, Corrult Serie, page 118.

$A_0$ / $A_1$: 0-5 cm. Decomposed matter mixed with mineral material.

$A_2$ : 5-15 cm. 10YR 3/3; loam; granular structure; clear boundary.

$A_3$ : 15-30 cm. 10YR 4/4; sandy clay loam; granular structure; friable; clear boundary.

$B_1$ : 30-55 cm. 7.5YR 4/4; clay sand; fine blocky structure; friable; diffuse boundary.

$B_{21}$ : 55-80 cm. 5YR 4/8; clay; medium blocky structure; firm; many clay skins; diffuse boundary.

$B_{22}$ : 80-100 cm. 5YR 5/6; clay; medium blocky structure; firm; many clay skins.

| HOR | pH | C | N | C/N | M.O. | $P_2O_5$ | B.S. |
|---|---|---|---|---|---|---|---|
| | | % | % | | % | Kg/ha | % |
| $A_0/A_1$ | 4.0 | - | - | - | - | - | - |
| $A_2$ | 4.7 | 1.71 | 0.134 | 12.7 | 2.96 | 45 | 25 |
| $A_3$ | 4.6 | 0.78 | 0.045 | 17.3 | 1.36 | 52 | 26 |
| $B_1$ | 4.6 | 0.64 | 0.040 | 16.0 | 1.10 | 80 | 22 |
| $B_{21}$ | 4.6 | 0.30 | 0.017 | 17.6 | 0.52 | 90 | 15 |
| $B_{22}$ | 4.6 | 0.24 | 0.015 | 16.0 | 0.50 | 95 | 14 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | CEC |
|---|---|---|---|---|
| - | - | - | - | - |
| 1.20 | 0.46 | 0.40 | 0.10 | 8.48 |
| 1.20 | 0.50 | 0.28 | 0.10 | 8.00 |
| 1.20 | 0.29 | 0.30 | 0.12 | 9.12 |
| 1.80 | 0.46 | 0.26 | 0.30 | 13.64 |
| 1.80 | 0.40 | 0.20 | 0.25 | 18.60 |

## LAND SYSTEM 835, Facet 1.

Classification: Typic Tropudult.

Location: Upper Oorbigni river, Madre de Dios Department, Perú.

Physiography: Low hills.

Topography: Steep, 40% slope.

Vegetation: Forest (Anoniya, cético, ubilla, misa, remocapsi, fern , species.)

Parent material: Sedimentary.

Source: ONERN, 1972, Inventario Recursos Inambari-Madre de Dios, Astillero Serie, page 38.

$A_1$ : 0-20 cm. 5YR 4/6; sandy loam; granular structure; firable; many roots; diffuse boundary.

$B_1$ : 20-50 cm. 5YR 4/4; clay loam; massive; friable; common roots; diffuse boundary.

$B_2$ : 50-130 cm. 5YR 4/6; clay loam; massive; firm; diffuse boundary.

$B_3$ : 130-180 cm. 2.5YR 4/6; sandy clay loam; massive; firm; clear boundary.

C : + 180 cm. Skeletal, clay; 70% gravel, 4-6 cm. lenght.

| HOR | pH | M.O. | N | $P_2O_5$ | $K_2O$ | AL.S. |
|---|---|---|---|---|---|---|
| | | % | % | Kg/ha | | % |
| $A_1$ | 3.9 | 3.24 | 0.156 | 2.29 | 408 | 73 |
| $B_1$ | 4.4 | 1.10 | 0.048 | 1.14 | 370 | 73 |
| $B_2$ | 5.3 | 0.41 | 0.017 | 1.14 | 310 | 71 |
| $B_3$ | 4.3 | 0.41 | 0.015 | 0.70 | 370 | 75 |
| C | - | - | - | - | - | - |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | Al | CEC |
|---|---|---|---|---|---|
| 0.80 | 0.17 | 0.04 | 0.06 | 3.00 | 4.07 |
| 0.80 | 0.17 | 0.10 | 0.04 | 3.35 | 4.46 |
| 1.20 | 0.16 | 0.04 | 0.08 | 3.80 | 5.28 |
| 0.60 | 0.09 | 0.03 | 0.03 | 2.25 | 3.00 |
| - | - | - | - | - | - |

## LAND SYSTEM 836, Facet 2.

Classification: Typic tropofluvent.

Location: Left margin of Malinowsky river, Madre de Dios State, Perú.

Physiography: Low terrace.

Vegetation: Arboreal virgin forest, and palms.

Parent material: Alluvium.

Source: ONERN, 1972. Inventario Recursos zona Inambari-Madre de Dios, Malinowsky Serie, page 29.

$A_1$ : 0-10 cm. 7.5YR 4/4; sandy loam; structureless; common roots; diffuse boundary.

$C_1$ : 10-80 cm. 7.5YR 4/4; sandy loam; structureless; friable; common roots; clear boundary.

$C_2$ : 80-140 cm. 10YR 5.5/6; sandy; structureless; friable.

| HOR | pH | O.M. | N | $P_2O_5$ | $K_2O$ | Al.S. |
|---|---|---|---|---|---|---|
| | | % | % | Kg/ha | | % |
| $A_1$ | 5.0 | 5.65 | 0.242 | 19.69 | 408 | - |
| $C_1$ | 4.4 | 0.55 | 0.027 | 1.60 | 370 | 51 |
| $C_2$ | 4.9 | 0.28 | 0.008 | 32.06 | 272 | - |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | Al | CEC |
|---|---|---|---|---|---|
| 3.60 | 1.08 | 0.13 | 0.10 | 0.20 | 5.11 |
| 0.80 | 0.27 | 0.06 | 0.04 | 1.20 | 2.37 |
| 0.60 | 0.09 | 0.04 | 0.02 | 0.55 | 1.30 |

## LAND SYSTEM 836, Facet 1.

Classification: Tropofluvent.

Location: Quebrada Capitiari, between the elbow of Tambo river and Atalaya, Loreto Department, Perú.

Physiography: Intermediate terrace, non flooded.

Topography: 0-2% slope.

Vegetation: High forest.

Parent material: Recent alluvium.

Drainage: Well drained.

Source: ONERN, 1968. Inventario Recursos zona Río Tambo-Gran Pajonal, Teresita Serie, page 169.

$A_1$ : 0-5 cm. 10YR 3/2; loam; clear boundary.

$C_1$ : 5-20 cm. 10YR 4/2; sandy loam; granular structure; very friable; clear boundary.

$C_2$ : 20-70 cm. 7.5YR 4/4; silty loam; friable;diffuse boundary.

$C_3$ : 70-100 cm. 7.5YR 5/4; sandy loam; very fraible.

| HOR | pH | C | O.M. | N | C/N | $P_2O_5$ | B.S. |
|---|---|---|---|---|---|---|---|
| | | % | % | % | | Kg/ha | % |
| $A_1$ | 7.0 | 2.40 | 4.14 | 0.135 | 17.7 | 80 | 80 |
| $C_1$ | 6.2 | 0.10 | 0.17 | 0.006 | 16.7 | 40 | 89 |
| $C_2$ | 6.7 | 0.66 | 1.14 | 0.074 | 8.9 | 35 | 92 |
| $C_3$ | 6.5 | 0.09 | 0.16 | 0.005 | 18.0 | 60 | 99 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | CEC |
|---|---|---|---|---|
| 9.00 | 1.20 | 0.80 | 0.28 | 14.0 |
| 3.80 | 0.52 | 0.48 | 0.08 | 5.4 |
| 11.20 | 1.25 | 0.42 | 0.18 | 14.1 |
| 9.80 | 1.25 | 0.36 | 0.14 | 11.6 |

## LAND SYSTEM 839, Facet 1.

Classification: Lithic Eutropept.

Location: Peca Serie (Symbol PA in the map), Lore to Department; Perú (Río Tambo-Gran Pajonal area).

Physiography: Watersheds and tops of hills.

Topography: Very steep, 50-70% slope.

Parent material: Limestones.

Vegetation: Subtropical forest.

| HOR | pH | M.O. | C | N | C/N | $P_2O_5$ | B.S. |
|---|---|---|---|---|---|---|---|
| | | % | % | % | | Kg/ha | % |
| $A_1$ | 6.3 | 5.90 | 3.42 | 0.333 | 10.36 | 30 | 61 |
| AC | 6.2 | 0.80 | 0.46 | 0.039 | 11.79 | 26 | 54 |
| Cca | 8.2 | - | - | - | - | - | - |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | CEC |
|---|---|---|---|---|
| 12.00 | 1.30 | 0.60 | 0.35 | 23.3 |
| 9.80 | 1.40 | 1.00 | 0.45 | 23.3 |
| 20.00 | 4.00 | 0.20 | 0.50 | - |

## LAND SYSTEM 847, Facet 1.

Classification: Eutropept.

Location: Ebron Serie, zona Ceneapa-Alto Marañón, Amazonas State, Perú.

Physiography: Hills.

Topography: Moderate to very steep, 15-70% slope.

Parent material: Residual. Shales and fine grain sandstones.

Source: ONERN, 1976. Inventario Recursos zona Ceneapa-Alto Marañón.

$O_1$ : 2-0 cm. Orgsnic residues partially decomposed.

$A_1$ : 0-10 cm. 10YR 3.5/3; loam; moderate medium granular structure; friable; many roots; gradual boundary.

$A_3$ : 10-20 cm. 10YR 4/4; clay loam; massive, firm; common roots; gradual boundary.

B : 20-45 cm. 10YR 5/6; clay loam; weak medium blocky structure; few roots; gradual boundary.

C : 45-70 cm. 10YR 6/4; clay loam; massive, clear boundary.

CR : 70-110 cm. Shales in decomposition, light gray. (10YR 7/2 ).

| HOR | pH | C | N | $P_2O_5$ | B.S. | Al.S. |
|---|---|---|---|---|---|---|
| | | % | % | ppm | % | % |
| $A_1$ | 5.1 | 4.0 | 0.315 | 4.7 | 77 | 2 |
| $A_3$ | 5.4 | 2.2 | 0.169 | 0.6 | 71 | 15 |
| B | 5.6 | 0.7 | 0.053 | 0.3 | 49 | 41 |
| C | 5.5 | 0.6 | 0.051 | 0.3 | 47 | 50 |
| CR | 6.4 | 0.6 | 0.048 | 0.4 | 97 | 0 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 17.20 | 1.08 | 0.48 | 0.22 | 0.4 | 18.98 | 20.39 |
| 12.80 | 0.98 | 0.88 | 0.18 | 2.6 | 14.84 | 17.44 |
| 7.40 | 0.98 | 0.62 | 0.14 | 6.8 | 9.14 | 15.86 |
| 8.40 | 1.18 | 0.38 | 0.20 | 10.0 | 10.16 | 20.16 |
| 8.20 | 0.72 | 0.50 | 0.08 | 0.0 | 9.50 | 9.50 |

## LAND SYSTEM 850, Facet 1.

Classification: Tropaquept.

Location: 7Km from the Marginal road of the Jungle; Parcela CF-3-4; 98Km from Tingo María, Huanuco Department, Perú.

Physiography: Level terrace non-inundated.

Parent material: Recent alluvium.

Drainage: Imperfect to poorly drained.

Vegetation: Forest- (Aguaje, ojé, huimba).

Source: Gobert Paredes Arce, August 16, 1974.

$A_{11}$ : 0-5 cm. 7.5YR 3/2; weak medium granular structure; loam; many roots; clear boundary.

$A_{12}$ : 5-15 cm. 5YR 4/2; loam; moderate medium granular structure; common roots; gradual boundary.

AC : 15-25 cm. 7.5YR 5/4; loam; massive; few roots; mottles 7.5YR 5/4 and 2.5YR 4/8; gradual boundary.

$C_{1}g$ : 25-50 cm. 10YR 5/4; clay loam; massive, firm, no roots; many mottles.

| HOR | pH | | O.M. | N | P | B.S. | Al.S. |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_{11}$ | 4.4 | 3.8 | 8.16 | 0.33 | 17.6 | 42 | 58 |
| $A_{12}$ | 4.3 | 3.6 | 7.72 | 0.32 | 15.4 | 30 | 69 |
| AC | 5.2 | 4.3 | 2.89 | 0.13 | 12.0 | 20 | 79 |
| $C_1g$ | 5.3 | 4.2 | 0.69 | 0.03 | 10.7 | 18 | 81 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | Al | TEB | CEC |
|---|---|---|---|---|---|---|
| 2.40 | 0.17 | 0.04 | 0.03 | 3.6 | 2.64 | 11.52 |
| 1.80 | 0.11 | 0.02 | 0.02 | 4.4 | 1.95 | 13.12 |
| 1.20 | 0.05 | 0.02 | 0.02 | 5.0 | 1.29 | 8.32 |
| 1.20 | 0.05 | 0.02 | 0.04 | 5.6 | 1.31 | 8.16 |

## LAND SYSTEM 854, Facet 1.

Classification: Typic Tropudalf.

Location: Iberia, Madre de Dios Department, Perú.

Physiography: Slightly dissected hill.

Slope: 20%.

Parent material: Shales, siltstsone and sandstone.

Vegetation: Bananas, cassava

Source: ONERN, 1977. Inventario Recursos Zona Iberia-Iñapari, page 103.

$A_1$ : 0-20 cm. 10YR 4/4; silty clay loam; weak fine blocky structure; clear boundary.

$B_2t$ : 20-60 cm. 5YR 4/6; clay; moderate medium blocky structure; clear boundary.

$B_3$ : 60-85 cm. 7.5YR 4/4; mottles 5YR 4/6; clay; weak medium blocky structure; gradual boundary.

C : 85-140 cm. 2.5Y 5/4; clay; massive, slight reaction to HCl.

| HOR | pH | C | N | P | B.S. | Al.S. |
|---|---|---|---|---|---|---|
| | | % | % | ppm | % | % |
| $A_1$ | 5.2 | 1.87 | 0.144 | 3.6 | 88 | 0 |
| $B_2t$ | 5.1 | 0.44 | 0.035 | 1.3 | 40 | 40 |
| $B_3$ | 5.4 | 0.19 | 0.016 | 0.6 | 62 | 5 |
| C | 7.5 | 0.12 | 0.008 | 1.3 | 100 | 0 |

EXCHANGE COMPLEX (meq/100 g )

| Ca | Mg | K | Na | Al | CEC |
|---|---|---|---|---|---|
| 9.20 | 0.62 | 0.14 | 0.06 | 0 | 11.36 |
| 9.40 | 0.70 | 0.04 | 0.12 | 6.8 | 25.84 |
| 13.60 | 0.76 | 0.26 | 0.16 | 0.8 | 23.68 |
| 20.20 | 0.64 | 0.16 | 0.19 | 0 | 21.12 |

## SISTEMA DE TIERRA 1, Faceta 1

Clasificación : Latosol Vermelho Amarelo distrófico - Acrustox.

Localización : Area de la Estación Experimental de Brasilia, Distrito Federal, Brasil.

Posición Fisiográfica : Ladera media de elevación, con 8% de declive.

Topografía : Suave ondulado, con laderas de centenas de metros.

Drenaje : Bien drenado.

Vegetación : Cerrado.

Mat.Originario : Ardosias, metalimolitas y calcáreos de la serie Bambui, Siluriano, Era Paleozoica.

Fuente : Ministerio de Agricultura, Bol.Técnico No.8,(1), perfil 4, pág.46/9.

$A_1$ 0-12 cm; 5YR 4.5/4, arcilloso; granular pequeña a grande moderada; ligeramente duro, muy friable; límite plano y claro.

$A_3$ 12-30 cm; 5YR 4/4; arcilloso; granular pequeña a grande moderada, duro, muy friable; límite plano y claro.

$B_1$ 30-50 cm; 5YR 5/7; arcilloso; granular pequeña a grande débil; ligeramente duro, friable; límite plano y gradual.

$B_{21}$ 50-85 cm; 5YR 4.5/8; arcilloso; masivo poroso poco coherente; muy friable; límite plano y difuso.

$B_{22}$ 85-125 cm; 5YR 4/8; pocos moteados difusos 7.5YR 6/8; arcilloso; masivo poroso poco coherente; muy friable, límite plano y difuso.

$B_3$ 125-160 cm; 5YR 5/8; pocos moteados pequeños 7.5YR 6/8; arcilloso; masivo poroso poco coherente; muy friable; límite plano y gradual.

$C_1$ 160-200 cm; 5YR 5/7; arcilloso gravoso; plástico y pegajoso ; límite plano y gradual.

$C_2$ 200-220 cm+; 5YR 4/6; arcilloso muy gravoso; plástico y pegajoso.

OBS.: Raíces abundantes en $A_1$, muchas en $A_3$, $B_1$, $B_{21}$, $B_{22}$, $B_3$ y pocas en $C_1$. Intensa actividad biológica hasta el horizonte $B_{21}$. Los horizontes $C_1$ y $C_2$ son constituídos por una mezcla de tierra fina, piedras y gravas.

Análisis mineralógico:

$A_1$ Arenas: 84% de cuarzo; 6% concreciones ferruginosas; 6% magnetita; 4% detritos.
Gravas: 99% concreciones ferruginosas; 1% magnetita; trazas de cuarzo triturado.

$A_3$ Arenas: 54% cuarzo; 30% magnetita; 10% concreciones ferruginosas; 3% concreciones arcillosas; 3% detritos.
Gravas: 90% concreciones ferruginosas; 1% magnetita.

$B_1$ Arenas: 83% cuarzo; 8% concreciones ferruginosas; 8% magnetita; 1% detritos.
Gravas: 98% concreciones ferruginosas y ferroarcilinsas; 1% cuarzo triturado; 1% magnetita.

$B_{21}$ Arenas: 85% cuarzo; 10% magnetita; 4% concreciones ferruginosas y ferroarcillosas; 1% detritos.
Gravas: 99% concreciones ferruginosas y ferroarcillosas; 1% cuarzo.

$B_{22}$ Arenas: 82% cuarzo; 10% concreciones ferruginosas; 6% magnetita; 2% detritos.
Gravas: 99% concreciones ferruginosas; 1% magnetita.

$B_3$ Arenas: 83% cuarzo; 10% concreciones ferruginosas; 5% magnetita; 2% detritos; trazas de zirconita.
Gravas: 99% concreciones ferruginosas y ferroarcillosas; 1% cuarzo; trazas de feldespato y magnetita.

$C_1$ Arenas: 84% cuarzo; 10% concreciones ferruginosas y ferroarcillosas; 5% magnetita; 1% detritos.
Gravas: 99% concreciones ferruginosas; 1% cuarzo;trazas de magnetita.
Cantos rodados: 100% concreciones ferruginosas.

$C_2$ Arenas: 84% cuarzo; 10% concreciones ferruginosas y ferroarcillosas; 5% magnetita; 1% detritos.
Cantos rodados: 100% concreciones ferruginosas.
Gravas: 99% concreciones ferruginosas; 1% cuarzo; trazas de magnetita.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | |
| $A_1$ | 5.1 | 4.2 | 1.87 | 0.13 | - | 3 | 86 |
| $A_3$ | 5.0 | 4.4 | 1.40 | 0.09 | - | 5 | 82 |
| $B_1$ | 5.2 | 4.4 | 1.04 | 0.07 | - | 6 | 67 |
| $B_{21}$ | 4.9 | 4.9 | 0.77 | 0.08 | - | 6 | 0 |
| $B_{22}$ | 5.3 | 5.7 | 0.50 | 0.08 | - | 11 | 0 |
| $B_3$ | 5.3 | 6.1 | 0.44 | 0.04 | - | 21 | 0 |
| $C_1$ | 5.9 | 6.1 | 0.49 | 0.04 | - | 17 | 0 |
| $C_2$ | 5.7 | 6.1 | 0.26 | 0.02 | - | 40 | 0 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca + Mg | K | Na | H | Al | TBI | CIC |
| 0.2 | 0.08 | 0.03 | 6.5 | 1.8 | 0.3 | 8.6 |
| 0.2 | 0.05 | 0.02 | 4.9 | 1.4 | 0.3 | 6.6 |
| 0.2 | 0.03 | 0.02 | 4.3 | 0.6 | 0.3 | 5.2 |
| 0.2 | 0.02 | 0.02 | 3.2 | 0 | 0.2 | 3.4 |
| 0.2 | 0.01 | 0.02 | 1.7 | 0 | 0.2 | 1.9 |
| 0.3 | 0.02 | 0.02 | 1.1 | 0 | 0.3 | 1.4 |
| 0.2 | 0.01 | 0.02 | 1.0 | 0 | 0.2 | 1.2 |
| 0.3 | 0.02 | 0.03 | 0.6 | 0 | 0.4 | 1.0 |

## SISTEMA DE TIERRA 15, Faceta 1

Clasificación : Latosol Vermelho Escuro - Haplustox.

Localización : Puesto agropecuario de Goiania, a 6 km de la ruta Goiánica - Anápolis, Edo. Goias, Brasil.

Posición Fisiográfica : Ladera media de colina con pendiente de 3-4%.

Topografía : Suave ondulado, con elevaciones de cimas extendidas y valles en "V".

Drenaje : Bien drenado.

Vegetación: Cerradao.

Mat.Originario: Material transportado proveniente de rocas gneissicas.

Fuente : Embrapa, Bol.Técnico 17,1975,(2), perfil 48, p.277/80

$O_1$ 2-0 cm; raíces, hojas y ramitas en principio de descomposición.

$A_1$ 0-10 cm; 2.5YR 3/4; arcilloso; granular pequeña a grande, moderada a fuerte; ligeramente duro, muy friable; límite plano y claro.

$A_3$ 10-30 cm; 2.5YR 3/6; arcilloso; granular y bloques pequeños moderados; ligeramente duro, muy friable; límite plano y gradual.

$B_1$ 30-53 cm; 2.5YR 3/6; arcilloso; bloques pequeños débiles; pocos barnices débiles; ligeramente duro, muy friable; límite plano y gradual.

$B_{21}$ 53-100 cm; 1.5YR 3/6; arcilloso; granular muy pequeña a masivo; muy friable; límite plano y difuso.

$B_{22}$ 130-210 cm+; 1.5YR 3/6; arcilloso; granular muy pequeña, a masivo; muy friable.

OBS.: Raíces povotantes secundarias; abundantes en $A_1$ y $A_3$, escasas en los demás horizontes.

Análisis mineralógico:

$A_1$ Arenas: 91% cuarzo bialino, con adherencia ferruginosa y algunos con adherencia manganosa; 3% de concreciones ferruginosas y ferromanganosas; 5% de ilmenita; 1% de detritos.
Gravas: 60% cuarzo bialino con adherencia ferruginosa y manganosa; 40% concreciones ferruginosas ferroarcillosas y ferromanganosas, algunas levemente rodadas.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.9 | 4.6 | 2.17 | 0.21 | 2 | 23 | 17 |
| $A_3$ | 4.7 | 4.4 | 1.33 | 0.12 | 1 | 10 | 54 |
| $B_1$ | 5.0 | 4.6 | 0.98 | 0.08 | 1 | 10 | 43 |
| $B_{21}$ | 5.5 | 5.6 | 0.50 | 0.04 | 1 | 18 | 0 |
| $B_{22}$ | 5.9 | 6.0 | 0.39 | 0.03 | 1 | 21 | 0 |

Cont.

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca + Mg | K | Na | H | Al | TBI | CIC |
| 2.1 | 0.35 | 0.02 | 7.3 | 17 | 2.5 | 10.3 |
| 0.5 | 0.12 | 0.02 | 5.0 | 54 | 0.6 | 6.3 |
| 0.3 | 0.05 | 0.02 | 3.4 | 43 | 0.4 | 4.1 |
| 0.3 | 0.05 | 0.02 | 1.8 | 0 | 0.4 | 2.2 |
| 0.2 | 0.07 | 0.02 | 1.1 | 0 | 0.3 | 1.4 |

## SISTEMA DE TIERRA 17, Faceta 1

Clasificación : Terra Roxa Estruturada similar eutrófica - Rhodustalf.

Localización : Ruta Campos Belos - Pto.Cubiculo, 6 km después del empalme para Valle de Pecuaria. Municipio de Arraias, Goias, Brasil.

Posición Fisiográfica : Tercio superior de elevación con 3% de pendiente.

Topografía : Suave ondulado.

Drenaje : Bien drenado.

Vegetación : Cerrado.

Mat.Originario: Detritos de calcareos y ardosias del Grupo Rambuí, Eocambriano superior.

Fuente : Ministerio de Agricultura, Boletin Técnico No.8,(1), perfil 11 (complementario), pág.238/40.

A 0-25 cm; 5YR 3/2; arcillas con gravas; granular pequeña a media fuerte, y bloques subangulares; plástico y pegajoso.

Bt 50-70 cm; 2.5YR 3/3; arcilla con gravas; muy plástico y muy pegajoso.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | | % | ppm | % | % |
| A | 6.4 | 5.5 | 2.61 | 0.25 | 2 | 83 | 0 |
| Bt | 6.6 | 5.4 | 0.84 | 0.10 | 2 | 84 | 0 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 13.0 | 2.6 | 0.28 | 0.05 | 3.3 | 0 | 15.9 | 19.2 |
| 7.0 | 2.9 | 0.11 | 0.03 | 1.9 | 0 | 10.0 | 11.9 |

## SISTEMA DE TIERRA 18, Faceta 1

Clasificación : Latosol Vermelho Amarelo distrófico - Haplustox.

Localización : A 4 km de Monte Alegre de Goiás, en la ruta para Arraias, Edo. Goiás, Brasil.

Posición Fisiográfica: Cima de elevación, con 2-4% de pendiente.

Topografía: Suave ondulado.

Drenaje: Acentuadamente drenado.

Vegetación: Cerrado.

Mat.Originario: Filitos y cuarcitos del Grupo Tocantins, Pre-Cambriano.

Fuente: Ministerio de Agricultura, Boletin Técnico No.8, (1), perfil 20, pág.117/20.

$A_1$ 0-10 cm; 5YR 5/6; franco arcillo arenoso con gravas; granular pequeña débil y granos simples; ligeramente duro, friable; límite plano y gradual.

$A_3$ 10-25 cm; 5YR 5/4; franco arcillo arenoso con gravas; bloques pequeños medios; ligeramente duro, friable; límite plano y gradual.

$B_1$ 25-40 cm; 5YR 4/8; franco arcillo arenoso con gravas; masivo poroso poco coherente muy friable; límite plano y difuso.

$B_{21}$ 40-90 cm; 5YR 5/8; franco arcillo arenoso con gravas; masivo poroso poco coherente, suelto, muy friable; límite plano y abrupto.

$B_{22}$ 90-130 cm+; 2.5YR 5/8; franco arcillo arenoso con muchas gravas; masivo poroso poco coherente; plástico y pegajoso.

OBS.: Raíces abundantes en $A_1$, muchas en $A_3$ y $B_1$, pocas en $B_{21}$ y raras en $B_{22}$.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.3 | 4.2 | 0.83 | 0.06 | 1 | 10 | 82 |
| $A_3$ | 5.5 | 4.3 | 0.52 | 0.05 | < 1 | 10 | 73 |
| $B_1$ | 5.5 | 4.3 | 0.46 | 0.05 | < 1 | 11 | 73 |
| $B_{21}$ | 5.7 | 4.4 | 0 33 | 0.04 | < 1 | 11 | 67 |
| $B_{22}$ | 5.9 | 4.7 | - | - | < 1 | 12 | 40 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca + Mg | K | Na | H | Al | TBI | CIC |
| 0.3 | 0.11 | 0.02 | 1.9 | 1.3 | 0.4 | 4.1 |
| 0.2 | 0.08 | 0.02 | 2.0 | 0.8 | 0.3 | 3.1 |
| 0.2 | 0.06 | 0.02 | 1.7 | 0.8 | 0.3 | 2.8 |
| 0.2 | 0.05 | 0.02 | 1.9 | 0.6 | 0.3 | 2.8 |
| 0.2 | 0.05 | 0.02 | 2.1 | 0.2 | 0.3 | 2.6 |

## SISTEMA DE TIERRA 26, Faceta 1

Clasificación: Podzólico Vermelho Amarelo Eutrófico.

Localización: Concepción de Araguaia - Edo.Pará. Brasil.

Posición Fisiográfica: Cima de elevación con 35% de pendiente.

Topografía: Fuertemente ondulado a montañoso.

Drenaje: Bien drenado.

Vegetación: Floresta abierta.

Mat.Originario: Granitos y gneisses Pre-Cambrianos.

Fuente: Proj.Radambrasil, Vol.4,1974(5), perfil 9, p.42/3.

$A_1$ 0-15 cm; 7.5YR 4/2; franco arcilloso; granular pequeña moderada; friable; límite claro y plano.

$A_3$ 15-30 cm; 5YR 4/6; arcilloso; bloques pequeños débiles; friable a firme; límite claro y plano.

$B_{11}$ 30-50 cm, 3YR 4/6; arcilloso; bloques pequeños moderados; pocos barnices, débiles; firme, plástico y pegajoso; límite plano y gradual.

$B_{12}$ 50-70 cm; 2.5YR 4/8; arcilloso; bloques pequeños moderados; firme; límite plano y difuso.

$B_{21}$ 70-90 cm; 2.5YR 5/8; arcillo limoso; bloques pequeños moderados; barnices débiles comúnes; firme; límite plano y difuso.

$B_{22}$ 90-120 cm+; 2.5YR 5/8; arcilloso; bloques pequeños moderados, barnices pequeños comúnes; firme, plástico y pegajoso.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 6.1 | 5.5 | 2.11 | 0.24 | 2 | 78 | 0 |
| $A_3$ | 5.9 | 5.2 | 1.23 | 0.12 | 2 | 76 | 0 |
| $B_{11}$ | 5.9 | 5.1 | 0.75 | 0.08 | 2 | 68 | 0 |
| $B_{12}$ | 6.1 | 5.3 | 0.67 | 0.05 | 2 | 70 | 0 |
| $B_{21}$ | 6.3 | 5.8 | 0.38 | 0.03 | 2 | 77 | 0 |
| $B_{22}$ | 6.3 | 5.9 | 0.35 | 0.03 | 3 | 82 | 0 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 9.90 | 1.10 | 0.23 | 0.05 | 3.13 | 0 | 11.28 | 14.41 |
| 7.00 | 0.60 | 0.17 | 0.04 | 2.47 | 0 | 7.81 | 10.28 |
| 4.80 | 0.30 | 0.09 | 0.04 | 2.47 | 0 | 5.23 | 7.70 |
| 3.90 | 0.90 | 0.11 | 0.03 | 2.14 | 0 | 4.94 | 7.08 |
| 2.80 | 0.70 | 0.23 | 0.03 | 2.15 | 0 | 3.76 | 4.91 |
| 2.70 | 0.60 | 0.30 | 0.08 | 0.82 | 0 | 3.68 | 4.50 |

## SISTEMA DE TIERRA 28, Faceta 1

Clasificación: Latosol Vermelho Amarelo distrófico - Acrustox.

Localización: Ruta Porto Velho - Cuiabá, a 3 km de Semidouro (Pensao do Alemao), Mato Grosso, Brasil.

Posición Fisiográfica: Relieve de chapada (plano alto) con 1.5% de pendiente.

**Topografía:** Suave ondulado. Superficie ligeramente disectada por valles en "V" muy abiertos con vertientes planas de millares de metros.

**Drenaje:** Acentuadamente drenado.

**Vegetación:** Cerrado.

**Mat.Originario:** Arenisca de la serie Parecis, Mesozoico.

**Fuente:** Embrapa, Bol.Técnico No.17,1975,(2); perfil 42, p. 254/8.

$A_{11}$ 0-6 cm; 10YR 3/2; franco arcillo arenoso; granular pequeña moderada; ligeramente duro, friable; límite plano y abrupto.

$A_{12}$ 6-17 cm; 10YR 3/3; franco arcillo arenoso; granular muy pequeña a grande moderada; ligeramente duro, friable; límite plano y abrupto.

$A_3$ 17-31 cm; 5YR 3/4; franco arcillo arenoso; granular muy pequeña a media débil; ligeramente duro, friable; límite plano y claro.

$B_1$ 31-49 cm; 5YR 4/4; franco arcillo arenoso; granular muy pequeña con aspecto masivo poroso; ligeramente duro, muy friable; límite claro y plano.

$B_{21}$ 49-84 cm; 5YR 4/8; arcillo arenoso; granular muy pequeña con aspecto masivo muy poroso; ligeramente duro, muy friable; límite plano y difuso.

$B_{22}$ 84-225 cm; 5YR 4/8; arcillo arenoso; granular pequeña con aspecto masivo muy poroso; muy friable.

$B_{23}$ 225-305+cm; 3.5YR 5/8; arcillo arenoso.

OBS.: Raíces muy finas comúnes hasta $B_{21}$; pocas de diámetro hasta 20mm desde el $A_1$ disminuyendo paulatinamente hasta el $B_1$.

Análisis mineralógico:

$A_{11}$ Arenas: 95 cuarzo hialino; 2 concreciones ferroginosas y ferroarcillosas; 2 detritos; 1 carbón.

$A_{12}$ Arenas: 97 cuarzo hialino; 2 concreciones ferroginosas y ferroarcillosas; 1 detritos; trazas de turmalina y magnetitas.

$A_3$ Arenas: 98 cuarzo hialino; 1 concreciones ferroginosas y ferroarcillosas; 1 detritos; trazas de magnetitas.

$B_1$ Arenas: 99 cuarzo hialino; 1 conc. ferroginosas y ferroarcillosas; trazas de magnetita y detritos.

$B_{21}$ Arenas: 100 cuarzo hialino.

$B_{22}$ Arenas: 99 cuarzo hialino; 2 concreciones ferroginosas; trazas de turmalina y detritos.

$B_{23}$ 98 cuarzo hialino; 2 concreciones ferruginosas; trazas de turmalina y detritos.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | | | ppm | % | % |
| $A_{11}$ | 5.8 | 5.3 | 3.16 | 0.32 | 4 | 70 | 0 |
| $A_{12}$ | 5.5 | 4.8 | 1.96 | 0.15 | 2 | 45 | 0 |
| $A_3$ | 5.1 | 4.2 | 1.36 | 0.12 | 2 | 25 | 40 |
| $B_1$ | 4.9 | 4.1 | 0.77 | 0.06 | 1 | 10 | 67 |
| $B_{21}$ | 5.4 | 4.2 | 0.45 | 0.04 | 1 | 8 | 63 |
| $B_{22}$ | 5.4 | 4.7 | 0.32 | 0.04 | 1 | 18 | 0 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 10.1 | 2.7 | 0.22 | 0.05 | 5.6 | 0 | 13.1 | 13.7 |
| 3.5 | 1.7 | 0.18 | 0.04 | 6.7 | 0 | 5.4 | 12.1 |
| 0.8 | 0.6 | 0.09 | 0.02 | 3.5 | 1.0 | 1.5 | 6.0 |
| 0.4 | | 0.03 | 0.02 | 3.7 | 1.0 | 0.5 | 5.2 |
| 0.3 | | 0.02 | 0.02 | 3.0 | 0.5 | 0.3 | 3.8 |
| 0.4 | | 0.03 | 0.02 | 2.3 | 0 | 0.5 | 2.8 |

## SISTEMA DE TIERRA 34, Faceta 2

**Clasificación:** Areias Quartzosas Vermelhas e Amarelas - Quartzipsamment.

**Localización :** Ruta Rondonópolis - Poxoreu, a 60 km de Rondonópolis, Municipio Poxoreu, Mato Grosso, Brasil.

**Posición Fisiográfica:** Ladera media en paisaje de superficies disectadas con valles en "V" abiertos, con vertientes planas de cientos de metros.

**Topografía:** Suave ondulado; localmente 1% de pendiente.

**Drenaje:** Excesivamente drenado.

**Vegetación:** Cerrado.

**Mat.Originario:** Areniscas de la Serie Oguidavana, Carbonífero Superior.

**Fuente:** Embrapa, Bol.Técnico No.17,1975(2), perfil 8, pág. 151/3.

$A_1$ 0-7 cm; 5YR 3/2; arenoso; granular pequeña débil y grano simple; muy friable; límite plano y abrupto.

AC 7-35 cm; 5YR 3/3.5; arenoso; granular pequeña débil y grano simple; muy friable; límite plano y claro.

$C_1$ 35-67 cm; 2.5YR 4/6; arenoso; grano simple; suelto; límite plano y difuso.

$C_2$ 67-200 cm; 2.5YR 4/8; arenoso franco; grano simple; suelto; no plástico y no pegajoso.

OBS.: Raíces comúnes, finas, en $A_1$; medias y gruesas en todo el perfil.

Análisis mineralógico:

$A_1$ Arenas: 99% cuarzo hialino; 1% detritos; trazas de carbón.

AC Arenas: 99 cuarzo hialino; 1% detritos; trazas de turmalina.

$C_1$ Arenas: 99 cuarzo hialino; 1% detritos; trazas de turmalina y estaurolita.

$C_2$ Arenas: 100 cuarzo hialino; trazas de turmalina y detritos.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.5 | 4.1 | 0.63 | 0.04 | 2 | 30 | 44 |
| AC | 5.4 | 4.3 | 0.37 | 0.03 | 2 | 7 | 71 |
| $C_1$ | 5.6 | 4.3 | 0.21 | 0.02 | 1 | 10 | 75 |
| $C_2$ | 5.6 | 4.4 | 0.11 | 0.01 | 1 | 18 | 60 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 1.2 | 0.2 | 0.08 | 0.03 | 2.3 | 1.2 | 5.0 | 44 |
| 0.2 | | 0.03 | 0.01 | 2.0 | 0.5 | 2.7 | 71 |
| 0.2 | | 0.03 | 0.01 | 1.3 | 0.6 | 2.1 | 75 |
| 0.2 | | 0.01 | 0.02 | 0.6 | 0.3 | 1.1 | 60 |

## SISTEMA DE TIERRA 48, Faceta 1

**Clasificación:** Areias Quartzosas Vermelhas e Amarelas - Quartzipsamment.

**Localización :** Ruta Canal de Sao Simao - Jataí, a 122 km de C.de Sao Simao, Municipio Jataí, Goiás, Brasil.

**Posición Fisiográfica:** Cima de elevación.

**Topografía:** Localmente plano, pendiente 0.5%. Paisaje regional suave ondulado, pendientes largas, valles en "V" abiertos de fondo cóncavo.

**Drenaje:** Fuertemente drenado.

**Vegetación:** Cerradao.

**Mat.Originario:** Arenisca Botucatú, Cretáceo.

**Fuente:** Embrapa, Bol.Técnico No.17,1975(2), perfil 6, pág. 143/6.

$A_1$ 0-8 cm; 5YR 3/3; franco arenoso; granular pequeña débil y grano simple; ligeramente duro, friable; límite plano y claro.

AC 8-26 cm; 2.5YR 3/4; arenoso franco; granular pequeña débil y grano simple; ligeramente duro, friable; límite plano y gradual.

$C_1$ 26-75 cm; 2.5YR 3/5; arenoso franco; granular muy pequeña débil y grano simple; ligeramente duro, muy friable; límite plano y difuso.

$C_2$ 75-115 cm; 10R 3/5 ; franco arenoso; granular media y grano simple; con aspecto masivo muy poroso; friable; límite plano y difuso.

$C_3$ 115-230 cm; 10R 3/6; franco arenoso; granular pequeña y grano simple; con aspecto masivo muy poroso; muy friable, límite plano y difuso

$C_4$ 230-380 cm$^+$; 10R 3/6; franco arenoso; ligeramente plástico y pegajoso.

OBS.: Raíces abundante, gruesas, medias y finas en $A_1$; abundantes, medias, en AC; pocas, finas en $C_1$; a partir de $C_2$ son escasas, algunas gruesas.

Análisis mineralógico:

$A_1$ Arenas: 97% cuarzo; 3% detritos y carbón.

AC Arenas: 98% cuarzo; 1% magnetita; 1% detritos y carbón; trazas de turmalina y estaurolita.

$C_1$ Arenas: 100% cuarzo; trazas de magnetita y carbón.

$C_2$ Arenas: 100% cuarzo; trazas de magnetita.

$C_3$ Arenas: 100% cuarzo; trazas de concr. magnetíticas.

$C_4$ Arenas: 100% cuarzo; trazas de magnetita y turmalina.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.0 | 3.9 | 1.80 | 0.11 | 16 | 7 | 61 |
| AC | 4.4 | 4.2 | 0.47 | 0.04 | 11 | 7 | 73 |
| $C_1$ | 4.3 | 4.3 | 0.31 | 0.03 | 6 | 7 | 75 |
| $C_2$ | 5.1 | 4.5 | 0.17 | 0.02 | 4 | 13 | 67 |
| $C_3$ | 5.4 | 4.6 | 0.15 | 0.02 | 1 | 17 | 60 |
| $C_4$ | 5.6 | 4.8 | 0.16 | 0.02 | 1 | 20 | 50 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca + Mg | K | Na | H | Al | TBI | CIC |
| 1.0 | 0.22 | 0.02 | 15.1 | 1.9 | 1.2 | 18.2 |
| 0.2 | 0.04 | 0.01 | 3.3 | 0.8 | 0.3 | 4.4 |
| 0.2 | 0.02 | 0.01 | 1.9 | 0.6 | 0.2 | 2.7 |
| 0.2 | 0.01 | 0.01 | 0.9 | 0.4 | 0.2 | 1.5 |
| 0.2 | 0.01 | 0.01 | 0.7 | 0.3 | 0.2 | 1.2 |
| 0.2 | 0.02 | 0.02 | 0.6 | 0.2 | 0.2 | 1.0 |

## SISTEMA DE TIERRA 49, Faceta 1

Clasificación: Latosol Roxo - Eutrustox.

Localización : Ruta Río Verde - Jataí, a 4 km de Río Verde (próximo al aeropuerto), Goiás, Brasil.

Posición Fisiográfica: Tercio superior de elevación. Paisaje de colinas de cimas extendidas, con valles en "V" abiertos; pendientes rectas y largas.

Topografía: Suave ondulado, pendiente local de 1%.

Drenaje: Acentuadamente drenado.

Vegetación: Cerrado.

Mat.Originario: Basalto.

Fuente: Embrapa, Bol.Técnico No.17,1975(2), perfil 37, pág. 236/8.

$A_1$ 0-17 cm; 10R 3/3; arcilloso; granular pequeña moderada; ligeramente duro, friable; límite plano y difuso.

$A_3$ 17-36 cm; 10R 3/3; arcilloso; granular pequeña débil; ligeramente duro, friable; límite plano y difuso.

$B_1$ 36-78 cm; 10R 3/4; arcilloso, granular pequeña con aspecto muy poroso; muy friable; límite plano y gradual.

$B_{21}$ 78-250 cm; 10R 3/4; arcilloso; granular muy pequeña con aspecto masivo muy poroso; muy friable, límite plano y difuso.

$B_{22}$ 250-320 cm$^+$; 10R 3/5; muy arcilloso; muy plástico y muy pegajoso.

OBS.: Raíces finas y abundantes en $A_1$; finas y comúnes en $A_3$, disminuyendo paulatinamente hasta el inicio del $B_{21}$.

Análisis mineralógico:

$A_1$ Arenas: 85% cuarzo; 15% ilmenita magnética, concreciones ferruginosas y magnetita.

$A_3$ Arenas: 80% cuarzo; 20% magnetita, concreciones ferruginosas e ilmenita.

$B_1$ Arenas: 90% cuarzo; 10% concreciones ferruginosas y magnetita.

$B_{21}$ Arenas: 70% cuarzo; 30% concreciones ferruginosas y magnetita.

$B_{22}$ Arenas: 60% cuarzo; 40% concreciones ferruginosas, ilmenita magnética y magnetita.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.6 | 4.5 | 1.55 | 0.10 | 4 | 7 | 50 |
| $A_3$ | 4.9 | 4.8 | 1.19 | 0.07 | 1 | 8 | 33 |
| $B_1$ | 5.1 | 5.3 | 0.68 | 0.05 | - | 8 | 0 |
| $B_{21}$ | 5.4 | 5.7 | 0.57 | 0.03 | - | 10 | 0 |
| $B_{22}$ | 5.5 | 6.5 | 0.24 | 0.02 | 0 | 18 | 0 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca + Mg | K | Na | H | Al | TBI | CIC |
| 0.4 | 0.07 | 0.03 | 5.9 | 0.5 | 0.5 | 6.9 |
| 0.3 | 0.04 | 0.03 | 4.3 | 0.2 | 0.4 | 4.9 |
| 0.2 | 0.03 | 0.03 | 3.3 | 0 | 0.3 | 3.6 |
| 0.3 | 0.02 | 0.03 | 2.8 | 0 | 0.3 | 3.1 |
| 0.3 | 0.01 | 0.03 | 1.4 | 0 | 0.3 | 1.7 |

## SISTEMA DE TIERRA 54, Faceta 1

Clasificación: Latosol Vermelho Escuro - Haplustox.

Localización: Ruta Rondonopolis - Coxim, a 17 km de Río Poguba. Edo. Mato Groso, Brasil.

Posición Fisiográfica: Parte plana de paisaje de "chapada" (tierras altas).

Topografía: Suave ondulado de chapada, con valles en "V" muy abiertos, con partes planas de millares de metros. Pendiente local de 1.5%.

Drenaje: Acentuadamente drenado.

Vegetación: Cerrado.

Mat.Originario: Sedimentos marinos de grano fino de serie chapadas, Paleozoicos.

Fuente: Embrapa, Bol.Técnico No.17,1975,(2); perfil 51,pág. 289/92.

$A_{11}$ 0-5 cm; 2.5YR 3/3; muy arcilloso; granular pequeña fuerte; ligeramente duro, muy friable; límite plano y claro.

$A_{12}$ 5-15 cm; 2.5YR 3/4; muy arcilloso; granular pequeña moderada; ligeramente duro, muy friable; límite plano y claro.

$A_3$ 15-29 cm; 2.5YR 3/6; muy arcilloso; granular pequeña moderada; ligeramente duro, friable; límite plano y claro.

$B_1$ 29-51 cm; 2.5YR 3/6; muy arcilloso; granular pequeña débil; ligeramente duro, muy friable; límite plano y difuso.

$B_{21}$ 51-103 cm; 1.5YR 3/6; muy arcilloso; granular pequeña con aspecto masivo poco poroso; duro, friable; límite plano y difuso.

$B_{22}$ 103-300 cm$^+$; 1.5YR 3.5/6; muy arcilloso: granular pequeña con aspecto masivo muy poroso; ligeramente duro, muy friable; plástico y pegajoso.

OBS.: Raíces finas abundantes en $A_{11}$, disminuyendo gradualmente hasta $B_{22}$. Pocas raíces gruesas y medias en todo el perfil.

Análisis mineralógico:

$A_{11}$ Arenas: 58% cuarzo; 38% concr. ferruginosas y ferroarcillosas; 4% detritos. Trazas de turmalina y magnetita.

$A_{12}$ Arenas: 60% cuarzo; 36% concr. ferruginosas y ferroarcillosas; 3% detritos; 1% carbón; trazas de muscovita, turmalina y magnetita.

$A_3$ Arenas: 58% cuarzo; 38% concr. ferruginosas y ferroarcillosas; 4% detritos; trazas de magnetita y carbón.

$B_1$ Arenas: 56% cuarzo; 40% concr. ferruginosas y ferroarcillosas; 4% detritos; trazas de magnetitas y carbón.

$B_{21}$ Arenas: 58% cuarzo hialino; 40% concr. ferruginosas y ferroarcillosas; trazas de detritos, carbón y magnetita.

$B_{22}$ Arenas: 64% cuarzo; 35% concr. ferruginosas y ferroarcillosas; 1% detritos; trazas de magnetita y carbón.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_{11}$ | 5.1 | 4.1 | 1.85 | 0.11 | 1 | 15 | 54 |
| $A_{12}$ | 5.0 | 4.1 | 1.89 | 0.11 | 1 | 6 | 78 |
| $A_3$ | 5.1 | 4.2 | 1.65 | 0.09 | 1 | 8 | 75 |
| $B_1$ | 5.3 | 4.3 | 1.03 | 0.06 | 1 | 7 | 73 |
| $B_{21}$ | 5.5 | 4.5 | 0.67 | 0.04 | 1 | 9 | 63 |
| $B_{22}$ | 5.9 | 4.7 | 0.44 | 0.03 | 1 | 12 | 40 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca + Mg | K | Na | H | Al | TBI | CIC |
| 1.1 | 0.11 | 0.03 | 5.5 | 54 | 1.2 | 8.1 |
| 0.3 | 0.10 | 0.01 | 4.5 | 78 | 0.4 | 6.3 |
| 0.3 | 0.08 | 0.02 | 3.3 | 75 | 0.4 | 4.9 |
| 0.3 | 0.03 | 0.01 | 3.4 | 73 | 0.3 | 4.5 |
| 0.2 | 0.09 | 0.02 | 2.6 | 63 | 0.3 | 3.4 |
| 0.3 | 0.01 | 0.01 | 2.0 | 40 | 0.3 | 2.5 |

## SISTEMA DE TIERRA 57, Faceta 1

Clasificación: Solos indiscriminados concrecionarios tropicales, con B latosólico (óxico) - Eutrustox.

Localización: Estrada Cuiabá - Cáceres, a 34 km de Cuiabá, Edo. Mato Grosso, Brasil.

Posición Fisiográfica: Pequeñas colinas con valles en "V" y vertientes planas y cóncavas de decenas de metros. Perfil ubicado en tercio superior de elevación.

Topografía: Suave ondulado, pendiente local de 1.5-2%.

Drenaje: Moderadamente drenado.

Vegetación: Cerrado.

Mat.Originario: Micacitas, filitas, cuarcitas de la Serie Cuiabá, Pre-Cámbrico.

Fuente: Embrapa, Bol.Técnico No.17,1975,(2), perfil 89,pág. 418/22.

$A_{1cn}$ 0-9 cm; 10YR 4/2.5; franco muy gravoso; granular pequeña débil; ligeramente duro, muy friable; concreciones lateríticas; límite plano y claro.

$A_{3cn}$ 9-19 cm; 10YR 5/4; franco arcilloso muy gravoso; granular pequeña débil; ligeramente duro, muy friable; concreciones lateríticas; límite claro y plano.

$B_{1cn}$ 19-33 cm; 10YR 5/5; franco arcilloso muy gravoso; granular pequeña con aspecto masivo poroso; ligeramente duro, muy friable; concreciones lateríticas; límite plano y claro.

$B_{21cn}$ 33-49 cm; 10YR 5/4; franco arcilloso muy gravoso; granular muy pequeña con aspecto masivo poroso; ligeramente duro, muy friable; concreciones lateríticas; límite plano y claro.

$B_{22cn}$ 49-67 cm; 10YR 5/4; franco arcilloso gravoso; granular muy pequeña con aspecto masivo poroso; ligeramente duro, muy firable; concreciones lateríticas; límite plano y gradual.

$B_3$ 67-85 cm; 8.5YR 5/; moteados comúnes, medios, prominentes 1YR 4/6; arcilloso gravoso; granular muy pequeña con aspecto masivo poco poroso; duro, friable; límite ondulado y abrupto.

C 85-120 cm(+); mezcla de colores amarillos, rojos y purpúreos; arcilloso.

OBS.: Muchas raíces en $A_{1cn}$; pocas en $A_{3cn}$ y $B_{1cn}$; y raras en $B_{21cn}$.

Análisis mineralógico:

$A_{1cn}$ Arenas: 60% cuarzo; 40% concr. magnetiticas y ferruginosas; trazas de detritos. Gravas y cantos rodados: 100% fragmentos de cuarzo.

$A_{3cn}$ Arenas: 70% cuarzo; 30% concr. ferruginosas y magnetita. Gravas: 70% cuarzo; 30% concr. ferruginosas. Cantos rodados: 100% fragmentos de cuarzo.

$B_{1cn}$ Arenas: 70% cuarzo; 30% concr. ferruginosas, magnetiticas y ferromanganosas. Gravas: 50% concr. ferruginosas y ferromanganosas; 50% cuarzo.

$B_{21cn}$ Arenas: 70% concr. ferruginosas y ferromanganosas; 30% cuarzo; trazas de turmalina. Gravas: 95% concr. ferromanganosas, ferruginosas y fragmentos de rocas máficas; 5% cuarzo.

$B_{22cn}$ Arenas: 50% cuarzo; 50% concr. ferruginosas y ferromanganosas. Gravas: 50% concr. ferruginosas, fragmentos de roca intemperizada y concr. ferromanganosas; 50% cuarzo.

$B_3$ Arenas: 70% cuarzo; 30% concr. ferruginosas y ferromanganosas; trazas de turmalina y detritos. Gravas: 70% cuarzo; 30% concr. ferruginosas, ferromanganosas y fragmentos de roca intemperizada máfica.

C Arenas: 90% cuarzo; 5% turmalina; 5% concreciones ferruginosas; trazas de magnetita.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_{1cn}$ | 5.9 | 4.6 | 1.61 | 0.12 | 5 | 45 | 10 |
| $A_{3cn}$ | 5.2 | 4.1 | 0.79 | 0.07 | 2 | 18 | 59 |
| $B_{1cn}$ | 5.3 | 4.1 | 0.69 | 0.06 | 1 | 17 | 65 |
| $B_{21cn}$ | 5.7 | 4.3 | 0.30 | 0.05 | 10 | 21 | 53 |
| $B_{22cn}$ | 5.8 | 4.3 | 0.12 | 0.03 | 1 | 19 | 50 |
| $B_3$ | 5.6 | 4.2 | 0.20 | 0.03 | 1 | 22 | 60 |
| C | 5.7 | 4.1 | 0.09 | 0.02 | 1 | 24 | 67 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca + Mg | K | Na | H | Al | TBI | CIC |
| 3.4 | 0.27 | 0.03 | 4.1 | 0.4 | 3.7 | 8.2 |
| 0.7 | 0.15 | 0.03 | 2.7 | 1.3 | 0.9 | 4.9 |
| 0.6 | 0.12 | 0.03 | 2.5 | 1.5 | 0.8 | 4.8 |
| 0.6 | 0.08 | 0.04 | 1.9 | 0.8 | 0.7 | 3.4 |
| 0.5 | 0.06 | 0.04 | 1.9 | 0.6 | 0.6 | 3.1 |
| 0.7 | 0.07 | 0.03 | 1.6 | 1.2 | 0.8 | 3.6 |
| 0.8 | 0.06 | 0.04 | 1.1 | 1.8 | 0.9 | 3.8 |

## SISTEMA DE TIERRA 58, Faceta 2

Clasificación: Brunizem Avermelhado - Rhodustalf.

Localización: BR-29 entre Rosario Oeste y Vilhena, 7 km después de Nobres, Edo. Mato Grosso, Brasil.

Posición Fisiográfica: Tercio inferior de ladera de valles intermontanos.

Topografía: Suave ondulado. Pendiente local de 5-10%.

Drenaje: Moderado.

Vegetación: Campo cerrado.

Mat.Originario: Calcáreo del Grupo Araras, Cambro-Ordoviciano, Paleozoico.

Fuente: Embrapa, Bol.Técnico No.17,1975,(2), perfil 58,pág. 160/2.

A 0-25 cm; 2.5YR 2/1; franco arcilloso; granular pequeña moderada; ligeramente duro, friable; límite plano y claro.

$B_2t$ 25-65 cm; 2.5YR 2/4; moteado pequeño, común, difuso, 2.5YR 3/4; arcilloso; prismática, grande, fuerte; barnices fuertes, comúnes; muy duro, friable; límite plano y gradual.

C 65-80 cm; 2.5YR 3/4; ligera efervescencia al HCl sobre puntuaciones blancas; arcilloso; prismática grande moderada; barnices fuertes, comúnes; muy duro, friable; muy plástico y pegajoso.

OBS.: Raíces comúnes en A, disminuyendo hasta B . Afloramientos de calcáreo en áreas circunvecinas.

Análisis mineralógico:

A Arenas: 90% cuarzo; 5% concr. ferruginosas; 5% carbón y detritos. Gravas: 50% concr. ferruginosas; 40% material arcillo-silicoso; 10% cuarzo milonitizado; trazas de fragmentos de calcedonia.

$B_2t$ Arenas: 70% cuarzo; 15% material arcillo-silicoso; 15% concr. ferruginosas y ferromanganosas. Gravas: 40% cuarzo; 30% concr. ferruginosas y ferromanganosas; 30% material arcillo-silicoso.

C Arenas: 85% cuarzo; 5% concr. ferruginosas; 10% concr. arcillo-silicosas. Gravas: 60% cuarzo; 30% concr. ferruginosas y ferromanganosas; 10% material arcillo-silicoso.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| A | 5.9 | 5.3 | 1.78 | 0.14 | 8 | 84 | 0 |
| $B_2t$ | 6.7 | 5.6 | 0.78 | 0.08 | 3 | 92 | 0 |
| C | 6.9 | 6.0 | 0.48 | 0.03 | 4 | 96 | 0 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 14.8 | 4.5 | 0.24 | 0.06 | 3.6 | 0 | 19.6 | 23.2 |
| 11.4 | 4.9 | 0.12 | 0.09 | 1.5 | 0 | 16.5 | 18.0 |
| 9.2 | 4.0 | 0.09 | 0.09 | 0.6 | 0 | 13.4 | 14.0 |

## SISTEMA DE TIERRA 59, Faceta 1

Clasificación: Latosol Vermelho Escuro - Acrustox.

Localización: Ruta Porto Velho - Cuiabá, a 69 km de Semidouro, Municipio Diamantino, Edo.Mato Grosso, Brasil.

Posición Fisiográfica: Paisaje de "chapada", superficie levemente disectada por valles en "V" muy abiertos con vertientes planas de centenas de metros.

Topografía: Suave ondulado. Pendiente local de 0.5-1 .

Drenaje: Acentuadamente drenado.

Vegetación: Cerrado.

Mat.Originario: Arenisca de la Serie Parecis, Mesozoico.

Fuente: Embrapa, Bol.Técnico No.17,1975,(2), perfil 53,pág. 297/9.

$A_{11}$ 0-6 cm; 2.5YR 3/3; franco arcillo arenoso; granular pequeña moderada; ligeramente duro, friable; límite plano y claro.

$A_{12}$ 2.5YR 3/4; franco arcillo arenoso; granular pequeña moderada; ligeramente duro, friable; límite plano y claro.

$A_3$ 12-24 cm; 2.5YR 3/4; franco arcillo arenoso; granular pequeña moderada; ligeramente duro, friable; límite plano y claro.

$B_1$ 24-42 cm; 2.5YR 3/6; arcillo arenoso; granular pequeña con aspecto masivo muy poroso; ligeramente duro, muy friable; límite plano y claro.

$B_{21}$ 42-64 cm; 2.5YR 3/4; arcillo arenoso; granular pequeña con aspecto masivo muy poroso; muy friable; límite plano y gradual.

$B_{22}$ 64-310 cm; 2.5YR 4/7; arcillo arenoso; granular pequeña con aspecto masivo muy poroso; muy friable, plástico y pegajoso.

OBS.: Raíces comúnes, finas y gruesas, ocurren desde el $A_{11}$ hasta el $B_{22}$. Muchas raíces finas disminuyendo hasta el $B_{21}$.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | | | ppm | | |
| $A_{11}$ | 5.2 | 4.2 | 1.35 | 0.09 | 2 | 8 | 71 |
| $A_{12}$ | 5.2 | 4.3 | 1.16 | 0.07 | 1 | 5 | 80 |
| $A_3$ | 5.2 | 4.3 | 0.89 | 0.05 | 1 | 6 | 75 |
| $B_1$ | 5.3 | 4.4 | 0.73 | 0.04 | 1 | 8 | 70 |
| $B_{21}$ | 5.5 | 4.7 | 0.43 | 0.03 | 1 | 12 | 57 |
| $B_{22}$ | 5.7 | 5.3 | 0.37 | 0.02 | 1 | 13 | 50 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.4 | | 0.09 | 0.01 | 4.8 | 71 | 0.5 | 6.5 |
| 0.2 | | 0.08 | 0.01 | 4.3 | 80 | 0.3 | 5.8 |
| 0.2 | | 0.09 | 0.02 | 3.6 | 75 | 0.3 | 4.8 |
| 0.2 | | 0.11 | 0.02 | 2.6 | 70 | 0.3 | 3.6 |
| 0.2 | | 0.06 | 0.01 | 1.8 | 57 | 0.3 | 2.5 |
| 0.2 | | 0.03 | 0.01 | 1.1 | 50 | 0.2 | 1.5 |

## SISTEMA DE TIERRA 70, Faceta 1

Clasificación: Regosol Distrófico - Ustipsamment.

Localización: Ruta Aguidauana - Bonito, 6.5 km después del río Miranda, Edo. Mato Grosso, Brasil.

Posición Fisiográfica: Ladera media en paisaje de pendientes convexas de centenas de metros, cima redondeada, valles en "V" abiertos.

Topografía: Ondulado, pendiente general 5-15%; localmente 7%.

Drenaje: Acentuadamente drenado.

Vegetación: Floresta semidecidua con algunas especies de cerrado.

Mat.Originario: Filitos y esquistos de la Serie Cuiabá, Pre-Cámbrico.

Fuente: Embrapa, Bol.Técnico No.18,1971,(4); perfil 84,pág. 673/5.

A 0-10 cm; 10YR 3/2; franco arenoso gravoso; granular pequeña débil; límite ondulado y claro.

AC 10-35 cm; 7.5YR 3/2; franco arcillo arenoso gravoso;granular, pequeña, débil; plástico y pegajoso; límite ondulado y abrupto.

IIC 35-100 cm+; 2.5YR 4/8; franco.

OBS: Raíces comúnes en $A_1$, pocas en AC.

Análisis mineralógico:

A Arenas: 95 cuarzo; 5 magnetita y concr. ferruginosas; trazas de turmalina, muscovita y detritos. Gravas y cantos rodados: cuarzo.

AC Arenas: 94 cuarzo; 3 magnetita y hematita; 3% feldespato y biotita. Gravas y cantos: cuarzo.

IIC Arenas: 85 cuarzo; 10 fragmentos rocas esquistosas; 5% magnetita y concr. hematiticas; trazas de muscovita,biotita y turmalina.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | | | ppm | % | % |
| A | 6.0 | 4.6 | 1.26 | 0.13 | 4 | 57 | 7 |
| AC | 5.0 | 3.9 | 1.01 | 0.11 | 3 | 32 | 43 |
| IIC | 4.9 | 3.8 | 0.74 | 0.09 | 2 | 21 | 67 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 2.0 | 1.7 | 0.56 | 0.07 | 2.9 | 0.3 | 4.3 | 7.5 |
| 0.9 | 0.8 | 0.20 | 0.05 | 2.8 | 1.5 | 2.0 | 6.3 |
| 0.7 | 0.5 | 0.18 | 0.05 | 2.5 | 2.8 | 1.4 | 6.7 |

## SISTEMA DE TIERRA 70, Faceta 2

Clasificación: Podzólico Vermelho Amarelo equivalente eutrófico - Haplustalf.

Localización: A 500 m de Fazenda Carrapatinho, Edo. Mato Grosso, Brasil.

Posición Fisiográfica: Perfil sobre cima extendida,con pendientes de 1 a 5%.

Topografía: Suave ondulado, localmente plano.

Drenaje: Bien drenado.

Vegetación: Floresta caducifolia.

Mat.Originario: Depósitos de carácter arenoso, proveniente de areniscas de la Serie Aguidauana.

Fuente: Embrapa, Bol.Técnico No.18,1971,(4); perfil 115, pág.287/90.

$A_1$ 0-15 cm; 5YR 3/2; franco arenoso; granular pequeña moderada; ligeramente duro, muy friable; límite plano y gradual.

$A_3$ 15-35 cm; 2.5YR 3/4; franco arcillo arenoso; granular pequeña moderada; ligeramente duro, muy friable; límite plano y abrupto.

$B_1t$ 35-55 cm; 2.5YR 4/4; arcillo arenoso; bloques pequeños débiles; pocos barnices, débiles; duro, friable; límite plano y gradual.

$B_2t$ 55-115 cm; 1.5YR 3/6; arcilloso; bloques pequeños fuertes; barnices comúnes, débiles; duro, friable; límite plano y abrupto.

$B_3t$ 115-310 cm+; 10R 3/6; arcillo arenoso; bloques pequeños débiles; ligeramente duro,friable,;plástico y pegajoso.

OBS.: Raíces comúnes en $A_1$ y $A_3$, pocas en $B_1t$ y $B_2t$, con diámetros entre 1 mm y 2 cm, predominando las de menor diámetro. Intensa actividad biológica hasta el horizonte $B_2t$.

Análisis mineralógico:

$A_1$ Arenas: 100% cuarzo vitreo incoloro; trazas de sericita, turmalina, hematita, ilmenita, etc. Gravas: predominio de cuarzo y concr. ferruginosas.

$A_3$ Arenas: 100 cuarzo vitreo incoloro; trazas de sericita, turmalina, hematita, ilmenita, concr. ferruginosas, arcillo-humosas. Gravas: predominio de cuarzo y concr. ferruginosas.

El resto del perfil es aproximadamente igual a la muestra anterior.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 6.6 | 6.0 | 1.03 | 0.08 | 31 | 65 | 0 |
| $A_3$ | 5.5 | 3.9 | 0.52 | 0.05 | 4 | 44 | 19 |
| $B_1t$ | 5.5 | 4.0 | 0.46 | 0.05 | 1 | 51 | 13 |
| $B_2t$ | 5.4 | 4.0 | 0.28 | 0.04 | 1 | 53 | 15 |
| $B_3t$ | 5.4 | 3.8 | 0.16 | 0.04 | 1 | 41 | 27 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 3.2 | 1.4 | 0.29 | 0.04 | 2.6 | 0 | 4.9 | 7.5 |
| 1.1 | 0.9 | 0.18 | 0.04 | 2.4 | 0.4 | 2.2 | 5.0 |
| 1.7 | 0.9 | 0.13 | 0.04 | 2.3 | 0.4 | 2.8 | 5.5 |
| 1.8 | 0.9 | 0.08 | 0.04 | 2.0 | 0.5 | 2.8 | 5.3 |
| 0.7 | 0.7 | 0.11 | 0.05 | 1.7 | 0.6 | 1.6 | 3.9 |

## SISTEMA DE TIERRA 72, Faceta 1

Clasificación: Areias Quartzosas distróficas.

Localización: Estrada Campo Grande - Presidente Epitacio, a 73 km de Campo Grande, Edo. Mato Grosso, Brasil.

Posición Fisiográfica: Tercio superior de elevación. Paisaje con valles en "V" abiertos, vertientes de hasta miles de metros.

Topografía: Suave ondulado, pendiente local 0-3 .

Drenaje: Excesivamente drenado.

Vegetación: Cerrado caducifolio.

Mat.Originario: Areniscas Caiauá, Jurásico, Mesozoico.

Fuente: Embrapa, Bol.Técnico No.18,1971,(4), perfil 13, pág. 748/50.

$A_1$ 0-16 cm; 5YR 4/4; arenoso; granular pequeña débil; muy friable; límite plano y difuso.

AC 16-56 cm; 5YR 4/4; arenoso; granular pequeña débil; muy friable; límite plano y difuso.

$C_1$ 56-78 cm; 2.5YR 4/6; arenoso franco; granular pequeña débil; muy friable; límite plano y gradual.

$C_2$ 78-108 cm; 2.5YR 3/6; arenoso franco; granular pequeña débil; muy friable; límite plano y difuso.

$C_3$ 108-168 cm(+); arenoso franco; granular pequeña débil; muy friable, ligeramente plástico y no pegajoso.

OBS.: Raíces abundantes en A , muchas en AC, y comúnes en $C_1$, $C_2$ y $C_3$. Poros en todo el perfil.

Análisis mineralógico:

$A_1$ Arenas: 97% cuarzo; 2% detritos; 1% magnetita.

AC Arenas: 98% cuarzo; 2% magnetita; trazas de estaurolita y turmalina.

$C_1$ Arenas: 99% cuarzo; 1% magnetita; trazas de turmalina.

$C_2$ Arenas. 99% cuarzo; 1% magnetita e ilmenita; trazas de detritos y turmalina.

$C_3$ Arenas: 99% cuarzo; 1% magnetita e ilmenita; trazas de turmalina.

Cont.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.9 | 4.0 | 0.62 | 0.05 | < 1 | 15 | 50 |
| AC | 5.3 | 4.2 | 0.31 | 0.03 | < 1 | 10 | 67 |
| $C_1$ | 5.1 | 4.2 | 0.24 | 0.03 | < 1 | 17 | 63 |
| $C_2$ | 5.2 | 4.2 | 0.21 | 0.03 | < 1 | 12 | 67 |
| $C_3$ | 5.4 | 4.2 | 0.14 | 0.03 | < 1 | 17 | 50 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca + Mg | | K | Na | H | Al | TBI | CIC |
| 0.4 | | 0.07 | 0.02 | 2.3 | 50 | 0.5 | 3.3 |
| 0.2 | | 0.02 | 0.02 | 1.4 | 67 | 0.2 | 2.8 |
| 0.3 | | 0.01 | 0.03 | 1.0 | 63 | 0.3 | 1.8 |
| 0.2 | | 0.01 | 0.02 | 1.1 | 57 | 0.2 | 1.7 |
| 0.3 | | 0.01 | 0.02 | 1.2 | 0 | 0.3 | 1.8 |

## SISTEMA DE TIERRA 73, Faceta 1

Clasificación: Latosol Roxo Distrófico.

Localización: Ruta Dourados - Itaporã, a 5.5 km de Dourados, Edo. Mato Grosso, Brasil.

Topografía: Suave ondulado, pendiente 2.5 .

Drenaje: Acentuadamente drenado.

Vegetación: Floresta subperennifolia.

Mat.Originario: Rocas eruptivas básicas.

Fuente: Embrapa, Bol.Técnico No.18,1971,(4), perfil 11, pág. 208/11.

$O_1$ 4-0 cm; detritos vegetales en descomposición.

$A_1$ 0-10 cm; 10R 3/3; arcilloso pesado; granular pequeña moderada; ligeramente duro, friable; límite plano y claro.

$A_3$ 10-21 cm; 10R 3/3; arcilloso pesado; granular media moderada; ligeramente duro, friable; límite plano y gradual.

$B_1$ 21-43 cm; 10R 3/4; arcilloso pesado; masivo poroso tendiendo a bloques y granular; ligeramente duro, friable; límite plano y gradual.

$B_{21}$ 43-87 cm; 10R 3/4; arcilloso pesado; granular pequeña con aspecto de masivo poroso; muy friable; límite plano y difuso.

$B_{22}$ 87-126 cm; 10R 3/4; arcilloso pesado; granular muy pequeña con aspecto muy masivo poroso; muy friable; límite plano y difuso.

$B_{23}$ 126-252 cm+; 10R 3/4; arcilloso pesado; granular muy pequeña con aspecto masivo muy poroso; muy friable; plástico y pegajoso.

OBS.: Raíces primarias y secundarias, con diámetros entre 1 mm - 5 cm; abundantes en $A_1$, muchas en $A_3$, comúnes en $B_1$ y $B_{21}$, pocas en $B_{22}$ y raras en $B_{23}$. Poros en todo el perfil, en mayor cantidad en $A_1$ y $A_3$. Actividad biológica en $A_1$, $A_3$ y $B_1$, siendo más intensa en $A_1$.

Análisis mineralógico:

$A_1$ Arenas: 64% detritos; 25% magnetita; 4% concr.ferroarcillosas; 4% concr. ferruginosas; 2% cuarzo; 1% concr. manganosas; trazas de mica.

$A_3$ Arenas: 85% magnetita; 5% detritos; 5% concr. ferroarcillosas y ferruginosas; 3% cuarzo; 2% concr. manganosas; trazas de mica y feldespato.

$B_1$ Arenas: 86% magnetita; 7% concr. ferroarcillosas y ferruginosas; 4% cuarzo hialino; 2% detritos; 1% concr. manganosas.

$B_{21}$ Arenas: 88% magnetita; 5% concr. ferruginosas; 4% cuarzo; 2% detritos; 1% concr. manganosas.

$B_{22}$ Arenas: 88% magnetita; 6% concr. ferruginosas y ferroarcillosas; 4% cuarzo; 1% detritos; 1% concr. manganosas.

$B_{23}$ Arenas: 91% magnetita; 5% concr. ferruginosas; 3% cuarzo; 1% concr. manganosas.

Cont.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.4 | 5.0 | 3.76 | 0.44 | 7 | 65 | 1 |
| $A_3$ | 5.4 | 4.1 | 1.68 | 0.19 | 1 | 26 | 45 |
| $B_1$ | 4.5 | 4.0 | 1.14 | 0.12 | < 1 | 14 | 69 |
| $B_{21}$ | 5.0 | 4.2 | 0.66 | 0.07 | < 1 | 22 | 53 |
| $B_{22}$ | 4.9 | 4.2 | 0.50 | 0.05 | < 1 | 20 | 58 |
| $B_{23}$ | 5.1 | 4.3 | 0.35 | 0.04 | < 1 | 14 | 70 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 10.0 | 3.9 | 0.61 | 0.04 | 7.6 | 0.2 | 14.6 | 22.4 |
| 1.4 | 1.4 | 0.24 | 0.02 | 6.5 | 2.5 | 3.1 | 12.1 |
| 0.5 | 0.7 | 0.13 | 0.02 | 5.4 | 3.1 | 1.4 | 9.9 |
| 0.2 | 1.5 | 0.02 | 0.02 | 4.1 | 1.9 | 1.7 | 7.7 |
| 0.1 | 1.1 | 0.06 | 0.02 | 3.3 | 1.8 | 1.3 | 6.4 |
| 0.1 | 0.5 | 0.17 | 0.02 | 3.2 | 1.9 | 0.8 | 5.9 |

## SISTEMA DE TIERRA 73, Faceta 2

Clasificación: Laterita Hidromórfica Nao Solódica Eutrófica.

Localización : Ruta rio Brilhante - Dourados, a 14 km de rio Brilhante, Mato Grosso, Brasil.

Posición Fisiográfica: Varzea plana.

Topografía: Plano.

Drenaje: Mal drenado.

Vegetación: Campo de varzea.

Mat.Originario: Sedimentos arcillosos y arenosos de origen fluvial.

Fuente: Embrapa, Bo.Técnico No.18,1971,(4), perfil 38, pág. 607/10.

$A_{11}$ 0-10 cm; 10YR 3/2; franco arcilloso; granular pequeña débil; friable; límite ondulado y claro.

$A_{12}$ 10-22 cm; 10YR 4/2; franco arcillo arenoso; granular pequeña débil; friable; límite ondulado y abrupto.

$A_2$gcn 22-40 cm; 10YR 5/2; franco arcillo arenoso con gravas; bloques pequeños débiles; duro, firme; límite plano y abrupto.

$B_{21}$tgcn 40-110 cm; 10YR 5/1; moteados abundantes grandes y prominentes 5YR 4/6; arcilloso con gravas; prismática pequeña moderada; muy duro, muy firme; límite plano y abrupto.

$B_{22}$tg 100-130 cm(+); N 5/; moteados comúnes pequeños, prominentes 2.5YR 4/8; también 10YR 5/6; arcilloso; prismática, pequeña moderada; muy duro, muy firme, plástico y muy pegajoso.

OBS.: Nivel freático a 130 cm de profundidad. Raíces comúnes en $A_{11}$ y $A_{12}$.

Análisis mineralógico:

$A_{11}$ Arenas: 78% cuarzo; 12% ilmenita; 10% detritos.

$A_{12}$ Arenas: 88% cuarzo; 4% concr. ferruginosas y ferroarcillosas; 4% ilmenita; 4% detritos.

$A_2$gcn Arenas: 60% cuarzo; 20% concr. ferruginosas y ferroarcillosas; 19% ilmenita; 1% detritos.

$B_{21}$tgcn Arenas: 69% concr. ferruginosas y ferroarcillosas;30% cuarzo; 1% ilmenita.

$B_{22}$ Arenas: 60% concr. ferruginosas y ferroarcillosas;40% cuarzo.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_{11}$ | 5.0 | 4.0 | 2.90 | 0.32 | 3 | 46 | 13 |
| $A_{12}$ | 5.2 | 4.0 | 0.75 | 0.10 | 2 | 44 | 21 |
| $A_2$gcn | 5.1 | 3.9 | 0.53 | 0.07 | 1 | 46 | 25 |
| $B_{21}$tgcn | 5.0 | 3.9 | 0.32 | 0.04 | 4 | 53 | 26 |
| $B_{22}$tg | 4.9 | 3.9 | 0.21 | 0.03 | 9 | 72 | 12 |

Cont.

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 7.3 | 2.1 | 0.29 | 0.11 | 10.2 | 1.4 | 9.8 | 21.4 |
| 3.1 | 1.0 | 0.05 | 0.06 | 4.3 | 1.1 | 4.2 | 9.6 |
| 2.9 | 1.0 | 0.05 | 0.05 | 3.4 | 1.3 | 4.0 | 8.7 |
| 5.5 | 1.8 | 0.03 | 0.07 | 4.0 | 2.6 | 7.4 | 14.0 |
| 10.9 | 3.9 | 0.08 | 0.10 | 3.9 | 2.0 | 15.0 | 20.9 |

## SISTEMA DE TIERRA 77, Faceta 1

Clasificación: Podzólico Vermelho Amarelo.

Localización : Ruta Jardim - Vila Gaucha, a 4 km de Jardim, Mato Grosso, Brasil.

Posición Fisiográfica: Cima de elevación. Paisaje con valles en "V. y vertientes de centenas de metros.

Topografía: Suave ondulado, pendiente local 3.5%.

Drenaje: Bien drenado.

Vegetación: Campestre.

Mat.Originario: Areniscas de la serie Aquidauana, Carbonífero Superior , Paleozoico.

Fuente: Embrapa, Bol.Técnico No.18,1971,(4), perfil 100,pág. 387/90.

$A_1$ 0-10 cm; 2.5YR 4/2; arenoso franco; granular pequeña débil; ligeramente duro, muy friable; límite plano y gradual.

$A_2$ 10-35 cm; 2.5YR 4/4; arenoso franco; bloques pequeños débiles; ligeramente duro, muy friable; límite plano y abrupto.

$A_3$ 35-65 cm; 2.5YR 3/4; franco arenoso; bloques pequeños moderados; duro, firme; límite plano y gradual.

$B_{21}$t 65-90 cm; 2.5YR 3/6; franco arcillo arenoso; bloques pequeños a grandes moderados; pocos barnices débiles; duro, firme; límite plano y claro.

$B_{22}$t 90-125 cm; 2,5YR 3/6; franco arcillo arenoso; bloques pequeños moderados; pocos barnices débiles; ligeramente duro, friable; límite plano y difuso.

$B_3$ 125-300 cm+; 2.5YR 4/8; franco arcillo arenoso; granular muy pequeña débil, con aspecto masivo poroso; muy friable, ligeramente plástico y pegajoso.

OBS.: Raíces abundantes en $A_1$; muchas en $A_2$; y comúnes en $A_3$, $B_{21}$t, $B_{22}$t; raras en $B_3$t.

Análisis mineralógico:

$A_1$ Arenas: 100% cuarzo vitreo incoloro; trazas principalmente de concr. ferruginosas, biotita, ilmenita, etc.

$B_{22}$t 99% cuarzo vitreo incoloro; 1% ilmenita.

El resto de los horizontes son aproximadamente parecidos al A1.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.9 | 4.8 | 0.57 | 0.05 | 2 | 66 | 0 |
| $A_2$ | 5.3 | 4.0 | 0.26 | 0.03 | 1 | 45 | 9 |
| $A_3$ | 4.8 | 3.8 | 0.25 | 0.03 | < 1 | 28 | 46 |
| $B_{21}$t | 4.7 | 3.7 | 0.32 | 0.04 | < 1 | 24 | 57 |
| $B_{22}$t | 4.8 | 3.7 | 0.20 | 0.02 | < 1 | 19 | 71 |
| $B_3$t | 5.0 | 3.8 | 0.15 | 0.02 | < 1 | 18 | 74 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca + Mg | K | Na | H | Al | TBI | CIC |
| 1.4 | 0.12 | 0.03 | 1.2 | 0 | 2.3 | 3.5 |
| 0.9 | 0.05 | 0.02 | 1.1 | 0.1 | 1.0 | 2.2 |
| 0.6 | 0.05 | 0.03 | 1.2 | 0.6 | 0.7 | 2.5 |
| 0.8 | 0.04 | 0.03 | 1.7 | 1.2 | 0.9 | 3.8 |
| 0.5 | 0.03 | 0.03 | 1.0 | 1.5 | 0.6 | 3.1 |
| 0.4 | 0.04 | 0.04 | 0.9 | 1.4 | 0.5 | 2.8 |

## SISTEMA DE TIERRA 78, Faceta 1

Clasificación: Podzólico Vermelho Amarelo Eutrófico - Haplustalf.

Localización: Ruta Bela Vista - Caieira, a 5 km de Bela Vista;

Mato Grosso, Brasil.

Posición Fisiográfica: Area de relieve suave ondulado con vertientes de centenas de metros y valles en "V".

Topografía: Localmente plano.

Drenaje: Bien drenado.

Vegetación: Floresta caducifolia y sabanas subtropicales.

Mat.Originario: Areniscas de la Serie Aquidauana, Carbonifero Superior.

Fuente: Embrapa, Bol.Técnico No.18,1971,(4), perfil 80, pág. 319/22.

$A_{11}$ 0-7 cm; 5YR 3/4; arenoso franco; granular media débil y grano simple; suelto; límite plano y abrupto.

$A_{12}$ 7-18 cm; 5YR 3/4; arenoso franco; granular pequeña débil y grano simple; ligeramente duro, suelto; límite ondulado y claro.

$A_{21}$ 18-35 cm; 5YR 4/4; arenoso franco; granular media débil; ligeramente duro, suelto; límite plano y gradual.

$A_{22}$ 35-65 cm; 5YR 4/4; arenoso franco; granular media débil y grano simple; duro, suelto; límite plano y gradual.

$A_3$ 65-95 cm; 2.5YR 3/6; franco arenoso; bloques medios débiles; duro, friable; límite plano y abrupto.

$B_{21}t$ 95-120 cm; 2.5YR 3/6; franco arcillo arenoso; bloques medios débiles; barnices fuertes y abundantes; duro, friable; límite plano y difuso.

$B_{22}t$ 120-165 cm; 2.5YR 3/6; franco arcillo arenoso;bloques medios y grandes moderados; barnices moderados y comúnes; duro, muy friable; límite plano y difuso.

$B_{23}t$ 165-260 cm; 2.5YR 3/6; franco arcillo arenoso; ligeramente plástico y pegajoso.

$B_3t$ 260-360 cm; 2.5YR 4/6; franco arenoso; ligeramente plástico y pegajoso.

IIC 360 cm+; capa constituida por gravas de cuarzo y material del horizonte inmediatamente superior.

Análisis mineralógico:

$A_{11}$ Arenas: 99% cuarzo hialino; 1% detritos; trazas de ilmenita, turmalina, estaurolita, etc.

$A_{12}$ Arenas: 99% cuarzo hialino; 1% ilmenita; trazas de estaurolita, carbón y detritos.

$A_{21}$ Arenas: 98% cuarzo hialino; 1% ilmenita; 1% detritos.

$A_{22}$ Arenas: 99% cuarzo hialino; 1% ilmenita.

$A_3$ Arenas: 100% cuarzo hialino.

$B_{21}t$ Arenas: 99% cuarzo hialino; 1% ilmenita.

$B_{22}t$ Arenas: 99% cuarzo hialino; 1% ilmenita.

$B_{23}t$ Arenas: 100% cuarzo hialino.

$B_3t$ Arenas: 96% cuarzo hialino; 3% ilmenita; 1% concr.ferruginosas. Gravas: cuarzo hialino; concr. ferruginosas; feldespato.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | H2O | KCl | % | % | ppm | % | % |
| $A_{11}$ | 6.2 | 5.5 | 0.71 | 0.07 | 3 | 77 | 0 |
| $A_{12}$ | 6.2 | 5.1 | 0.35 | 0.04 | 2 | 64 | 0 |
| $A_{21}$ | 6.0 | 4.8 | 0.30 | 0.03 | 1 | 65 | 0 |
| $A_{22}$ | 5.8 | 4.6 | 0.17 | 0.02 | 1 | 62 | 0 |
| $A_3$ | 5.4 | 3.9 | 0.1[illegible] | 0.02 | < 1 | 64 | 0 |
| $B_{21}t$ | 5.0 | 3.9 | 0.23 | 0.03 | < 1 | 51 | 26 |
| $B_{22}t$ | 4.8 | 3.8 | 0.27 | 0.04 | < 1 | 38 | 43 |
| $B_{23}t$ | 5.3 | 3.9 | 0.13 | 0.03 | < 1 | 39 | 43 |
| $B_3t$ | 5.3 | 3.9 | 0.09 | 0.03 | < 1 | 41 | 42 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 2.3 | 0.9 | 0.14 | 0.06 | 1.0 | 0 | 3.4 | 4.4 |
| 1.0 | 0.6 | 0.11 | 0.06 | 1.0 | 0 | 1.8 | 2.8 |
| 1.1 | 0.5 | 0.08 | 0.05 | 0.9 | 0 | 1.7 | 2.6 |
| 0.8 | 0.4 | 0.06 | 0.07 | 0.8 | 0 | 1.3 | 2.1 |
| 0.9 | 0.4 | 0.05 | 0.06 | 0.8 | 0 | 1.4 | 2.2 |
| 1.3 | 0.6 | 0.07 | 0.06 | 1.2 | 0.7 | 2.0 | 3.9 |
| 1.1 | 0.8 | 0.09 | 0.08 | 1.8 | 1.6 | 2.1 | 5.5 |
| 0.7 | 0.4 | 0.03 | 0.03 | 1.0 | 0.9 | 1.2 | 3.1 |
| 0.6 | 0.4 | 0.03 | 0.04 | 0.8 | 0.8 | 1.1 | 2.7 |

## SISTEMA DE TIERRA 80, Faceta 1

Clasificación: Terra Roxa Estruturada Latossolica Eutrófica - Haplustalf.

Localización: Estrada Vela Vista - Caieira, 32 km después de Bela Vista; Mato Grosso, Brasil.

Posición Fisiográfica: Perfil ubicado en tercio superior de elevación, en paisaje de valles muy abiertos con vertientes de millares de metros.

Topografía: Suave ondulado, pendiente local 2%.

Drenaje: Bien drenado.

Vegetación: Floresta subtropical semidecidua.

Mat.Originario: Sedimentos clacáreos y dolomíticos Cambro - Ordoviciano, Paleozoicos; mezclados con areniscas.

Fuente: Embrapa, Bol.Técnico No.18, 1971,(4), perfil 60, pág. 429/33.

$A_1$ 0-15 cm; 5YR 3/3; franco arcillo arenoso; granular pequeña fuerte; muy duro, friable; límite plano y claro.

$A_3$ 15-35 cm; 2.5YR 3/4; franco arcillo arenoso; bloques medios débiles; barnices moderados y comúnes; muy duro, friable; límite plano y claro.

$B_1t$ 35-70 cm; 10R 3/4; arcilloso; bloques medios débiles; barnices fuertes y abundantes; extremadamente duro , friable; límite plano y gradual.

$B_{21}t$ 70-105 cm; 10R 3/6; arcilloso; bloques medios débiles; barnices fuertes y abundantes; extremadamente duro, friable; límite plano y difuso.

$B_{22}t$ 105-185 cm: 10R 3/6; arcilloso; bloques medios débiles; barnices fuertes y abundantes; muy duro, friable; límite plano y difuso.

$B_{23}t$ 185-230 cm+; 2.5YR 4/6; arcilloso; duro, friable; plástico y pegajoso.

OBS.: Concreciones pequeñas a través del perfil. Raíces comúnes en $A_1$ y $A_3$, pocas en los demás horizontes, con diámetros entre 1 mm y 3 cm.

Análisis mineralógico:

$A_1$ Arenas: 96% cuarzo hialino; 2% detritos; 1% feldespatos; 1% concr. ferruginosas y ferromanganosas.

$A_3$ Arenas: 97% cuarzo hialino; 1% ilmenita; 1% concr. ferruginosas y ferromanganosas; 1% detritos.

$B_1t$ Arenas: 98% cuarzo hialino; 1% feldespato; 1% concr.ferruginosas y ferromanganosas.

$B_{21}t$ Arenas: 96% cuarzo hialino; 2% feldespato; 1% concr.ferruginosas, ferromanganosas y ferroarcillosas; 1% detritos.

$B_{22}t$ Arenas: 95% cuarzo hialino; 2% feldespato; 1% concr.ferruginosas y ferromanganosas; 1% ilmenita; 1% detritos; trazas de mica muscovita y magnetita.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | H2O | KCl | % | % | ppm | % | % |
| $A_1$ | 6.4 | 4.9 | 1.24 | 0.12 | 1 | 100 | 0 |
| $A_3$ | 5.7 | 4.2 | 0.74 | 0.08 | < 1 | 68 | 5 |
| $B_1t$ | 6.0 | 4.5 | 0.55 | 0.07 | 1 | 74 | 0 |
| $B_{21}t$ | 6.1 | 4.6 | 0.45 | 0.06 | < 1 | 80 | 0 |
| $B_{22}t$ | 6.0 | 4.6 | 0.35 | 0.05 | < 1 | 81 | 0 |
| $B_{23}t$ | 6.0 | 4.6 | 0.27 | 0.04 | < 1 | 79 | 0 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 5.6 | 1.3 | 0.16 | 0.03 | 0 | 0 | 7.1 | 7.1 |
| 4.9 | 0.7 | 0.05 | 0.02 | 2.4 | 0.3 | 5.7 | 8.4 |
| 6.6 | 0.6 | 0.04 | 0.03 | 2.6 | 0 | 7.3 | 9.9 |
| 6.9 | 0.5 | 0.04 | 0.04 | 1.9 | 0 | 7.5 | 9.4 |
| 6.3 | 0.6 | 0.03 | 0.03 | 1.6 | 0 | 7.0 | 8.6 |
| 5.3 | 0.8 | 0.03 | 0.03 | 1.6 | 0 | 6.2 | 7.8 |

## SISTEMA DE TIERRA 82, Faceta 1

Clasificación: Solonetz Solodizado Eutrófico - Natrustalf.

Localización : Ruta Porto Murtinho - Jardim, 15 km después de Puerto Murtinho.

Posición Fisiográfica: Plano, pendiente 1-2%.

Drenaje: Floresta caducifolia de pantanal.

**Vegetación: Floresta caducifolia de pantanal.**

**Mat. Originario: Sedimentos areno-arcillosos del Holoceno.**

Fuente: EMBRAPA, Bol.Técnico No.18,1971,(4), perfil 70, pág. 504/6.

$A_1$ 0-7 cm; 10YR 5/2; franco arenoso; granular pequeña moderada y grano simple; muy friable; límite plano y gradual.

$A_2$ 7-20 cm; 10YR 6/2; franco arenoso; granular pequeña moderada, y grano simple; muy friable; límite plano y claro.

$B_{21}t$ 20-40 cm; 10YR 5/2; franco arcillo arenoso; bloques pequeños moderados; ligeramente duro, friable; límite claro y plano.

$B_{22}tx$ 40-110 cm+; 10YR 6/3; franco arcilloso; duro, firme; plástico y muy pegajoso.

OBS.: Muchas raíces en $A_1$, comúnes en $A_2$; raras en $B_{21}t$ y $B_{22}tx$. El horizonte $B_{22}tx$ no permite el examen de la estructura por presentarse muy compactado.

Análisis mineralógico:

$A_1$ Arenas: 81% cuarzo hialino· 15% feldespato potásico; 4% detritos.

$A_2$ Arenas: 89% cuarzo hialino; 10% feldespato potásico; 1% detritos.

$B_{21}t$ Arenas: 89% cuarzo hialino; 10% feldespato potásico; 1% detritos. Gravas: cuarzo hialino; feldespato potásico; concreciones manganosas.

$B_{22}tx$ Arenas: 88% cuarzo hialino; 1% concr. manganosas; 1% detritos. Gravas: cuarzo hialino; feldespato potásico; concr. manganosas.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.7 | 4.8 | 1.22 | 0.12 | 58 | 69 | 0 |
| $A_2$ | 5.9 | 4.4 | 0.43 | 0.05 | 58 | 64 | 0 |
| $B_{21}t$ | 6.6 | 4.8 | 0.31 | 0.06 | 27 | 87 | 0 |
| $B_{22}tx$ | 7.9 | 5.7 | 0.18 | 0.04 | 27 | 100 | 0 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 3.7 | 1.0 | 0.48 | 0.08 | 2.4 | 0 | 5.3 | 7.7 |
| 2.2 | 0.9 | 0.16 | 0.20 | 2.0 | 0 | 3.5 | 5.5 |
| 5.9 | 1.3 | 0.05 | 0.74 | 1.2 | 0 | 8.0 | 9.2 |
| 5.6 | 2.0 | 0.33 | 4.70 | 0 | 0 | 12.6 | 12.6 |

## SISTEMA DE TIERRA 84, Faceta 1

Clasificación: Latosol Vermelho Escuro Distrófico intermediario para Areias Quartzosas - Tropopsamment.

Localización: Ruta Amambai - Iguatemi, a 6 km de Amambai; Mato Grosso, Brasil.

Posición Fisiográfica: Perfil sobre ladera media en paisaje de valles muy abiertos con vertientes de miles de metros.

Topografía: Suave ondulado, pendiente local inferior a 3%.

Drenaje: Fuertemente drenado.

Vegetación: Cerrado.

Mat. Originario: Arenisca Caiuá, Jurásico, Mesozoico.

Fuente: Embrapa, Bol.Técnico No.18,1971,(4), perfil 41,pág. 161/4.

$A_1$ 0-15 cm; 2.5YR 2/5; arenoso franco; granular media a muy grande débil y grano simple; muy friable; límite plano y claro.

$A_3$ 15-41 cm; 2.5YR 2/4; arenoso franco; granular media a grande débil y bloques medios, débiles; muy friable; límite plano y gradual.

$B_1$ 41-94 cm; 2.5YR 3/4; franco arenoso; granular muy pequeña débil con aspecto -asivo poroso; ligeremente duro, friable; límite plano y difuso.

$B_{21}$ 94-187 cm; 2.5YR 3/4; franco arenoso; granular muy pequeña débil con aspecto masivo poroso; ligeramente duro, friable; límite plano y difuso.

$B_{22}$ 187-327 cm+; 2.5YR 3/4; franco arenoso; granular muy pequeña débil con aspecto masivo poroso; ligeramente duro, friable, plástico y pegajoso

OBS.: Raíces abundantes en $A_1$ y $A_3$, y comúnes en $B_1$ y $B_{21}$, con diámetros variando entre 1 mm y 1 cm. Poros abundantes en todo el perfil, con diámetros entre 0.5 a 2 mm.

Análisis mineralógico:

$A_1$ Arenas: 99% cuarzo; 1% concr. ferruginosas, en parte magnetíticas; trazas de ilmenita y detritos.

El resto de los horizontes tiene idéntica composición mineralógica que el descrito.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.8 | 4.0 | 0.66 | 0.05 | 1 | 22 | 44 |
| $A_3$ | 4.7 | 3.9 | 0.46 | 0.04 | < 1 | 7 | 80 |
| $B_1$ | 4.9 | 4.1 | 0.38 | 0.03 | < 1 | 14 | 71 |
| $B_{21}$ | 5.1 | 4.2 | 0.18 | 0.02 | 1 | 17 | 70 |
| $B_{22}$ | 5.3 | 4.3 | 0.11 | 0.02 | < 1 | 13 | 75 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca + Mg | K | Na | H | Al | TBI | CIC |
| 0.6 | 0.25 | 0.03 | 2.5 | 0.7 | 0.9 | 4.1 |
| 0.2 | 0.02 | 0.02 | 2.0 | 0.8 | 0.2 | 3.0 |
| 0.2 | 0.21 | 0.02 | 1.4 | 1.0 | 0.4 | 2.8 |
| 0.2 | 0.07 | 0 02 | 0.8 | 0.7 | 0.3 | 2.8 |
| 0.2 | 0.01 | 0.02 | 0.7 | 0.6 | 0.2 | 1.5 |

## SISTEMA DE TIERRA 96, Faceta 2

Clasificación: Solo Aluvial Eutrófico - Tropaquept

Localización : A 4 km de la confluencia de los ríos Grande y San Francisco, frente a Barra, Municipio de Barra, Edo. Bahía, Brasil.

Posición Fisiográfica: Terraza aluvial

Drenaje: Moderada a imperfectamente drenado.

Vegetación: Caatinga

Material originario: Sedimentos areno-arcillosos.

Fuente: EMBRAPA, Bol. Técn. No.38,1976 (21), perfil 46, pág. 270-272.

$A_1$ 0-8 cm; 10YR 5/6; moteados 10YR 5/8; franco arenoso; bloques medios débiles; muchos poros finos, muy duro, firme, plástico y pegajoso; límite claro y plano.

$IIC_1$ 8-35 cm; 10YR 5/6; moteados 10YR 5/8; franco arenoso; bloques medios débiles; muchos poros pequeños; duro, muy friable, no plástico no pegajoso; límite claro y plano.

$IIIC_2$ 35-80 cm; 10YR 5/6; moteados 10YR 5/8; arenoso franco; bloques medios débiles; duro, muy friable, no plástico y no pegajoso; límite claro y ondulado.

$IVC_3$ 80-120 cm+; 10YR 5/6; moteados 10YR 6/6 y 5YR 4/8; franco arenoso; prismática grande moderada; muchos poros pequeños; extremadamente duro, friable; ligeramente plástico y ligeramente pegajoso.

OBS.: Raíces comúnes en $A_1$ y pocas en las demás camadas. Algunas correcciones ferruginosas son encontradas en el $IVC_3$.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| A | 6.4 | 5.5 | 1.15 | 0.13 | 3 | 78 | 0 |
| $IIC_1$ | 6.6 | 5.4 | 0.25 | 0.04 | 1 | 74 | 0 |
| $IIIC_2$ | 5.9 | 4.6 | 0.08 | 0.03 | 1 | 74 | 0 |
| $IVC_3$ | 5.2 | 3.9 | 0.08 | 0.03 | 1 | 70 | 4 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 4.5 | 1.7 | 0.27 | 0.02 | 1.8 | 0 | 6.5 | 8.3 |
| 1.5 | 0.7 | 0.09 | 0.03 | 0.8 | 0 | 2.3 | 3.1 |
| 0.9 | 0.4 | 0.05 | 0.03 | 0.5 | 0 | 1.4 | 1.9 |
| 1.8 | 0.7 | 0.08 | 0.04 | 1.0 | 0.1 | 2.6 | 3.7 |

## SISTEMA DE TIERRA 96, Faceta 2, inclusión

Clasificación: Solonetz Solodizado - Natraqualf.

**Localización:** A 18 km de Barra, Edo. Bahía, Brasil.

**Posición Fisiográfica:** Terraza del Río San Francisco.

**Drenaje:** Imperfectamente drenado.

**Vegetación:** Floresta caducifolia de varzea.

**Material Originario:** Sedimentos arenosos.

**Fuente:** EMBRAPA, Bol.Tecn.No.38,1976(21), perfil 34, pág. 232/4.

A 0-10 cm; 10YR 6/4 moteados 10YR 7/4; arenoso franco; masivo poco coherente; muchos poros pequeños; muy friable, no plástico y no pegajoso; límite abrupto y plano.

$IIB_2t$ 10-30 cm; 10YR 7/3, moteado 10YR 7/6; franco arenoso; columnar grande fuerte; muchos poros; extremadamente duro, muy firme, no plástico y ligeramente pegajoso; límite difuso y plano.

$IIIB_3t$ 30-45 cm+; 10YR 6/3; arenoso franco; pocos poros muy pequeños; extremadamente duro, muy firme, ligeramente plástico y ligeramente pegajoso.

OBS.: Raíces comúnes hasta el $IIB_3t$.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| A | 6.2 | 4.8 | 0.31 | 0.05 | 2 | 58 | 0 |
| $IIB_2t$ | 9.8 | 7.6 | 0.12 | 0.04 | 2 | 100 | 0 |
| $IIIB_3t$ | 9.9 | 7.8 | 0.05 | 0.03 | 2 | 100 | 0 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0 | 9 | 0.11 | 0.08 | 0.8 | 0 | 1.1 | 1.9 |
| 1.4 | 0.4 | 0.09 | 2.10 | 0 | 0 | 4.0 | 4.0 |
| 1.3 | 0.3 | 0.09 | 2.29 | 0 | 0 | 4.0 | 4.0 |

## SISTEMA DE TIERRA 97, Faceta 1

**Clasificación:** Latosol Vermelho Amarelo - Eutrustox

**Localización:** A 165 km de Barreiras, 14.9 km de la ruta Pirajiba, Municipio de Barra, Edo. Bahia, Brasil.

**Posición Fisiográfica:** Plano.

**Topografía:** Plano con microrelieve originado por termíteros.

**Drenaje:** Bien drenado

**Vegetación:** Bosque caducifolio grameal. Cerradão.

**Material Originario:** Recubrimiento arcillo-arenoso sobre limolitas y arcossas.

**Fuente:** EMBRAPA, Bol.Técn.No.38,1976(21), perfil 2, pág. 101/3.

$A_1$ 0-10 cm; 5YR 4/8; arcilloso; granular media débil; muchos poros; duro, friable, plástico y pegajoso; límite difuso y plano.

$B_1$ 10-35 cm; 5YR 4/8; arcilloso; granular pequeña débil; muchos poros; duro, muy friable, plástico y pegajoso; límite difuso y plano.

$B_{21}$ 35-90 cm; 2.5YR 4/8; arcilloso; bloques medios débiles; duro, muy friable, plástico y pegajoso; límite difuso y plano.

$B_{22}$ 90-160 cm; 2.5YR 4/8; arcilloso; bloques pequeños débiles; muchos poros; ligeramente duro, muy friable, plástico y pegajoso; límite gradual y plano.

$B_{23}$ 160-180 cm+; 2.5YR 3.5/6, moteados 2.5YR 3/5; arcilloso; bloques pequeños débiles; muchos poros pequeños; duro, friable, plástico y pegajoso.

OBS.: Muchas raíces en $A_1$, comúnes en $B_1$ y $B_{21}$ y pocas en los demás.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.7 | 3.8 | 1.78 | 0.17 | 2 | 27 | 33 |
| $B_1$ | 4.6 | 3.8 | 0.75 | 0.12 | < 1 | 25 | 49 |
| $B_{21}$ | 4.9 | 3.8 | 0.37 | 0.09 | < 1 | 35 | 39 |
| $B_{22}$ | 4.8 | 3.7 | 0.32 | 0.09 | < 1 | 32 | 47 |
| $B_{23}$ | 4.8 | 3.7 | 0.22 | 0.08 | < 1 | 35 | 45 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 1.7 | 0.6 | 0.30 | 0.02 | 5.7 | 1.3 | 2.6 | 9.6 |
| 0.9 | 0.9 | 0.11 | 0.03 | 3.8 | 1.8 | 1.9 | 7.5 |
| 1.2 | 0.9 | 0.07 | 0.05 | 2.7 | 1.4 | 2.2 | 6.3 |
| 0.7 | 1.0 | 0.07 | 0.08 | 2.4 | 1.7 | 1.9 | 6.0 |
| 1.2 | 0.9 | 0.09 | 0.07 | 2.3 | 1.9 | 2.3 | 6.5 |

## SISTEMA DE TIERRA 97, Faceta 2

**Clasificación:** Areia Quartzosa Distrófica - Quartzipsamment.

**Localización:** A 96 km de Barra y 5.2 km antes de Bodoqueirão, Edo. Bahía, Brasil.

**Posición Fisiográfica:** Terraza do Rio Grande

**Topografía:** Plano

**Drenaje:** Acentuadamente drenado

**Vegetación:** Campo de varzea

**Material Originario:** Sedimentos arenosos

**Fuente:** EMBRAPA, Bol. Téc.No.38,1976(2), pefil 51, p.293/4.

$A_1$ 0-15 cm; 10YR 5/4; moteado 7.5YR 5/8; arenoso; masivo muy poco coherente; muchos poros muy pequeños; muy friable, no plástico y no pegajoso; límite claro y plano.

$C_1$ 15-50 cm; 10YR 6/4; moteados 7.5YR 5/8; arenoso franco; masivo muy poco coherente; muchos poros pequeños; ligeramente duro, muy friable; no plástico y no pegajoso; límite difuso y plano.

$C_2$ 50-75 cm+; 10YR 6/4; moteado 7.5YR 5/8; arenoso franco; masivo poco coherente; muchos poros pequeños; muy friable, no plástico y no pegajoso.

OBS.: Raíces comúnes en $A_1$ y pocas en los demás horizontes.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.2 | 3.9 | 0.30 | 0.05 | 2 | 28 | 29 |
| $C_1$ | 4.9 | 3.8 | 0.12 | 0.03 | 1 | 27 | 50 |
| $C_2$ | 5.5 | 4.0 | 0.06 | 0.02 | < 1 | 33 | 25 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca + Mg | K | Na | H | Al | TBI | CIC |
| 0.4 | 0.05 | 0.02 | 1.1 | 0.2 | 0.5 | 1.8 |
| 0.4 | 0.02 | 0.02 | 0.7 | 0.4 | 0.4 | 1.5 |
| 0.3 | 0.02 | 0.02 | 0.5 | 0.1 | 0.1 | 0.9 |

## SISTEMA DE TIERRA 97, Faceta 3

**Clasificación:** Solo Litólico Distrófico Ustorthent.

**Localización:** A 27.6 km de Ibipetuba, a 14 km de la frontera con Piauí, Edo. Bahía, Brasil.

**Posición Fisiográfica:** Colinas; tercio inferior de ladera.

**Topografía:** Fuertemente ondulado, pendiente local 27%.

**Drenaje:** Bien drenado

**Vegetación:** Cerrado

**Material Originario:** Filito sericítico Pre-Cambriano.

**Fuente:** EMBRAPA, Bol.Técn.No.38, 1976(21), perfil 49, pág. 280/1.

$A_1$ 0-10 cm; 10YR 4/3; franco arenoso gravoso; granular pequeña debil; muchos poros; ligeramente plástico y ligeramente pegajoso; límite claro y plano.

$A_3$ 10-30 cm; 10YR 5/6; franco arcilloso gravoso; granular pequeña débil; muchos pòros; plástico y pegajoso; límite abrupto y ondulado.

R 30-70 cm+;

OBS.: Raíces abundantes en $A_1$ y comúnes en $A_3$.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.1 | 3.8 | 1.36 | 0.14 | 2 | 19 | 38 |
| $A_3$ | 4.8 | 3.6 | 0.69 | 0.11 | 1 | 16 | 61 |

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Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.6 | 0.4 | 0.23 | 0.08 | 4.8 | 38 | 1.3 | 6.9 |
| 0.6 | | 0.21 | 0.09 | 3.4 | 61 | 0.9 | 5.7 |

## SISTEMA DE TIERRA 110, Faceta 1

Clasificación: Terra Roxa Estruturada Similar Eutrófica, intermediario para Brunizem Avermelhado - Haplustalf.

Localización: A 15.5 km de Posse, en la ruta para Luciara; Edo. Goias, Brasil.

Posición Fisiográfica: Tercio superior de elevación.

Topografía. Ondulado, pendiente 8-12%.

Drenaje: Moderadamente drenado.

Vegetación: Caatinga - Floresta caducifolia.

Material Originario: Calcáreos del Grupo Bambuí - Eocambriano Superior.

Fuente: EMBRAPA, Solos Margem Direita do Río Paraná, 1975, (3),perfil 6, pág. 213/16.

$A_1$ 0-23 cm; N2/ ; arcillo limoso; granular pequeña moderada; ligeramente duro, friable; límite plano y claro.

$A_3$ 23-38 cm; 2.5YR 2/2; arcilloso; granular pequeña moderada a fuerte, y oloques; ligeramente duro, friable; límite plano y gradual.

$B_{1t}$ 38-58 cm; 5YR 3/3; arcilloso; bloques pequeños fuertes; duro, friable; límite plano y difuso.

$B_{2t}$ 58-118 cm; 2.5YR 3/4; moteados comúnes pequeños 10YR 4/1; arcilloso; bloques pequeños fuertes; duro, firme; límite plano y claro.

$B_{3t}$ 118-170 cm$^{(+)}$; 2.5YR 4/6, 10YR 6/6 y 10YR 5/1; muy arcilloso; duro, firme, muy plástico y muy pegajoso.

OBS.: Raíces abundantes en $A_1$ y $A_3$, comúnes en $B_{1t}$ y raras en $B_{2t}$

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 6.0 | 5.3 | 4.36 | 0.34 | 7 | 78 | 0 |
| $A_3$ | 5.8 | 4.9 | 1.64 | 0.16 | 1 | 78 | 0 |
| $B_{1t}$ | 6.0 | 5.0 | 1.03 | 0.14 | 1 | 81 | 0 |
| $B_{2t}$ | 6.2 | 5.1 | 0.67 | 0.10 | 1 | 85 | 0 |
| $B_{3t}$ | 6.3 | 5.4 | 0.36 | 0.06 | 2 | 90 | 0 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 20.3 | 1.3 | 0.55 | 0.09 | 6.1 | 0 | 22.2 | 28.3 |
| 12.2 | 1.8 | 0.13 | 0.06 | 4.0 | 0 | 14.2 | 18.2 |
| 11.3 | 1.7 | 0.17 | 0.10 | 3.2 | 0 | 13.2 | 16.5 |
| 10.9 | 1.8 | 0.14 | 0.06 | 2.2 | 0 | 12.9 | 15.1 |
| 11.2 | 1.9 | 0.08 | 0.12 | 1.5 | 0 | 13.3 | 14.8 |

## SISTEMA DE TIERRA 113, Faceta 1

Clasificación: Areias Quartzosas - Quartzipsamment.

Localización: A 6.9 km de São João do Piauí, Edo. Piauí, Brasil.

Posición Fisiográfica: Plano y suave ondulado.

Drenaje: Excesivamente drenado.

Vegetación: Caatinga

Material Originario: Areniscas.

Fuente: Proj. Radambrasil, Vol 1, 1973, perfil 7, p.40/1.

$A_p$ 0-10 cm; 10YR 6/3; arenoso franco; masivo poroso poco coherente; suelto, muy friable, no plástico y no pegajoso; límite plano y claro.

$A_3$ 10-19 cm; 10YR 6/3 y 10YR 6/4; arenoso, masivo poroso poco coherente; muy friable, no plástico y no pegajoso; límite plano y gradual.

$C_1$ 19-36 cm; 10YR 5/4; arenoso; masivo poco coherente; muy friable, no plástico y no pegajoso; límite plano y gradual.

$C_2$ 36-81 cm; 10YR 5/6; arenoso; masivo poroso poco coherente; muy friable, no plástico y no pegajoso; límite plano y difuso.

$C_3$ 81-115 cm$^+$; 10YR 5/6; arenoso franco; masivo poroso poco coherente; muy friable, no plástico y no pegajoso.

OBS.: Abundantes raíces en $A_p$, $A_3$, $C_1$; comúnes en $C_2$ y sin raíces en $C_3$.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| Ap | 4.4 | 3.6 | 0.71 | 0.06 | < 2 | 19 | 33 |
| $A_3$ | 4.4 | 3.6 | 0.34 | 0.03 | 3 | 9 | 59 |
| $C_1$ | 4.6 | 3.8 | 0.16 | 0.01 | 2 | 12 | 62 |
| $C_2$ | 4.8 | 4.0 | 0.18 | 0.01 | < 2 | 14 | 62 |
| $C_3$ | 4.9 | 4.0 | 0.12 | 0.01 | 2 | 15 | 67 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.60 | 0.30 | 0.08 | 0.01 | 3.62 | 0.50 | 0.99 | 5.02 |
| 0.15 | 0.05 | 0.05 | 0.01 | 2.04 | 0.60 | 0.26 | 2.90 |
| 0.15 | 0.05 | 0.03 | 0.01 | 1.41 | 0.40 | 0.24 | 2.05 |
| 0.15 | 0.05 | 0.03 | 0.01 | 1.03 | 0.40 | 0.24 | 1.72 |
| 0.10 | 0.10 | 0.03 | 0.01 | 0.32 | 0.50 | 0.24 | 1.56 |

## SISTEMA DE TIERRA 117, Faceta 1

Clasificación: Podzólico Vermelho Amarelo eg. Eutrófico - Haplustalf.

Localización: A 3.5 km de Sta. María Victoria, Bahia, Brasil.

Posición Fisiográfica: Ladera media con 5% de pendiente.

Topografía: Suave ondulado con partes planas.

Drenaje: Moderadamente drenado.

Vegetación: Caatinga - Floresta caducifolia.

Material Originario: Ardosia y calcario Eo-Cambriano, Sup.

Fuente: EMBRAPA, Bol.Téc. No.38,1976(21), perfil 19, pág. 180/1.

$A_1$ 0-10 cm; 2.5YR 3/3; franco arcillo limoso; bloques pequeños débiles; firme, muy plástico y muy pegajoso; límite claro y plano.

$B_{1t}$ 10-25 cm; 2.5YR 3/5; arcillo limoso; bloques pequeños débiles; firme, muy plástico y muy pegajoso; límite plano y gradual.

$B_{2t}$ 25-70 cm; 2.5YR 3/7; arcilloso; bloques pequeños débiles; barnices comúnes débiles; firme, muy plástico y muy pegajoso.

C 70-150 cm$^+$; ardosa bastante descompuesta en mezcla con material terroso.

OBS.: Muchas raíces en $A_1$, comúnes en $B_{1t}$ y pocas en los demás horizontes.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 6.0 | 5.7 | 2.30 | 0.28 | 0.6 | 81 | 0 |
| $B_{1t}$ | 6.2 | 5.3 | 0.89 | 0.14 | 0.3 | 79 | 0 |
| $B_{2t}$ | 5.8 | 4.6 | 0.47 | 0.10 | 0.2 | 80 | 2 |
| C | - | - | | | | | |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 11.2 | 3.4 | 0.74 | 0.03 | 3.7 | 0 | 15.4 | 19.1 |
| 8.0 | 3.8 | 0.35 | 0.03 | 3.3 | 0 | 12.2 | 15.5 |
| 5.9 | 6.3 | 0.21 | 0.02 | 3.1 | 0.2 | 12.4 | 15.5 |
| - | - | - | - | - | - | - | - |

## SISTEMA DE TIERRA 14, Faceta 1

Clasificación: Latosol Vermelho Amarelo Distrófico. Quartzipsamment intergradando hacia Haplustox.

Localización: Ruta Fortaleza-Brasilia, en el trecho Barreiras-Posse, a 50 km de Barreiras, Municipio Barreiras, Br.

Posición Fisiográfica: Cima plana de "Chapada"

Topografía: Plano

Drenaje: Acentuadamente drenado

Vegetación: Cerrado

Material Originario: Producto descomposición areniscas. Urucuia, Cretáceo.

Fuente: EMBRAPA, Bol.Téc. No.38 1976(21), perfil 5, pág. 115-117.

$A_1$ 0-30 cm; 10YR 3/2.5; arenoso franco; granular pequeña débil; muy friable, no plástico, no pegajoso; límite plano y gradual.

$A_3$ 30-50 cm; 10YR 3/3; franco arenoso; bloques pequeños débiles; muchos poros pequeños; muy friable, no plástico, no pegajoso; límite gradual y plano.

$B_1$ 50-90 cm; 7.5YR 4/4; franco arenoso; granular pequeña; muy friable, ligeramente plástico y adhesivo; límite gradual y plano.

$B_2$ 90-165 cm; 6YR 5/6; franco arenoso; pequeña granular; muchos poros pequeños; ligeramente duro, muy friable, ligeramente plástico y pegajoso; límite difuso y plano.

$B_{22}$ 165-190cm; 5YR 5/8; franco arenoso; granular pequeña; muchos poros pequeños; ligeramente duro, muy friable, ligeramente plástico y pegajoso.

OBS.: Raíces comúnes en $A_1$ y $A_3$.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.8 | 3.8 | 0.64 | 0.05 | 1 | 5 | 78 |
| $A_3$ | 5.1 | 4.0 | 0.39 | 0.04 | < 1 | 4 | 83 |
| $B_1$ | 5.0 | 4.1 | 0.25 | 0.03 | < 1 | 14 | 50 |
| $B_2$ | 5.2 | 4.2 | 0.15 | 0.03 | < 1 | 15 | 50 |
| $B_{22}$ | 5.4 | 4.3 | 0.13 | 0.02 | < 1 | 23 | 25 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca + Mg | K | Na | H | Al | TBI | CIC |
| 0.2 | 0.02 | 0.02 | 3.2 | 0.7 | 0.2 | 4.1 |
| 0.1 | 0.02 | 0.02 | 2.2 | 0.5 | 0.1 | 2.8 |
| 0.2 | 0.02 | 0.03 | 1.6 | 0.3 | 0.3 | 2.2 |
| 0.2 | 0.01 | 0.02 | 0.9 | 0.2 | 0.2 | 1.3 |
| 0.2 | 0.02 | 0.03 | 0.9 | 0.1 | 0.3 | 1.3 |

## SISTEMA DE TIERRA 201, Faceta 1

Clasificación: Haplustox

Localización: Aproximadamente 300-500 m al oeste del rancho Carimagua cerca de la valla del campo experimental. Dpto. Meta, Colombia.

Posición Fisiográfica: Posición intermedia de la catena desde el plano alto hasta el bajo morichal.

Topografía: Pendiente 0-1%.

Drenaje: Bien drenado.

Vegetación: Sabana sin árboles, campo de pastoreo.

Material originario: Sedimentos aluviales ácidos mezclados.

Fuente: Guerrero, R. Ph.D. Thesis, Raleigh, 1971(22), perfil 4 (Carimagua), pág.70 y otras.

0-8 cm 2.5YR 2/2; franco arcillo limoso; masivo grueso, débil que rompe en bloques moderados, finos; duro, ligeramente plástico; muchas raíces finas y medias; límite claro y suave.

8-22 cm 5YR 3/4; franco arcilloso; bloques medios débiles; friable; muchas raíces finas; bolsas y lenguas de material orgánico transportado desde el primer horizonte; límite gradual y suave.

22-46 cm 5YR 4/8; franco arcilloso; bloques finos moderado, ligeramente plástico; muchas raíces pero menos que arriba; límite gradual ondulado.

46-132 cm 5YR 5/8; moteados finos, débiles, escasos, 10YR 6/6, franco arcillo limoso liviano; bloques finos, débiles; friable; raíces finas; límite ondulado, difuso.

132-140 cm 5YR 5/8; moteados comúnes, medios, débiles, 7.5 YR 5/8 y 10R 5/8; arcillo limoso; ligeramente pegajoso; pocas raíces, finas.

| HTE | pH | | C | S.B. | S.Al |
|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | % |
| 0-8 | 4.8 | 3.6 | 3.1 | 37 | 56 |
| 8-22 | 4.7 | 3.6 | 1.7 | 17 | 80 |
| 22-46 | 4.4 | 3.8 | 1.1 | 17 | 79 |
| 46-132 | 4.9 | 4.1 | 0.6 | 29 | 60 |
| 132-140 | 5.4 | 4.3 | - | 60 | 25 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.6 | 0.8 | 0.5 | 0.5 | 1.0 | 3.1 | 2.4 | 6.5 |
| 0.2 | 0.2 | 0.2 | 0.2 | 0.6 | 3.2 | 0.8 | 4.6 |
| 0.2 | 0.1 | 0.1 | 0.1 | 0.5 | 1.9 | 0.5 | 2.9 |
| 0.1 | 0.1 | 0.1 | 0.1 | 0.4 | 0.6 | 0.4 | 1.4 |
| 0.2 | 0.4 | 0.1 | 0.2 | 0.4 | 0.3 | 0.9 | 1.5 |

## SISTEMA DE TIERRA 201, Faceta 2

Clasificación: Humaquept

Localización: A lo largo de la cerca de ICA 1969 campo de experimentos, y 200 m al norte del "estero", Depto. Meta, Colombia (Zona Carimagua).

Posición Fisiográfica: Miembro bajo de la catena y sabana húmeda, pero no el más bajo. Termitas comúnes.

Topografía: Pendiente 0-1%.

Drenaje: Algo pobre a moderadamente bien drenado.

Vegetación: Sabana sin árboles con especies hidrofíticas.

Material Originario: Sedimentos aluviales ácidos mezclados.

Fuente: Guerrero, R. Ph.D. Thesis, Raleigh, 1971(22), perfil 7, pág. 73 y otras.

0-10 cm 10YR 3/2; franco limoso; bloques finos débiles; friable; ligeramente pegajoso; raíces finas y medias; límite plano y suave.

10-25 cm 10YR 4/3; franco arcillo limoso; bloques medios a finos moderados; raíces comúnes medias y finas; límite suave y gradual.

25-44 cm 10YR 4/4, 7.5YR 4/4 y 10YR 6/3; arcillo limoso; bloques finos débiles; más plástico y adhesivo que arriba; raíces pequeñas comúnes; límite gradual y ondulado.

44-77 cm 7.5YR 5/6 y 7.5YR 5/4; nódulos de plintita roja 10R 3/6; arcillo limoso; bloques finos débiles; más plástico y más adhesivo que arriba; pocas raíces pequeñas; límite difuso.

77-188 cm (con barreno). Aproxim. mismo color; arcilloso; sin nódulos de plintita.

Nota: El Land System 203, Faceta 3, describe otro suelo parecido de estas facetas de terreno llamadas "bajos" o "morichales".

| HTE | pH | C | S.B. | S.Al |
|---|---|---|---|---|
| | $H_2O$ | % | % | % |
| 0-10 | 4.5 | 2.8 | 20 | 71 |
| 10-25 | 4.5 | 1.9 | 21 | 74 |
| 25-44 | 4.6 | 1.1 | 22 | 52 |
| 44-77 | 4.8 | 0.7 | 28 | 14 |
| 77-188 | 5.4 | 0.5 | 40 | 20 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.4 | 0.4 | 0.1 | 0.1 | 1.7 | 2.4 | 1.0 | 5.1 |
| 0.3 | 0.4 | 0.1 | 0.1 | 0.8 | 2.5 | 0.9 | 4.2 |
| 0.2 | 0.3 | < 0.1 | 0.1 | 0.6 | 1.7 | 0.7 | 3.0 |
| 0.2 | 0.2 | < 0.1 | < 0.1 | 0.5 | 0.8 | 0.6 | 1.8 |
| 0.2 | 0.1 | < 0.1 | < 0.1 | 0.5 | 0.1 | 0.5 | 1.0 |

## SISTEMA DE TIERRA 202, Faceta 1

Clasificación: Haplustox.

**Localización:** Zona Paso Nuevo, Vichada, Colombia.

**Posición Fisiográfica:** Altillanura mal drenada.

**Topografía:** Plano, pendiente 0-1%.

**Drenaje:** Lento, moderadamente drenado.

**Vegetación:** Sabana.

**Material Originario:** Sedimentos aluviales viejos ácidos.

**Fuente:** FAO, Rec. Edaf. Llanos Orientales, 1965(23), perfil P-10, pág.211.

$A_{11}$ 0-10 cm; 10YR 4/2; franco limoso; migajosa fina moderada; ligeramente plástico y pegajoso; poros comúnes finos y medios; raicillas y macroorganismos abundantes; límite claro y suave.

$A_{12}$ 10-40 cm; 10YR 4/3; moteados 10YR 5/8; franco limoso; masivo con algunos bosques; duro a blando, plástico y pegajoso; poros comúnes; raicillas comúnes; límite gradual y ondulado.

$B_2$ 40-113; 10YR 5/6; moteados 10YR 6/8 y 2.5YR 5/8; franco limoso; masivo con películas de arcilla; friable; plástico y pegajoso; poros comúnes; raicillas escasas; límite claro y ondulado.

$C_{1cn}$ 113-200 cm+; 5Y 6/3; moteados y concreciones 2.5YR 4/8; franco limoso; masivo con películas de arcilla; friable, plástico y pegajoso; poros comúnes; sin raicillas.

| HTE | pH $H_2O$ | $Fe_2O_3$ % | C % | N % | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|---|
| $A_{11}$ | 4.6 | 1.4 | 2.27 | 0.19 | 1.0 | 5.9 | 78 |
| $A_{12}$ | 4.8 | 1.6 | 0.97 | 0.10 | 0.5 | 6.6 | 81 |
| $B_2$ | 5.3 | 1.9 | 0.36 | 0.05 | - | 13.9 | 63 |
| $C_{1cn}$ | 5.3 | 2.5 | 0.20 | 0.03 | - | 14.3 | 72 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.20 | 0.17 | 0.15 | 0.04 | 8.91 | 78 | 0.56 | 9.47 |
| 0.09 | 0.14 | 0.07 | 0.05 | 4.93 | 81 | 0.35 | 5.28 |
| 0.15 | 0.13 | 0.11 | 0.07 | 2.83 | 63 | 0.46 | 3.29 |
| 0.14 | 0.09 | 0.23 | 0.02 | 2.86 | 72 | 0.48 | 3.34 |

## SISTEMA DE TIERRA 203, Faceta 1

**Clasificación:** Haplustox.

**Localización:** Depto. Meta, Colombia.

**Posición Fisiográfica:** Bajada de la Altillanura ondulada.

**Topografía:** Ligeramente plano, pendiente 0-1%.

**Drenaje:** Bien drenado.

**Vegetación:** Sabana.

**Material Originario:** Sedimentos terciarios ácidos.

**Fuente:** FAO, Rec. Edaf. Llanos Orientales, 1965 (23), perfil C-71, pág.173/4.

$A_1$ 0-14 cm; 10YR 3/3; arenoso fino franco; bloques medios débiles; algunos poros finos y vesiculares; friable; no plástico y no pegajoso; raíces abundantes; límite claro y suave.

$A_3$ 14-28 cm; 10YR 4/3 y 10YR 5/6; arenoso fino franco; bloques medios débiles; poros comúnes; no plástico, no pegajoso; raíces comúnes; límite gradual y suave.

$C_1$ 28-52 cm; 7.5YR 5/6; franco arenoso; masivo sin películas de arcilla; poros comúnes; muy friable, no plástico, no pegajoso; raíces comúnes; límite gradual y suave.

$C_2$ 52-85 cm; 7.5YR 5/8 y 7.5YR 5/6; franco arenoso; masivo sin películas de arcilla; poros comúnes; muy friable; no plástico, no pegajoso; raíces escasas; límite difuso y suave.

$C_3$ 85-150 cm; 5YR 5/8; moteados 2%; franco arenoso; masivo sin películas de arcilla; friable, no plástico, ligeramente pegajoso; raíces escasas.

| HTE | pH $H_2O$ | C % | N % | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|
| $A_1$ | 4.7 | 0.61 | 0.06 | 1.9 | 18 | 57 |
| $A_3$ | 4.8 | 0.40 | 0.04 | 0.9 | 17 | 65 |
| $C_1$ | 5.0 | 0.37 | 0.04 | 0.7 | 18 | 58 |
| $C_2$ | 4.5 | 0.17 | 0.03 | 1.0 | 40 | 39 |
| $C_3$ | 4.4 | 0.13 | 0.05 | 0.7 | 39 | 38 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.19 | 0.07 | 0.09 | 0.06 | 1.85 | 0.55 | 0.41 | 2.26 |
| 0.15 | 0.07 | 0.02 | 0.08 | 1.56 | 0.60 | 0.32 | 1.88 |
| 0.13 | 0.02 | 0.04 | 0.08 | 1.18 | 0.38 | 0.27 | 1.45 |
| 0.16 | 0.08 | 0.02 | 0.26 | 0.77 | 0.33 | 0.52 | 1.29 |
| 0.11 | 0.07 | 0.06 | 0.20 | 0.69 | 0.27 | 0.44 | 1.13 |

## SISTEMA DE TIERRA 203, Faceta 3

**Clasificación:** Tropaquept.

**Localización:** Dpto. Meta, Colombia, Altill. ondulada.

**Posición Fisiográfica:** Estero de la altillanura (morichal).

**Topografía:** Plano, pendiente 0-1%.

**Drenaje:** Pobremente drenado.

**Vegetación:** Bosque de galería.

**Material Originario:** Sedimentos recientes ácidos.

**Fuente:** FAO, Rec. Edaf. Llanos Orientales, 1965,(23), perfil C-66, pág.157/8.

O 2-0 cm; compuesto por materia orgánica sin descomponer.

A 0-10 cm; 10YR 3/1; franco arcillo arenoso; masivo; muy friable; no plástico, no pegajoso; raíces abundantes; límite gradual y suave.

A 10-40 cm; 10YR 3/2 (amasado); franco arcillo arenoso; masivo; muy friable; no plástico, no pegajoso; raíces abundantes; límite gradual y suave.

IIB 40-80 cm; 10YR 6/2 (amasado); arcillo arenoso; ligeramente plástico, ligeramente pegajoso.

IIB 80-120 cm; 10YR 6/2 (amasado); arcilloso; ligeramente plástico, ligeramente pegajoso.

| HTE | pH $H_2O$ | $Fe_2O_3$ % | C % | N % | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|---|
| $A_{11g}$ | 4.3 | 0.88 | 2.45 | 0.22 | 6 | 8 | 67 |
| $A_{12}$ | 4.6 | 0.76 | 1.59 | 0.13 | 4 | 5 | 77 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.17 | 0.26 | 0.27 | 0.27 | 11.46 | 2.0 | 0.97 | 12.40 |
| 0.13 | 0.11 | 0.16 | 0.16 | 9.30 | 1.82 | 0.54 | 9.48 |

## SISTEMA DE TIERRA 204, Faceta 1

**Clasificación:** Haplustox.

**Localización:** "Serranía" al Sur del río Meta, Colombia.

**Posición Fisiográfica:** Colinas de la Serranía.

**Topografía:** Quebrado, pendiente 20-25%.

**Drenaje:** Bien drenado.

**Vegetación:** Sabana.

**Material Originario:** Sedimentos terciarios ácidos y areniscas.

**Fuente:** FAO, Rec. Edaf. Llanos Orientales, 1965, (24), perfil C-62, pág. 177/8.

$C_1$ 0-10 cm; se presenta una capa de concreciones de plintita endurecida, láminas de espesor muy variables con colores rojos muy oscuros. Esta capa aflora a la superficie rodeando toda la colina y las mesetas; en algunas partes se forman arrecifes muy grandes y duros, y en otras aparece gravilla.

$IIC_{2cn}$ 10-20 cm; 2.5YR 4/6; concreciones ferruginosas transportadas 7.5YR 3/4; franco arcillo arenoso; bloques finos débiles; friable, ligeramente plástico, ligeramente pegajoso; escasas raíces; límite gradual y suave.

$IIC_{3cn}$ 20-70 cm; 10YR 4/6 y 7.5YR 8/0; concreciones 10R 3/6; franco arcillo arenoso; bloques sin películas de arcilla; friable; ligeramente plástico, ligeramente pegajoso; raíces escasas; límite gradual y suave.

$IIC_{4cn}$ 70-90 cm; 2.5YR 4/6; moteados 7.5YR 8/0; concreciones ferruginosas 10R 4/6; rocas (areniscas); franco arcillo arenoso; masivo; algunos poros; muy friable; no plástico, no pegajoso; sin raíces; límite gradual y suave.

$IIIC_5$ 90-130 cm+; 5YR 4/6; moteados 7.5YR 8/0; presenta rocas (areniscas); franco arcillo arenoso; masivo; muy friable; no plástico, no pegajoso; sin raíces; con algunos poros.

| HTE | pH $H_2O$ | $Fe_2O_3$ % | C % | N % | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|---|
| $IIC_2$ | 3.9 | 5.8 | 0.58 | 0.09 | 4.0 | 19 | 71 |
| $IIC_3$ | 4.3 | 6.4 | 0.30 | 0.07 | 1.6 | 8 | 86 |
| $IIC_4$ | 6.0 | 3.2 | 0.18 | 0.03 | 1.0 | 26 | 70 |
| $IIIC_5$ | 4.3 | 1.6 | 0.13 | 0.03 | 3.0 | 20 | 79 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.64 | 0.15 | 0.15 | 0.14 | 4.48 | 2.69 | 4.48 | 5.56 |
| 0.15 | 0.07 | 0.14 | 0.18 | 5.67 | 3.24 | 5.67 | 6.21 |
| 0.39 | 0.08 | 0.11 | 0.31 | 2.54 | 2.11 | 2.54 | 3.43 |
| 0.23 | 0.05 | 0.15 | 0.24 | 2.72 | 2.47 | 2.72 | 3.39 |

## SISTEMA DE TIERRA 207, Faceta 1

Clasificación: Dystropept.

Localización: El Yopal, Depto. Casanare, Colombia.

Posición Fisiográfica: Abanico aluvial casi plano, superior.

Topografía: Plano ligeramente convexo, pendiente 0-1%.

Drenaje: Bien drenado.

Vegetación: Sabana.

Material Originario: Sedimentos aluviales.

Fuente: FAO, Rec. Edaf. de Llanos Orientales, 1965 (23), perfil 277/8.

$A_1$ 0-11 cm; 10YR 3/2; franco arenoso; migajones medios débiles; friable; no plástico, no pegajoso; raíces abundantes; límite gradual y suave.

$B_{21}$ 11-31 cm; 10YR 3/3 y 10YR 4/4; franco arenoso; masivo; muy friable; no plástico, no pegajoso; raíces comúnes; poros comúnes; límite gradual y suave.

$B_{22}$ 31-52 cm; 10YR 4/3; moteados 5YR 4/6; franco arenoso; masivo; muy friable; no plástico, no pegajoso; raíces y poros comúnes; límite gradual y suave.

$B_3$ 52-90 cm; 10YR 5/6 y 10YR 5/8; franco arcilloso; masivo; no plástico, no pegajoso; raíces escasas; poros comúnes; límite difuso y ondulado.

$C_1cn$ 90-115 cm; 10YR 5/6 y 10YR 5/8; moteados 5YR 4/6; concreciones 10R 3/6; franco arenoso; masivo; muy friable; no plástico, no pegajoso; raíces escasas; poros comúnes; límite claro y ondulado.

$C_2gcn$ 115-150 cm+; 5YR 6/1; moteados 5YR 4/6; concreciones como el anterior; franco arenoso; masivo; muy friable; no plástico, no pegajoso; raíces escasas.

| HTE | pH $H_2O$ | $Fe_2O_3$ % | C % | N % | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.7 | 1.14 | 0.79 | 0.07 | 4 | 20 | 58 |
| $B_{21}$ | 4.7 | 0.92 | 0.47 | 0.05 | 2 | 42 | 52 |
| $B_{22}$ | 4.6 | 0.96 | 0.31 | 0.04 | 1 | 15 | 74 |
| $B_3$ | 4.8 | 1.20 | 0.16 | 0.03 | 1 | 26 | 66 |
| $C_1$ | 5.0 | 0.99 | 0.13 | 0.03 | 1 | 18 | 76 |
| $C_2g$ | 4.9 | 0.66 | 0.14 | 0.02 | 1 | 21 | 73 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.39 | 0.30 | 0.17 | 0.09 | 3.7 | 1.32 | 0.95 | 4.67 |
| 1.15 | 0.32 | 0.14 | 0.14 | 2.4 | 1.87 | 1.75 | 4.18 |
| 0.16 | 0.23 | 0.09 | 0.11 | 3.1 | 1.65 | 0.59 | 3.75 |
| 0.12 | 0.41 | 0.07 | 0.12 | 2.0 | 1.37 | 0.72 | 2.78 |
| 0.08 | 0.09 | 0.07 | 0.11 | 1.5 | 1.10 | 0.35 | 1.92 |
| 0.17 | 0.15 | 0.07 | 0.14 | 1.9 | 1.43 | 0.53 | 2.45 |

## SISTEMA DE TIERRA 207, Faceta 2

Clasificación: Dystropept.

Localización: Zona El Yopal, Casanare, Colombia.

Posición Fisiográfica: Abanico aluvial inferior (distal)

Topografía: Plano, ligeramente cóncavo, pendiente 0-1%.

Drenaje: Bien drenado.

Vegetación: Sabana.

Fuente: FAO, Rec. Edaf. Llanos Orientales, 1965 (23), perfil A2, pág. 117/8.

$A_1$ 0-8 cm; 10YR 3/3 y 10YR 3/4; franco arenoso muy fino, bloques medios débiles; muy friable; no plástico, no pegajoso; abundantes raíces; algunos poros grandes; límite claro y suave.

$A_3$ 18-33 cm; 10YR 4/4; franco arenoso muy fino; bloques débiles medios; masivo; muy friable; no plástico, no pegajoso; abundantes raíces; límite difuso y suave.

$B_2$ 33-54 cm; 7.5YR 5/6; franco arenoso muy fino; masivo; muy friable; ligeramente plástico, no pegajoso; raíces comúnes; límite difuso y suave.

$B_3$ 54-110 cm; 7.5YR 5/8; franco arenoso muy fino; masivo, friable; ligeramente plástico, no pegajoso; raíces escasas; algunos poros, límite abrupto. Siguen piedras redondeadas de diversos tamaños.

| HTE | pH $H_2O$ | $Fe_2O_3$ % | C % | N % | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.7 | 1.12 | 0.87 | 0.09 | 3 | 21 | 45 |
| $A_3$ | 4.6 | 1.53 | 0.48 | 0.06 | 1 | 11 | 76 |
| $B_2$ | 4.6 | 1.60 | 0.29 | 0.04 | < 1 | 7 | 82 |
| $B_3$ | 4.6 | 2.11 | 0.13 | 0.03 | < 1 | 9 | 80 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.50 | 0.49 | 0.21 | 0.03 | 4.52 | 0.99 | 1.23 | 5.75 |
| 0.23 | 0.12 | 0.23 | 0.08 | 4.68 | 1.87 | 0.58 | 5.26 |
| 0.11 | 0.10 | 0.13 | 0.07 | 4.80 | 1.87 | 0.41 | 5.21 |
| 0.12 | 0.14 | 0.17 | 0.05 | 4.78 | 1.93 | 0.48 | 5.26 |

## SISTEMA DE TIERRA 208, Faceta 1

Clasificación: Haplorthox.

Localización: Al NE de Acacías, Dpto. Meta, Colombia.

Posición Fisiográfica: Terraza alta.

Topografía: Plano a ligeramente ondulado, pendiente 0-1%.

Drenaje: Moderadamente bien drenado.

Vegetación: Bosque.

Fuente: FAO, Rec. Edaf. Llanos Orientales, 1965 (23), perfil W-8, pág. 69/70.

$A_1$ 0-14 cm; 10YR 3/2; franco arcilloso; bloques medios débiles; muy friable; ligeramente plástico y ligeramente pegajoso; raíces abundantes; límite abrupto y claro.

$B_1$ 14-26 cm; 10YR 4/3; moteados 5YR 4/6; franco-arcilloso; bloques medios débiles; friable; ligeramente plástico y ligeramente pegajoso; películas arcillosas; raíces comúnes; límite gradual y suave.

$B_{21}$ 26-50 cm; 10YR 5/4; moteados 5YR 4/5; franco arcilloso; bloques medios débiles con películas de arcilla; friable; raíces escasas; límite difuso y suave.

$B_{22}$ 50-72 cm; 7.5YR 5/4; arcilloso; bloques débiles finos con películas de arcilla; friable a firme; ligeramente pegajoso; raíces escasas; límite gradual y suave.

$B_3$ 72-90 cm; 5YR 4/4; arcilloso; bloques muy débiles, finos; muy friable; ligeramente plástico, ligeramente pegajoso; raíces escasas; límite gradual y suave.

C 90-120 cm; 7.5YR 5/6; arcilloso; bloques débiles finos; friable; raíces escasas.

OBS.: El incremento de arcilla no satisface los requerimientos para considerar que los horizontes B son argílicos.

| HTE | pH $H_2O$ | C % | N % | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|
| $A_1$ | 4.5 | 2.44 | 0.30 | 4 | 12.60 | 64 |
| $B_1$ | 4.6 | 1.34 | 0.20 | 3 | 6.35 | 85 |
| $B_{21}$ | 4.7 | 0.92 | 0.13 | 1 | 7.60 | 86 |
| $B_{22}$ | 4.7 | 0.53 | 0.09 | < 1 | 5.33 | 88 |
| $B_3$ | 4.8 | 0.49 | 0.08 | 1 | 6.74 | 86 |
| C | 5.1 | 0.52 | 0.08 | < 1 | 7.45 | 86 |

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Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.88 | 0.74 | 0.22 | 0.06 | 13.1 | 3.41 | 1.90 | 15.08 |
| 0.22 | 0.24 | 0.19 | 0.08 | 10.7 | 4.25 | 0.73 | 11.50 |
| 0.18 | 0.24 | 0.15 | 0.11 | 8.2 | 4.15 | 0.68 | 8.95 |
| 0.30 | 0.10 | 0.15 | 0.08 | 11.1 | 4.68 | 0.63 | 11.81 |
| 0.20 | 0.18 | 0.17 | 0.09 | 8.8 | 4.12 | 0.64 | 9.49 |
| 0.20 | 0.14 | 0.15 | 0.08 | 7.0 | 3.55 | 0.57 | 7.65 |

## SISTEMA DE TIERRA 208, Faceta 2

Clasificación: Tropudult.

Localización: Terraza Zona Apiay, Depto. Meta, Colombia.

Posición Fisiográfica: Terraza baja.

Topografía: Plano, pendiente 0-1%.

Drenaje: Bien drenado.

Vegetación: Sabana.

Fuente: FAO, Rec. Edaf. Llanos Orientales, 1965 (23), perfil R-26, pág. 67/8.

$A_1$ 0-10 cm; 10YR 4/3; franco arcillo arenoso; migajones moderados medios a gruesos; muy friable; ligeramente plástico, ligeramente pegajoso; raíces abundantes; poroso; límite gradual y suave.

$A_3$ 10-24 cm; 7.5YR 3/4; arcilloso; bloques medios débiles; muy friable; ligeramente plástico; ligeramente pegajoso; abundantes raicillas; límite claro y suave.

$B_{21}t$ 24-45 cm; 7.5YR 4/4; arcilloso; bloques débiles medios; muy friable; ligeramente plástico, ligeramente pegajoso; comúnes raicillas; límite gradual y suave.

$B_{22}t$ 45-85 cm; 5YR 4/6; arcilloso; bloques medios débiles, ligeramente plástico y ligeramente pegajoso; raíces comúnes; límite gradual y suave.

$B_{23}$ 85-116 cm; 5YR 5/6 y 5YR 4/8; arcilloso; bloques débiles medios; ligeramente plástico y ligeramente pegajoso; raíces muy escasas; límite abrupto y ondulado. Capa de piedras grandes redondeadas.

| HTE | pH $H_2O$ | C % | N % | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|
| $A_1$ | 4.8 | 2.61 | 0.27 | 4 | 11 | 46 |
| $A_3$ | 4.5 | 1.60 | 0.17 | 3 | 6 | 62 |
| $B_{21}t$ | 4.8 | 0.79 | 0.12 | 1 | 5 | 75 |
| $B_{22}t$ | 4.8 | 0.52 | 0.11 | < 1 | 6 | 76 |
| $B_{23}$ | 5.1 | 0.47 | 0.11 | < 1 | 12 | 71 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | Al | H | TBI | CIC |
| 0.83 | 0.57 | 0.35 | 0.08 | 1.55 | 15.30 | 1.83 | 16.13 |
| 0.35 | 0.12 | 0.27 | 0.16 | 1.49 | 13.21 | 0.90 | 14.11 |
| 0.17 | 0.13 | 0.14 | 0.14 | 1.76 | 10.13 | 0.58 | 10.71 |
| 0.26 | 0.17 | 0.08 | 0.08 | 2.18 | 10.04 | 0.67 | 10.71 |
| 0.17 | 0.11 | 0.10 | 0.10 | 1.28 | 3.71 | 0.52 | 4.23 |

## SISTEMA DE TIERRA 209, Faceta 1a. (50%)

Clasificación: Tropaquept.

Localización: Hato el Gandul, Casanare, Colombia.

Posición Fisiográfica: Bajo entre diques.

Topografía: Plano, pendiente 0-0.5%.

Drenaje: Muy pobremente drenado.

Vegetación: Sabana mal drenada.

Fuente: FAO, Rec. Edaf. Llanos Orientales, (1965), (23), perfil J-41, pág. 73/4.

$A_1g$ 0-10 cm; 10YR 3/2; moteados 10YR 5/8; arcilloso; fragmentos masivos; muy duro, plástico y ligeramente pegajoso; raíces abundantes; límite abrupto y ondulado.

$B_2g$ 10-42 cm; 7.5YR 3/2; moteados 7.5YR 5/8; arcilloso; fragmentos masivos; duro, pegajoso y plástico; escasas raíces; límite gradual y suave.

$IIC_1$ gcn 42-68 cm; 7.5YR 7/1, moteados 10YR 5/8; concreciones pequeñas 2.5YR 4/8; franco; masivo; muy duro; pegajoso y plástico; escasas raíces; límite gradual y suave.

$IIC_2$ gcn 68-100 cm; 10YR 5/1.5; moteados 7.5YR 5/8; concreciones 2.5YR 4/8; franco arcilloso; masivo; firme; pegajoso y plástico; raíces escasas; límite gradual y ondulado.

$IIC_3$ 100-130 cm; 10YR 6/2; moteados 10YR 5/6; franco; masivo; pegajoso y plástico; raíces escasas.

OBS.: Sobre la superficie del suelo se presentan hendiduras de 1 a 2 cm de ancho.

| HTE | pH $H_2O$ | $Fe_2O_3$ % | C % | N % | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|---|
| $A_1g$ | 4.6 | 1.19 | 2.23 | 0.28 | 1.6 | 33 | 29 |
| $B_2g$ | 5.0 | 1.57 | 0.75 | 0.11 | 2.5 | 24 | 52 |
| $IIC_1$ | 5.1 | 0.84 | 0.14 | 0.08 | 3 | 46 | 32 |
| $IIC_2$ | 5.3 | 2.64 | 0.09 | 0.04 | 1 | 79 | 30 |
| $IIC_3$ | 5.3 | 1.06 | 0.08 | 0.02 | 2 | 31 | 56 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 5.67 | 2.72 | 0.59 | 0.11 | 18.3 | 3.72 | 9.09 | 27.4 |
| 2.96 | 1.62 | 0.31 | 0.15 | 15.9 | 5.38 | 5.04 | 10.9 |
| 1.75 | 0.73 | 0.13 | 0.08 | 3.0 | 1.25 | 2.69 | 5.7 |
| 3.16 | 4.00 | 0.19 | 0.09 | 1.9 | 3.19 | 7.44 | 9.3 |
| 2.02 | 1.13 | 0.16 | 0.11 | 7.3 | 1.91 | 3.42 | 10.8 |

## SISTEMA DE TIERRA 209, Faceta 1b. (50%)

Clasificación: Tropaqualf.

Localización: Hato El Gandul, Casanare, Colombia.

Posición Fisiográfica: Bajo entre diques.

Topografía: Plano y pendiente 0-0.5%.

Drenaje: Pobremente drenado.

Vegetación: Sabana.

Fuente: FAO, Rec. Edaf. Llanos Orientales, 1965, (23), perfil J-39, pág.197/8.

$A_1g$ 0-18 cm; 10YR 4/1; moteados 10YR 7/8; arcilloso; masivo; duro; ligeramente plástico y ligeramente pegajoso; raíces abundantes; límite gradual y suave.

$B_2g$ 18-40 cm; 10YR 5/1; moteados 10YR 5/8; arcilloso; masivo; duro, ligeramente pegajoso; raíces comúnes; límite claro y suave.

$C_1gcn$ 40-80 cm; 10YR 4/1; concreciones de 3 cm, 15%, color 10R 4/8; 5% moteados 10YR 5/8; arcilloso; masivo; duro; ligeramente plástico y pegajoso; raíces escasas; límite gradual y suave.

$C_2gcn$ 80-165 cm+; N 6/0; 30% concreciones de 0.5 cm color 2.5 YR 5/8; arcilloso; masivo; firme; ligeramente plástico y pegajoso; sin raíces.

Nota: La superficie del suelo presenta grietas hasta unos 15 cm de profundidad y de 2-3 cm de ancho.

| HTE | pH $H_2O$ | C % | N % | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|
| $A_1g$ | 4.8 | 1.47 | 0.16 | 6.4 | 29 | 38 |
| $B_2g$ | 4.6 | 0.57 | 0.14 | 2.7 | 31 | 55 |
| $C_1g$ | 4.8 | 0.45 | 0.15 | 0.4 | 30 | 57 |
| $C_2g$ | 4.9 | 0.24 | 0.09 | 0.7 | 63 | 55 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 1.73 | 4.23 | 0.31 | 0.19 | 15.7 | 3.98 | 6.46 | 22.2 |
| 1.96 | 4.80 | 0.27 | 0.21 | 15.7 | 8.78 | 7.24 | 23.0 |
| 2.88 | 5.64 | 0.33 | 0.25 | 20.9 | 12.01 | 9.10 | 30.0 |
| 4.49 | 9.20 | 0.42 | 0.39 | 8.3 | 4.78 | 14.50 | 22.8 |

## SISTEMA DE TIERRA 209, Faceta 2

Clasificación: Tropaqualf.

Localización: Zona El Gandul, Casanare, Colombia.

Posición Fisiográfica: Dique natural.

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Topografía: Ligeramente convexo, pendiente 1-2%.

Drenaje: Imperfectamente drenado.

Vegetación: Sabana

Fuente: FAO, Rec. Edaf. Llanos Orientales, 1965,(23), perfil Ch-25, pág. 115/6.

$A_1$ 0-23 cm; 10YR 5/2; pocos moteados 10YR 5/8; franco arenoso; masivo; blando; ligeramente plástico y ligeramente pegajoso; raíces abundantes; límite gradual y suave.

$B_2$ 23-78 cm; 10YR 6/2; moteados 10YR 5/2; 15% de concreciones 10R 4/8; franco arcilloso arenoso; bloques moderados medios; blando; ligeramente plástico y ligeramente pegajoso; raíces escasas; límite gradual y suave.

$C_1cn$ 78-135 cm; 5Y 6/1; pocos moteados 5YR 5/8; concreciones 10R 4/8; franco arcilloso; masivo; firme; ligeramente plástico y ligeramente pegajoso; raíces escasas; límite claro y suave.

$IIC_2g$ cn 135-160 cm+; 10YR 8/1 y 10YR 6/3; moteados 7.5YR 5/8 3% concreciones principalmente 10R 4/8; franco arenoso fino; masivo; friable; ligeramente plástico y no pegajoso; raíces muy escasas.

| HTE | pH $H_2O$ | C % | N % | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|
| $A_1$ | 4.8 | 0.58 | 0.07 | 2.8 | 29 | 50 |
| $B_2g$ | 5.1 | 0.20 | 0.05 | 2.6 | 27 | 63 |
| $C_1g$ | 5.4 | 0.16 | 0.04 | 2.1 | 69 | 12 |
| $IIC_2g$ | 5.3 | 0.05 | 0.02 | 5.0 | 89 | 0 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.78 | 0.26 | 0.14 | 0.11 | 3.02 | 1.30 | 1.29 | 4.31 |
| 1.17 | 0.36 | 0.09 | 0.13 | 4.65 | 3.03 | 1.75 | 6.40 |
| 4.61 | 1.44 | 0.15 | 0.15 | 2.78 | 0.89 | 6.36 | 0.14 |
| 1.54 | 0.95 | 0.10 | 0.19 | 0.33 | - | 2.78 | 3.11 |

## SISTEMA DE TIERRA 210, Faceta 1

Clasificación: Tropaquult.

Localización: Zona Orocué, Casanare, Colombia.

Posición Fisiográfica: Llanura eólica.

Topografía: Ligeramente convexa, pendiente 0-0.5%.

Drenaje: Moderadamente drenado.

Vegetación: Sabana

Fuente: FAO, Rec. Edaf. Llanos Orientales, 1965, (23), perfil C-30, pág. 7/8.

$A_1$ 0-25 cm; 10YR 3/2; moteados 10YR 5/8; franco limoso; masivo; friable; ligeramente plástico; no pegajoso; raíces regulares; límite difuso.

$A_3$ 25-90 cm; 7.5YR 4/2; franco arcilloso; masivo; friable; plástico y pegajoso; raíces comúnes; límite claro y ondulado.

$IIB_2g$ 90-140 cm; 10YR 6/2 y 10YR 4/6; arcilloso; prismas gruesos fuertes con películas de arcilla; firme, ligeramente plástico, pegajoso; sin raíces.

| HTE | pH $H_2O$ | C % | N % | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|
| $A_1$ | 4.5 | 1.80 | 0.19 | 5.6 | 3.53 | 88 |
| $A_3$ | 4.6 | 0.45 | 0.07 | 3.2 | 3.66 | 93 |
| $IIB_2g$ | 4.7 | 0.24 | 0.05 | 0.9 | 3.68 | 92 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.15 | 0.08 | 0.06 | 0.20 | 13.41 | 3.72 | 0.49 | 13.90 |
| 0.12 | 0.09 | 0.03 | 0.11 | 9.22 | 4.78 | 0.35 | 9.57 |
| 0.12 | 0.07 | 0.04 | 0.11 | 8.89 | 4.12 | 0.34 | 9.23 |

## SISTEMA DE TIERRA 210, Faceta 2

Clasificación: Tropoudult

Localización: Zona Orocue, Casanare, Colombia.

Posición Fisiográfica: Dique natural.

Topografía: Plano, pendiente 0-2%.

Drenaje: Bien drenado.

Vegetación. Sabana.

Fuente: FAO, Rec. Edaf. Llanos Orientales, 1965, (23), perfil E-26, pág. 181/2.

$A_1$ 0-10 cm; 2.5Y 4/2; franco arenoso; con cuarzos; bloques medios débiles ; muy friable; no plástico, no pegajoso; abundantes raíces, límite claro y suave.

$A_3$ 10-18 cm; 2.5Y 4/4; franco arenoso, con cuarzos; bloques débiles, finos; friable, no plástico, no pegajoso; raicillas comúnes; límite claro y suave.

$B_{21}$ 18-40 cm; 10YR 5/6; franco arenoso con cuarzos; bloques muy débiles con películas de arcilla; muy friable, no plástico, no pegajoso; raíces comúnes; límite claro y suave.

$B_{22}$ 40-73 cm; 10YR 5/8 y N 4/0; franco arenoso; masivo, muy friable, no plástico y no pegajoso; raíces escasas, límite claro y suave.

$B_{23}$ 73-130 cm; 10YR 5/8, 7.5YR 5/6 y 10YR 5/6; franco arenoso con cuarzos; masivo, muy friable; no plástico, no pegajoso; sin raíces; límite claro y suave.

$C_1$ 130-160 cm+; 7.5YR 5/6, 5YR 5/8; franco arenoso con cuarzos; masivo, muy firme, no plástico, no pegajoso; sin raíces; chorreaduras.

| HTE | pH $H_2O$ | $Fe_2O_3$ % | C % | N % | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.9 | 0.90 | 0.97 | 0.08 | 2.4 | 15 | 59 |
| $A_3$ | 4.9 | 1.19 | 0.82 | 0.07 | 3.0 | 10 | 71 |
| $B_{21}$ | 5.0 | 1.00 | 0.39 | 0.04 | 1.6 | 12 | 65 |
| $B_{22}$ | 4.9 | 1.18 | 0.24 | 0.03 | 1.1 | 15 | 58 |
| $B_{23}$ | 5.4 | 1.84 | 0.03 | 0.01 | 0.4 | 23 | 52 |
| $C_1$ | 5.3 | 2.33 | 0.07 | 0.01 | 0.7 | 19 | 38 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.20 | 0.23 | 0.06 | 0.09 | 3.26 | 0.85 | 0.58 | 3.84 |
| 0.11 | 0.09 | 0.12 | 0.06 | 3.25 | 0.91 | 0.38 | 3.63 |
| 0.11 | 0.06 | 0.11 | 0.05 | 2.26 | 0.60 | 0.33 | 2.59 |
| 0.10 | 0.07 | 0.13 | 0.05 | 1.88 | 0.48 | 0.35 | 2.23 |
| 0.06 | 0.12 | 0.11 | 0.04 | 1.07 | 0.17 | 0.33 | 1.40 |
| 0.15 | 0.06 | 0.14 | 0.04 | 1.58 | 0.24 | 0.39 | 1.97 |

## SISTEMA DE TIERRA 211, Faceta 1

Clasificación: Tropaquept.

Localización: Cravo Norte, Arauca, Colombia.

Posición Fisiográfica: Bolsa de duna.

Topografía: Plano, cóncavo, pendiente 0-1%.

Drenaje: Pobremente drenado.

Vegetación: Sabana.

Material Originario: Sed. aluviales recubiertos por eólicos.

Fuente: FAO, Rec. Edaf. Llanos Orientales, 1965, (23), perfil D-10, pág. 235/6.

$A_{11}g$ 0-5 cm; 10YR 2/1; franco arenoso fino; laminar débil que rompe en bloques; muy friable; ligeramente plástico y ligeramente pegajoso; abundantes raicillas; límite gradual y suave.

$A_{12}g$ 5-21 cm; 10YR 3/1; franco arenoso fino; bloques medios modernos que rompen como un fragipan; friable, olando; ligeramente plástico y ligeramente pegajoso; muchos poros finos y medios; raicillas abundantes; límite gradual y suave.

$A_{21}g$ 21-39 cm; 10YR 7/2, franco arenoso fino; bloque medios; débiles; duro, no plástico, no pegajoso; muchos poros; pocas raicillas; límite gradual y suave.

$A_{22}g$ 39-52 cm; 10YR 7/2 amasado; franco arenoso frino; grano simple; duro, no plástico, no pegajoso; sin raíces; límite gradual y suave.

$B_2$ 52-130 cm; 10YR 6/8, 10YR 7/1 y 10R 4/8; franco arenoso fino; masivo, blando; ligeramente plástico y ligeramente pegajoso; escasos poros; se presentan grietas; sin raicillas; límite difuso y ondulado.

C 130 cm+; 10YR 6/6 y 10YR 7/2; arenoso fino franco; masivo a grano simple; muy friable no pegajoso, no plástico; escasos poros; sin raíces.

| HTE | pH $H_2O$ | C % | N % | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|
| $A_{11}g$ | 4.6 | 1.77 | 0.25 | 14 | 10 | 62 |
| $A_{12}g$ | 4.5 | 0.90 | 0.12 | 7 | 7 | 77 |
| $A_{21}g$ | 4.5 | 0.09 | 0.03 | 5 | 26 | 68 |
| $A_{22}g$ | 4.6 | 0.03 | 0.01 | 4 | 26 | 77 |
| $B_2$ | 4.8 | 0.03 | 0.03 | 3 | 10 | 86 |
| C | 4.8 | 0.03 | 0.01 | <1 | 47 | 43 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.26 | 0.20 | 0.06 | 0.05 | 4.84 | 0.94 | 0.57 | 5.41 |
| 0.17 | 0.06 | 0.04 | 0.04 | 3.84 | 0.99 | 0.29 | 4.13 |
| 0.15 | 0.04 | 0.04 | 0.02 | 0.68 | 0.53 | 0.25 | 0.93 |
| 0.08 | 0.12 | 0.03 | 0.02 | 0.68 | 0.82 | 0.25 | 0.93 |
| 0.19 | 0.16 | 0.07 | 0.04 | 4.12 | 2.78 | 0.46 | 4.58 |
| 0.16 | 0.46 | 0.08 | 0.06 | 0.05 | 0.57 | 0.75 | 1.61 |

## SISTEMA DE TIERRA 211, Faceta 2

Clasificación: Quartzipsamment

Localización: Cravo Norte, Arauca, Colombia.

Posición Fisiográfica: Parte superior de Médano.

Topografía: Inclinado y convexo, pendiente 3-4%.

Drenaje: Excesivamente drenado.

Vegetación: Sabana.

Material Originario: Sedimentos arenosos eólicos.

Fuente: FAO, Rec. Edaf. Llanos Orientales, 1965, (23), perfil P-14, pág. 101/2.

$A_1$ 0-10 cm; 10YR 5/3; arenoso fino; grano simple; suelto, no pegajoso, no plástico; abundantes raicillas; límite gradual y ondulado.

$C_1$ 10-75 cm; 5YR 4/4; arenoso fino; grano simple; suelto; raicillas comúnes; límite difuso y ondulado.

$C_2$ 75-135 cm; 5YR 5/8; arenoso fino; grano simple; suelto; escasas raicillas.

$C_3$ 135 cm+; 7.5YR 5/8 y 15% de 7.5YR 6/4; arenoso fino; masivo que rompe a grano simple; suelto; escasas raicillas.

| HTE | pH $H_2O$ | C % | N % | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|
| $A_1$ | 4.8 | 0.33 | 0.04 | 3 | 50 | 59 |
| $C_1$ | 5.0 | 0.16 | 0.02 | 10 | 75 | 39 |
| $C_2$ | 4.9 | 0.05 | 0.01 | 6 | 38 | 62 |
| $C_3$ | 4.9 | 0.02 | 0.01 | 7 | 43 | 50 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.11 | 0.08 | 0.05 | 0.05 | 0.28 | 0.42 | 0.29 | 0.57 |
| 0.13 | 0.15 | 0.13 | 0.13 | 0.15 | 0.30 | 0.47 | 0.62 |
| 0.13 | 0.10 | 0.05 | 0.05 | 0.47 | 0.48 | 0.30 | 0.77 |
| 0.12 | 0.12 | 0.10 | 0.10 | 0.47 | 0.36 | 0.36 | 0.83 |

## SISTEMA DE TIERRA 211, Faceta 3

Clasificación: Plinthaquept.

Localización: Cravo Norte, Arauca, Colombia.

Posición Fisiográfica: Pie de médano.

Topografía: Ligeramente convexo, pendiente 0-1%.

Drenaje: Moderadamente drenado.

Vegetación: Sabana.

Fuente: FAO, Rec. Edaf. Llanos Orientales, 1965,(23), perfil J-47, pág.47/8.

$A_{1g}$ 0-16 cm; 10YR 4/1, moteados 5YR 4/8; franco arenoso; grano simple; muy friable; no plástico, no pegajoso; abundantes raíces; límite gradual y suave.

$B_{21}$ 16-30 cm; 10YR 6/3, moteados 10YR 6/8; franco arenoso; grano simple; muy friable; no plástico, no pegajoso; límite gradual e irregular.

$B_{22}$ 30-65 cm; 10YR 6/8; franco arenoso; grano simple; muy friable; no plástico, no pegajoso; raíces escasas; límite gradual y quebrado.

$C_{1g}$ cn 65-100 cm; 10YR 6/1, moteados 10YR 7/1; concreciones blandas 10R 4/4; franco arenoso; grano simple; muy friable; no plástico, no pegajoso; raíces escasas; límite claro y suave.

$IIC_{2g}$ cn 100-170 cm; 10YR 7/2; concreciones 10R 4/6 de 1-5 cm; franco; masivo; ligeramente plástico, ligeramente pegajoso; sin raíces; límite claro y suave.

$IIC_{3g}$ cn 170-185 cm; 5Y 7/1 y 50% concreciones 10R 3/4 de 1-5 cm; franco arcilloso, masivo; ligeramente plástico, ligeramente pegajoso; sin raíces.

| HTE | pH $H_2O$ | $Fe_2O_3$ % | C % | N % | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|---|
| $A_{1g}$ | 5.3 | 0.55 | 0.68 | 0.09 | 3 | 13 | 65 |
| $B_{21}$ | 4.7 | 0.57 | 0.10 | 0.02 | 2 | 18 | 72 |
| $B_{22}$ | 4.8 | 1.28 | 0.09 | 0.02 | 2 | 14 | 61 |
| $C_{1g}$ | 5.2 | 1.03 | 0.08 | 0.02 | 2 | 5 | 56 |
| $IIC_{2g}$ | 4.9 | 0.76 | 0.05 | 0.02 | 2 | 11 | 83 |
| $IIC_{3g}$ | 4.9 | 2.38 | 0.03 | 0.02 | 1 | 13 | 80 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.13 | 0.11 | 0.21 | 0.10 | 3.54 | 1.02 | 0.55 | 4.09 |
| 0.09 | 0.7 | 0.06 | 0.13 | 1.51 | 0.91 | 0.35 | 1.86 |
| 0.06 | 0.13 | 0.11 | 0.16 | 2.65 | 0.72 | 0.46 | 3.11 |
| 0.17 | 0.15 | 0.21 | 0.20 | 0.67 | 0.95 | 0.76 | 1.40 |
| 0.16 | 0.20 | 0.09 | 0.12 | 4.42 | 2.81 | 0.57 | 4.99 |
| 0.21 | 0.41 | 0.20 | 0.10 | 5.97 | 3.70 | 0.92 | 6.89 |

## SISTEMA DE TIERRA 212, Faceta 1

Clasificación: Dystropept ústico

Localización: A 1 hora de Arauca, hacia Arauquita, Colombia.

Posición Fisiográfica: Diques livianos en llanura de desborde.

Topografía: Pendiente 3-7%.

Drenaje: Bien drenado.

Vegetación: Iguá; majuaguaro; mastranto (Bosque).

Material Originario: Sedimentos aluviales mezclados.

Fuente: Cortés et al 1973, (24), perfil 5, pág.157 y otros.

$A_1$ 0-15 cm; 10YR 5/3; arenoso franco a franco; bloques medios moderados; ligeramente duro; poros y raíces frecuentes; mica muscovita más de 3%; límite neto, ondulado.

$B_{21}$ 15-30 cm; 10YR 5.5/3; arenoso franco; prismas, medios, débiles; friable; poros frecuentes; raíces frecuentes; mica muscovita más de 3%; límite neto, ondulado.

$B_{22}$ 30-54 cm; 10YR 5/4; arenoso franco; prismas gruesos, moderados; friable; ligeramente pegajoso; muchos poros; pocas raíces; límite neto y ondulado.

$B_{23}$ 54-150 cm+; 7.5YR 5/4; arenoso franco; bloques medios, moderados; friable; poros frecuentes; muy pocas raíces.

| HTE | pH $H_2O$ | $Fe_2O_3$ % | C % | N % | P kg/ha | S.B. % | S.Al % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.8 | 1.7 | 0.3 | 0.06 | 216 | 2 | 88 |
| $B_{21}$ | 4.5 | 1.5 | 0.2 | 0.05 | 189 | 2 | 92 |
| $B_{22}$ | 4.6 | 2.4 | 0.2 | 0.06 | 168 | 2 | 92 |
| $B_{23}$ | 4.7 | 3.0 | 0.2 | 0.05 | 77 | 3 | 92 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | |
|---|---|---|---|---|---|
| K | Na | H | Al | TBI | CIC |
| 0.10 | | 0.1 | 0.8 | 0.10 | 4.5 |
| 0.07 | | 0.1 | 0.9 | 0.07 | 3.9 |
| 0.10 | | 0.1 | 1.2 | 0.10 | 4.7 |
| 0.10 | 0.02 | - | 1.5 | 0.12 | 4.2 |

## SISTEMA DE TIERRA 212, Faceta 2

Clasificación: Psammaquent.

Localización: Fundo Hato Viejo, Arauca, Colombia.

Posición Fisiográfica: Diques naturales, cerca a caño.

Topografía: 1-3% pendiente.

Drenaje: Moderadamente drenado.

Vegetación: Majagüaro - Igüa - Mastranto (Bosque)

Material Originario: Sedimentos aluviales mezclados.

Fuente: Cortés et al, 1973,(24), perfil 6, pág.159 y otras.

A 0-22 cm, 10YR 5/4; arenoso franco; bloques medios, fuertes; duro, plástico; poros frecuentes; raíces abundantes; cutanes de hierro; límite neto y ondulado.

AC 22-70 cm; 10YR 5/3; moteados 2.5YR 3/4; franco arenoso; poros frecuentes; raíces abundantes; límite brusco y plano.

Coraza 70-96 cm; 10YR 5/6; capa dura de arenas cementadas por hierro, aluminio y manganeso; límite brusco y plano.

C 96-150 cm; 10YR 6/3; capa dura de material arenoso cementado por hierro, aluminio y manganeso.

| HTE | pH $H_2O$ | $Fe_2O_3$ % | C % | N % | P kg/ha | S.B. % | S.Al % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.8 | 2.7 | 0.4 | 0.06 | 216 | 2 | 88 |
| AC | 4.8 | 2.4 | 0.4 | 0.05 | 189 | 2 | 92 |
| Cor. | 5.0 | 21.6 | 0.1 | 0.06 | 168 | 2 | 92 |
| C | 4.8 | 0.3 | 0.1 | 0.05 | 77 | 3 | 92 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| - | | 0.10 | 0.05 | 0.2 | 0.9 | 0.15 | 6.3 |
| - | | 0.10 | 0.05 | 0.3 | 1.9 | 0.15 | 11.4 |
| 2.05 | | 0.10 | 0.08 | 0.1 | 0.5 | 2.19 | 12.9 |
| 1.36 | 0.25 | 0.10 | 0.05 | 0.1 | 1.1 | 1.66 | 8.9 |

## SISTEMA DE TIERRA 216, Faceta 1

Clasificación: Dystropept udóxico.

Localización: Granja San Luis, camino Florencia - Travesía, Edo. Caquetá, Colombia.

Posición Fisiográfica: Colinas de piedemonte.

Topografía: Quebrado a colinoso, pendiente local 25%, sobre ladera de colina.

Drenaje: Bien drenado.

Vegetación: Originalmente bosque lluvioso tropical, actualmente pasturas (Panicum maximum).

Material Originario: Gneiss, granitos, materiales coluviales y piroclásticos mezclados.

Fuente: Benavides, S.T. 1973,(25). Ph.D. Thesis; perfil 8, pág.201 y otras.

$A_1$ 0-16 cm; 10YR 4/3.5; arcilloso; bloques finos muy débiles; blando, friable; pegajoso, plástico; muchas raíces finas; muchas lombrices; límite claro y suave.

$B_{21}$ 16-85 cm; 5YR 4.5/6; poros moteados 7.5Y 6/4; arcilloso; prismática media débil; friable; muy pegajoso, muy plástico; muchos poros; sin barnices; pocas raíces finas; límite difuso.

$B_{22}$ 85-173 cm; 5YR 5/6; arcilloso; prismática fina débil; friable; muy pegajoso, muy plástico; muchos poros finos, sin barnices; límite difuso.

$B_3$ 173-208 cm; 5YR 7; arcillo arenoso; bloques medios débiles y tendencia a estructura de roca; muy friable; plástico y pegajoso; muchos poros finos; límite claro.

$C_1$ 202-228 cm; horizonte consistente de estructura de roca (estratificación horizontal) y materiales perdidos; arcillo arenoso; sin raíces; límite claro y sauve.

$C_2$ 228-247 cm; 2.5YR 4/6; arcillo arenoso; bloques medios débiles; muy friable, plástico y pegajoso; poros finos comúnes; en la parte más baja del horizonte hay una capa discontinua de nódulos aplanados rojo oscuro; límite claro y suave.

$C_3$ 247-350 m+; roca gneissica muy alterada y meteorizada.

| HTE | pH $H_2O$ | pH KCl | C % | N % | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.8 | 3.8 | 2.02 | 0.22 | 3.5 | 36 | 61 |
| $B_{21}$ | 4.7 | 3.7 | 0.51 | 0.08 | 0.9 | 10 | 90 |
| $B_{22}$ | 4.9 | 3.8 | 0.22 | 0.05 | 0.0 | 8 | 90 |
| $B_3$ | 4.9 | 3.7 | 0.15 | 0.03 | | 9 | 90 |
| $C_1$ | 4.9 | 3.7 | 0.08 | 0.02 | | 12 | 85 |
| $C_2$ | 4.9 | 3.7 | 0.09 | 0.02 | | 10 | 89 |
| $C_3$ | 4.9 | 3.8 | 0.07 | 0.02 | | 12 | 87 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.95 | 0.80 | 0.23 | 0.08 | 0.4 | 3.2 | 2.06 | 5.66 |
| 0.22 | 0.43 | 0.03 | 0.06 | 0.9 | 6.7 | 0.74 | 7.74 |
| 0.10 | 0.47 | 0.08 | 0.04 | 0.2 | 6.3 | 0.69 | 7.19 |
| 0.10 | 0.41 | 0.13 | 0.04 | 0.9 | 6.1 | 0.68 | 7.68 |
| 0.20 | 0.56 | 0.11 | 0.04 | 1.5 | 5.3 | 0.91 | 7.71 |
| 0.16 | 0.63 | 0.17 | 0.04 | 0.5 | 8.1 | 1.00 | 9.60 |
| 0.16 | 0.53 | 0.21 | 0.05 | 0.5 | 6.1 | 0.95 | 7.55 |

| HTE | Mn(*) | | Cu | | Zn | |
|---|---|---|---|---|---|---|
| | N.C. | Olsen | N.C. | Olsen | N.C. | Olsen |
| $A_1$ | 47.0 | 290 | 2.4 | 4.7 | 3.5 | 5.8 |
| $B_{21}$ | 3.6 | 26 | 1.3 | 3.4 | 0.8 | 2.5 |
| $B_{22}$ | 4.8 | 48 | 1.0 | 3.0 | 1.0 | 3.2 |

(*) Mn, Cu y Zn extraídos por soluciones North Carolina y Olsen modificada: en ppm.

## SISTEMA DE TIERRA 218, Faceta 1

Clasificación: Udoxic Dystropept.

Localización: Margen izquierda del río Vaupés, cerca a los cuarteles de la Armada, Municipio Miraflores, Edo. Vaupés, Colombia.

Posición Fisiográfica: Parte superior de colina, 70 m sobre el río Vaupés.

Topografía: Ondulado, pendiente local de 20%.

Drenaje: Bien drenado.

Vegetación: Originalmente bosque lluvioso tropical, actualmente pastos y arbustos.

Material Originario: Sedimentos Oligoceno - Mioceno.

Fuente: Benavides, S.T. 1973,(25); Ph.d. Thesis, perfil 1, pág.188 y otras.

$A_1$ 0-21 cm; 7.5YR 4/4; arcilloso; bloques medios moderados; friable, plástico, pegajoso; poros tubulares; raíces comúnes; límite plano y gradual.

$B_1$ 21-38 cm; 5YR 4/6; arcilloso; prismas finos débiles; friable, ligeramente plástico; poros tubulares; raíces comúnes; límite difuso.

$B_{21}$ 5YR 4/6; arcilloso a arcillo limoso; prismas finos débiles; friable; ligeramente plástico, ligeramente pegajoso; muchos poros; pocas raíces; límite difuso.

$B_{22}$ 100-150 cm; 5YR 7/4; arcilloso; prismática fina débil; friable; ligeramente plástico, ligeramente pegajoso; muchos poros.

$B_3$ 150-350 cm; 5YR 4/4; arcilloso; prismática media moderada; friable; plástico, pegajoso; comúnes poros.

| HTE | pH $H_2O$ | pH KCl | C % | N % | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.6 | 3.9 | 1.97 | 0.26 | 2.4 | 24 | 74 |
| $B_1$ | 4.5 | 3.8 | 1.22 | 0.17 | 0.9 | 14 | 84 |
| $B_{21}$ | 4.5 | 3.8 | 0.82 | 0.12 | 0.9 | 13 | 86 |
| $B_{22}$ | 4.7 | 4.0 | 0.34 | 0.07 | 0.4 | 14 | 85 |
| $B_{23}$ | 4.8 | 4.0 | 0.23 | 0.07 | 0.4 | 17 | 82 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.85 | 0.26 | 0.22 | 0.12 | 0.3 | 4.2 | 1.45 | 5.95 |
| 0.41 | 0.21 | 0.06 | 0.13 | 0.6 | 4.3 | 0.81 | 5.71 |
| 0.38 | 0.11 | 0.13 | 0.09 | 0.4 | 4.2 | 0.71 | 5.31 |
| 0.21 | 0.07 | 0.03 | 0.05 | 0.1 | 2.0 | 0.36 | 2.46 |
| 0.21 | 0.09 | 0.02 | 0.10 | 0.1 | 1.9 | 0.42 | 2.42 |

400

| HTE | Mn(*) | | Cu | | Zn | |
|---|---|---|---|---|---|---|
| | N.C. | Olsen | N.C. | Olsen | N.C. | Olsen |
| $A_1$ | 5.6 | 34 | 1.0 | 3.0 | 5.8 | 8.5 |
| $B_1$ | 3.8 | 26 | 1.0 | 3.0 | 5.6 | 10.0 |
| $B_{21}$ | 2.8 | 26 | 0.8 | 2.7 | 2.9 | 5.8 |

(*) Mn, Cu y Zn extraídos por soluciones North Carolina y Olsen modificadas en ppm.

NOTA: La faceta 1 del Land System 218 fue clasificada como Haplorthox por creerse (según varias fuentes) que esos son los suelos más ampliamente difundidos. No obstante, el perfil seleccionado está clasificado como Oxic Dystropept debido a que su horizonte B tiene más de 6% de mica, y por lo tanto debe considerárselo "cámbico" y no "óxico". Exceptuando esta condición, el resto de las características del suelo satisface los requerimientos de un Oxisol. Por lo tanto, a continuación se describe un Haplorthox para el mismo Land System.

## SISTEMA DE TIERRA 218, Faceta 1

Clasificación: Haplorthox.

Localización: 1° 16'N y 69° 37'W, a orillas del río Aiari, Mun. São Gabriel, Edo. Amazonas, Brasil.

Posición Fisiográfica: pendiente 3%.

Topografía: Suave ondulado.

Orenaje: Bien drenado.

Vegetación: Floresta densa, bosque lluvioso tropical.

Material Originario: Granitos, migmatitos y granodioritos Pre-Cámbricos.

Fuente: Proj. RADAMBRASIL, Vol.II, 1976,(12), perfil 7,pág. 215/6.

$A_1$ 0-15 cm; 10YR 4/4; franco arenoso; masivo, friable, ligeramente plástico y ligeramente pegajoso; límite gradual.

$A_3$ 15-35 cm; 10YR 6/6; franco arcillo arenoso; granular pequeña débil; friable; ligeramente plástico y ligeramente pegajoso; límite gradual.

$B_1$ 35-65 cm; 7.5YR 6/8; franco arcillo arenoso; granular pequeña débil; friable, ligeramente plástico, ligeramente pegajoso; límite difuso.

$B_{21}$ 65-95 cm; 7.5YR 6/8; franco arcillo arenoso; con grava; granular pequeña débil; friable, plástico y pegajoso; límite difuso.

$B_{22}$ 95-120 cm; 5YR 6/8; franco arcillo arenoso con grava; granular pequeña débil; friable, plástico y pegajoso; límite gradual.

$B_3$ 120-160 cm; 2.5YR 6/8; moteados 7.5YR 6/6; franco arcillo arenoso; granular pequeña débil; friable, plástico y pegajoso.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.9 | 4.0 | 1.43 | 0.11 | 1 | 6 | 78 |
| $A_3$ | 5.1 | 4.1 | 1.02 | 0.08 | < 1 | 3 | 90 |
| $B_1$ | 5.0 | 4.1 | 0.47 | 0.04 | < 1 | 4 | 91 |
| $B_{21}$ | 4.8 | 4.1 | 0.35 | 0.04 | < 1 | 4 | 92 |
| $B_{22}$ | 4.9 | 4.1 | 0.20 | 0.03 | < 1 | 4 | 90 |
| $B_3$ | 5.0 | 4.2 | 0.18 | 0.02 | < 1 | 5 | 88 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.08 | 0.13 | 0.13 | 0.03 | 4.14 | 1.32 | 0.37 | 5.83 |
| 0.04 | 0.03 | 0.04 | 0.03 | 3.52 | 1.32 | 0.14 | 4.98 |
| 0.04 | 0.01 | 0.03 | 0.03 | 1.83 | 1.13 | 0.11 | 3.07 |
| 0.04 | 0.01 | 0.02 | 0.03 | 1.37 | 1.13 | 0.10 | 2.60 |
| 0.04 | 0.01 | 0.02 | 0.03 | 1.39 | 0.95 | 0.10 | 2.44 |
| 0.04 | 0.01 | 0.02 | 0.03 | 1.27 | 0.76 | 0.10 | 2.13 |

## SISTEMA DE TIERRA 219, Faceta 1

Clasificación: Dystropept típico.

Localización: Km.2 del camino Leguizamo - La Tagua, Intendencia de Putumayo, Colombia.

Posición Fisiográfica: Parte superior de colina con 3%.

Topografía: Suave ondulado, pendiente 3-7%.

Orenaje: Bien drenado.

Vegetación: Originalmente bosque lluvioso tropical; actualmente pastos.

Material Originario: Sedimentos Post-Pleistocenos.

Fuente: Benavides, S.T., 1973,(25), Ph.D. Thesis, perfil 6, pág. 197 y otras.

$A_1$ 0-20 cm; 7.5YR 4/4; franco arcilloso; bloques finos moderados; duro, friable, ligeramente plástico, ligeramente pegajoso; poros comúnes; raíces comúnes finas; límite claro y suave.

$B_{21}$ 20-80 cm; 10YR 5/3; prismática media moderada; friable; muy pegajoso, muy plástico; pocas raíces finas; límite difuso.

$B_{21}cn$ 80-82 cm; capa dura discontinua de concreciones sesquioxidicas con forma reniforme; rojo oscuro y rojo amarillento; límite abrupto.

$B_{22}$ 82-133 cm; 5YR 4/6; arcilloso; prismática media moderada; friable; muy pegajoso, muy plástico; poros muy finos; pocas raíces finas; gradual, límite ondulado.

$IIB_3$ 133-173 cm; 5YR 4/8; moteados 10YR 5/6 y 10YR 8/3;prismática media moderada; friable, pegajoso, plástico; comúnes fragmentos duros de arcilla; límite claro y suave.

$IIC_1$ 173-215 cm; 2.5YR 4/4; moteados 2.5Y 6/4; franco arcillo arenoso; masivo con tendencia a bloques; friable; ligeramente pegajoso, ligeramente plástico; poros comúnes; límite claro y suave.

$IIC_2$ 215-243 cm; horizonte formado por fragmentos duros de arcilla clara y materiales blandos de gris claro (10YR 7/1) con consistencia friable, pegajoso y plástico. En el límite inferior hay una capa delgada color rojo, límite claro y suave.

$IIIC_3$ 243-265 cm; 5YR 5/4; franco arenoso, masivo; friable, ligeramente pegajoso, plástico; presencia de pequeños fragmentos de mica.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.9 | 3.8 | 1.39 | 0.17 | 3.0 | 41 | 58 |
| $B_{21}$ | 4.8 | 3.7 | 0.38 | 0.04 | 1.5 | 20 | 78 |
| $B_{22}$ | 4.8 | 3.7 | 0.21 | 0.10 | 0.4 | 10 | 89 |
| $IIB_{23}$ | 4.9 | 3.6 | 0.09 | 0.06 | | 7 | 92 |
| $IIC_1$ | 4.9 | 3.7 | 0.05 | 0.02 | | 6 | 92 |
| $IIC_2$ | 4.9 | 3.6 | 0.06 | 0.02 | | 8 | 92 |
| $IIIC_3$ | 4.9 | 3.7 | 0.07 | 0.02 | | 10 | 89 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 1.69 | 1.07 | 0.39 | 0.03 | 0.1 | 4.3 | 3.10 | 7.50 |
| 0.96 | 0.88 | 0.14 | 0.04 | 0.6 | 7.3 | 2.02 | 9.92 |
| 0.21 | 0.75 | 0.11 | 0.09 | 0.9 | 9.3 | 1.16 | 11.36 |
| 0.11 | 0.68 | 0.14 | 0.08 | 1.1 | 11.6 | 1.01 | 13.71 |
| 0.16 | 0.42 | 0.07 | 0.06 | 0.6 | 7.9 | 0.71 | 9.21 |
| 0.11 | 0.70 | 0.14 | 0.05 | 1.0 | 10.8 | 1.00 | 12.80 |
| 0.10 | 0.57 | 0.02 | 0.06 | 0.7 | 5.8 | 0.75 | 7.25 |

| HTE | Mn(*) | | Cu | | Zn | |
|---|---|---|---|---|---|---|
| | N.C. | Olsen | N.C. | Olsen | N.C. | Olsen |
| $A_1$ | 75 | 472 | 0.9 | 1.7 | 6.2 | 8.0 |
| $B_{21}$ | 18 | 168 | 1.0 | 2.7 | 1.2 | 3.5 |
| $B_{22}$ | 12 | 118 | 0.9 | 2.7 | 1.0 | 3.5 |

(*) Mn, Cu y Zn extraídos por soluciones North Caroline y Olsen modificadas en ppm.

## SISTEMA DE TIERRA 220, Faceta 1

Clasificación: Paleudult ácuico.

Localización: Base Naval, Municipio Leticia, Comisaría de Amazonas, Colombia.

Posición Fisiográfica: Parte media de pendiente de colina.

Topografía: Suave ondulado a ondulado, 3-5%.

Drenaje: Moderadamente bien drenado.

Vegetación: Originalmente bosque lluvioso tropical, actualmente arbustos y pastos.

Material Originario: Sedimentos Pleistocenos.

Fuente: Benavides, S.T., 1973,(25), Ph.D. Thesis, perfil 3, pág.192 y otras.

$O_1$ 2-0 cm; 10YR 3/2; hojas descompuestas mezcladas con algo de material mineral; algunos fragmentos de caracol.

$A_1$ 0-13 cm; 10YR 4.5/5; franco arcillo limoso; granular fina moderada; blando, muy friable; ligeramente plástico, ligeramente pegajoso; raíces y poros comúnes; muchas hormigas y lombrices; límite claro y suave.

$B_{21}$ 13-52 cm; 10YR 5.5/3, con moteados 10YR 7/1; arcillo limoso; bloques finos débiles; friable, plástico, pegajoso; pocas raíces; poros finos; barnices delgados; límite gradual y suave.

$B_{22}$ 52-105 cm, 5YR 5/6, 60%; 10YR 4/6, 20%; 2.5Y 7/2, 20%; arcilloso; prismática media débil; friable a firme; pegajoso, muy plástico; poros finos comúnes; pocas raíces; pocas películas de arcilla; límite difuso.

$B_{23}$ 105-142; 60% 5Y 7/2, 40% 2.5YR 3/6 y 2.5YR 5/6; arcilloso; prismas medios débiles; friable, pegajoso, muy plástico; poros comúnes; escasas raíces; clay skins discontinuos, delgados, comúnes; límite difuso.

$B_{24}$ 142-250 cm; 2.5Y 7/2 y 2.5YR 4/6; arcilloso; prismática media muy débil; friable, pegajosa, muy plástica; poros comúnes; muy pocas raíces.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.3 | 3.6 | 1.41 | 0.17 | 3.0 | 10 | 89 |
| $B_{21}$ | 4.6 | 3.8 | 0.38 | 0.07 | 0.9 | 9 | 90 |
| $B_{22}$ | 4.6 | 3.7 | 0.13 | 0.04 | 0.4 | 4 | 95 |
| $B_{23}$ | 4.8 | 3.7 | 0.10 | 0.04 | 0.4 | 4 | 96 |
| $B_{24}$ | 4.9 | 3.7 | 0.07 | 0.04 | 0.0 | 3 | 96 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.23 | 0.22 | 0.08 | 0.13 | 0.7 | 5.1 | 0.66 | 6.46 |
| 0.18 | 0.17 | 0.05 | 0.06 | 0.4 | 4.1 | 0.46 | 4.96 |
| 0.14 | 0.08 | 0.02 | 0.07 | 1.0 | 6.3 | 0.31 | 7.61 |
| 0.20 | 0.13 | 0.13 | 0.07 | 1.7 | 11.9 | 0.53 | 13.33 |
| 0.18 | 0.16 | 0.18 | 0.06 | 1.6 | 14.6 | 0.58 | 16.88 |

| HTE | Mn(*) | | Cu | | Zn | |
|---|---|---|---|---|---|---|
| | N.C. | Olsen | N.C. | Olsen | N.C. | Olsen |
| $A_1$ | 1.2 | 18 | 1.0 | 1.7 | 1.6 | 3.2 |
| $B_{21}$ | 0.6 | 8 | 0.8 | 1.3 | 0.8 | 2.2 |
| $B_{22}$ | 0.6 | 8 | 0.7 | 1.7 | 0.8 | 2.2 |

(*) Mn, Cu y Zn extraídos por soluciones North Carolina y Olsen modificadas en ppm.

NOTA: En el mismo Land System 220, en la zona de Jenaro Herrera, Depto. Loreto, Perú, hay disponible más información de suelos:

Promedio de propiedades químicas de 14 perfiles de suelos de Jenaro Herrera, Depto. Loreto, Perú. Fuente: García G. J. et al., 1975,(26), Cuadro 4. (A = suelo; B = subsuelo).

| HTE | pH $H_2O$ | M.O. % | N % | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|
| A | 3.5 | 4.81 | 0.22 | 5.0 | 56 | 43 |
| B | 3.6 | 2.13 | 0.12 | 1.2 | 49 | 50 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H + Al | TBI | CIC |
| 2.43 | 0.61 | 0.17 | 0.24 | 2.70 | 3.45 | 6.15 |
| 2.16 | 0.49 | 0.14 | 0.26 | 3.13 | 3.05 | 6.18 |

| HTE | Mn | Zn | B | Mo | Cu | Fe | S |
|---|---|---|---|---|---|---|---|
| | Disp. | ppm | Sol. | Total ppm | T o t a l | | % |
| A | 49.87 | 3.23 | 0.178 | 20.4 | 13.5 | 0.73 | 2.34 |
| B | 38.11 | 2.57 | 0.078 | 18.6 | 16.0 | 0.78 | 2.74 |

## SISTEMA DE TIERRA 221, Faceta 1

Clasificación: Tropaquult.

Localización: Hacienda "Lagunazo", zona Puerto Nuevo, Comisaría de Vichada, Colombia.

Posición Fisiográfica: Terraza baja del río Meta.

Topografía: Plano, pendiente 0-1%.

Drenaje: Muy pobremente drenado.

Vegetación: Sabana.

Fuente: FAO, Rec. Edaf. Llanos Orientales, 1965,(23), perfil P-8, pág.165/6.

$A_{11}g$ 0-15 cm; N 2/0, franco limoso; magajones finos débiles; muy friable, no pegajoso, no plástico; muchos poros muy finos; abundantes raíces; límite claro y suave.

$IIA_{12}g$ 15-42 cm; 10YR 2/2; arcilloso; prismas gruesos y moderados; clay skins; firme, plástico y pegajoso; escasas raicillas; límite gradual y ondulado.

$IIB_2g$ 42-95 cm; 10YR 4/1 y 10YR 5/6; arcilloso; prismas medios moderados; clay skins; friable, plástico y pegajoso; escasas raicillas; límite gradual y ondulado.

IIICg 95 cm+; 10YR 5/1 y 10YR 6/8; arcillo limoso; masivo; friable; muy pegajoso, muy plástico, algunos poros; sin raíces.

| HTE | pH $H_2O$ | C % | N % | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|
| $A_{11}$ | 5.2 | 9.72 | 1.23 | 0.9 | 2 | 67 |
| $IIA_{12}$ | 4.7 | 3.44 | 0.37 | 8.2 | 2 | 90 |
| $IIB_2$ | 4.6 | 1.19 | 0.11 | 0.9 | 3 | 92 |
| IIIC | 5.2 | 0.42 | 0.04 | - | 12 | 77 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.12 | 0.26 | 0.35 | 0.23 | 41.3 | 1.86 | 0.96 | 42.3 |
| 0.12 | 0.26 | 0.12 | 0.15 | 29.6 | 5.16 | 0.65 | 30.3 |
| 0.13 | 0.28 | 0.14 | 0.06 | 17.8 | 7.35 | 0.61 | 18.4 |
| 0.15 | 0.36 | 0.18 | 0.26 | 6.8 | 3.11 | 0.95 | 7.7 |

## SISTEMA DE TIERRA 223, Faceta 1

Clasificación: Fluvaquent.

Localización: 01° 25' N y 68° 37' W. Municipio São Gabriel, Edo. Amazonas, Brasil.

Posición Fisiográfica: Varzea.

Topografía: Plano.

Drenaje: Mal drenado.

Vegetación: Campinarama.

Material Originario: Sedimentos holocénicos.

Fuente: Proj. RADAMBRASIL, Vol.11, 1976,(12), perfil 26, pág. 228/9.

$A_1$ 0-20 cm; 10YR 6/1; franco arcillo limoso; granular pequeña débil; firme, plástico y pegajoso; límite gradual.

$C_1g$ 20-50 cm; 10YR 7/1; moteado 10YR 6/8; franco arcillo limoso; masivo; firme; plástico y pegajoso; límite difuso.

$C_2g$ 50-85 cm; 10YR 7/1; moteados 10YR 6/8; franco arcillo limoso; masivo, firme, plástico y pegajoso; límite gradual.

$C_3g$ 85-120 cm; 10YR 6/1; moteado 2.5YR 4/8; franco arcillo limoso; masivo, firme; plástico y pegajoso.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 3.9 | 3.5 | 0.70 | 0.09 | 2 | 2 | 97 |
| $C_1g$ | 4.3 | 3.5 | 0.52 | 0.06 | 2 | 2 | 97 |
| $C_2g$ | 4.3 | 3.6 | 0.24 | 0.07 | 1 | 2 | 97 |
| $C_3g$ | 4.3 | 3.5 | 0.31 | 0.06 | < 1 | 2 | 97 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.03 | 0.05 | 0.05 | 0.03 | 1.37 | 5.40 | 0.16 | 6.93 |
| 0.02 | 0.04 | 0.04 | 0.04 | 1.07 | 5.20 | 0.14 | 6.41 |
| 0.05 | 0.04 | 0.04 | 0.04 | 1.10 | 6.00 | 0.17 | 7.27 |
| 0.05 | 0.04 | 0.04 | 0.04 | 1.10 | 6.00 | 0.17 | 7.27 |

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## SISTEMA DE TIERRA 225, Faceta 1 (mod. bien drenada)

Clasificación: Plinthudult.

Localización: 1° 37'S y 68° 07'W, Municipio Japurá, Estado de Amazonas, Brasil.

Posición Fisiográfica: Lugar plano.

Topografía: 0-2% pendiente.

Drenaje: Moderadamente drenada.

Vegetación: Floresta abierta.

Material Originario: Sedimentos Formación Solimoes, Terciario - Cuaternario.

Fuente: Proj. RADAMBRASIL, Vol.14, 1977,(15), perfil 29, pág.222/3.

$A_1$ 0-5 cm; 7.5YR 5/2; franco; granular pequeña débil; suelto, no plástico y no pegajoso; límite claro.

$A_3$ 5-35 cm; 10YR 5/6; franco arcilloso; granular pequeña débil; friable; ligeramente plástico y ligeramente pegajoso; límite claro.

$B_1$ 35-65 cm; 7.5YR 5/8; franco arcilloso; granular pequeña débil; ligeramente duro, firme, plástico y pegajoso; límite difuso.

$B_{21}pl$ 65-140 cm; 7.5YR 5/8; moteados 2.5Y 7/6; arcilloso; bloques medios, moderados; ligeramente duro, firme, plástico y pegajoso.

$B_{22}pl$ 140-180 cm; 2.5YR 6/8; moteado 10YR 5/8 y 7.5YR 6/6; arcilloso; bloques medios moderados; duro, firme, muy plástico y pegajoso.

OBS.: Pocos clay skins en $B_1$ y $B_{21}pl$. Raíces comúnes en $A_1$ y $A_3$, pocas en $B_1$.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 3.9 | 3.0 | 6.69 | 0.56 | 20 | 5 | 78 |
| $A_3$ | 3.7 | 3.5 | 1.30 | 0.12 | 7 | 5 | 88 |
| $B_1$ | 4.4 | 3.6 | 0.44 | 0.12 | 4 | 6 | 91 |
| $B_{21}$ | 4.7 | 3.6 | 0.27 | 0.11 | 2 | 7 | 90 |
| $B_{22}$ | 4.9 | 3.6 | 0.23 | 0.10 | 3 | 6 | 93 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.9 | 0.2 | 0.31 | 0.03 | 19.7 | 5.0 | 1.4 | 26.1 |
| 0.5 | | 0.06 | 0.01 | 6.3 | 4.6 | 0.6 | 11.5 |
| 0.5 | | 0.02 | 0.01 | 2.8 | 5.1 | 0.5 | 8.4 |
| 0.5 | | 0.02 | 0.06 | 2.2 | 5.5 | 0.6 | 8.3 |
| 0.5 | | 0.05 | 0.01 | 2.1 | 7.4 | 0.6 | 10.1 |

## SISTEMA DE TIERRA 226, Faceta 1

Clasificación: Haplorthox.

Localización: Lat.0°35' S, Long.65°47'W; Municipio Isla Grande, Estado Amazonas, Brasil.

Posición Fisiográfica: Tercio superior de elevación.

Topografía: Suave ondulado, 5% pendiente.

Drenaje: Bien drenado.

Vegetación: Contacto campinarama/Floresta densa.

Material Originario: Sedim. Formación Solimoes, Terciario-Cuaternario.

Fuente: Proj. RADAMBRASIL, Vol.13,1978,(19), perfil 4, pág. 272/3.

$A_1$ 0-20 cm; 10YR 4/3; franco arenoso; granular pequeña débil; muy friable, ligeramente plástico, ligeramente pegajoso; límite gradual.

$A_3$ 20-50 cm; 10YR 5/4; franco arcillo arenoso; granular pequeña débil; muy friable, ligeramente plástico, ligeramente pegajoso; límite difuso.

$B_1$ 50-80 cm; 10YR 6/6; franco arenoso; masivo; friable, ligeramente plástico, ligeramente pegajoso; límite difuso.

$B_{21}$ 80-110 cm; 10YR 6/8; franco arcillo arenoso; masivo tendencia a granular; friable, plástico y pegajoso; límite difuso.

$B_{22}$ 110-150 cm; 10YR 7/6; franco arcillo arenoso; masivo tendencia granular; friable; ligeramente plástico y ligeramente pegajoso; límite difuso.



$B_{23}$ 150-170 cm; 10YR 8/6; franco arcillo arenoso; masivo tendencia granular; friable, ligeramente plástico y ligeramente pegajoso.

OBS.: Raíces abundantes en $A_1$, muchas en $A_3$, comúnes en $B_1$ y y $B_{21}$, pocas en $B_{22}$ y $B_{23}$.

| HTE | pH | | C | M.O. | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.1 | 3.8 | 1.3 | 2.24 | 12 | 8 | 77 |
| $A_3$ | 4.1 | 3.9 | 1.0 | 1.72 | 9 | 9 | 77 |
| $B_1$ | 3.8 | 3.7 | 0.6 | 1.03 | 6 | 8 | 77 |
| $B_{21}$ | 3.8 | 3.7 | 0.3 | 0.52 | 6 | 11 | 81 |
| $B_{22}$ | 3.8 | 3.8 | 0.1 | 0.17 | 3 | 8 | 86 |
| $B_{23}$ | 3.9 | 3.8 | 0.4 | 0.69 | 3 | 23 | 86 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.22 | 0.14 | 0.10 | 0.22 | 2.81 | 2.33 | 0.68 | 8.30 |
| 0.35 | 0.13 | 0.07 | 0.22 | 2.76 | 2.51 | 0.77 | 8.27 |
| 0.25 | 0.02 | 0.05 | 0.26 | 3.12 | 2.91 | 0.85 | 6.78 |
| 0.27 | 0.08 | 0.05 | 0.24 | 2.96 | 2.77 | 0.64 | 5.78 |
| 0.15 | 0.02 | 0.04 | 0.22 | 2.81 | 2.71 | 0.43 | 5.03 |
| 0.40 | 0.02 | 0.56 | 0.22 | 2.44 | 2.29 | 1.20 | 5.14 |

## SISTEMA DE TIERRA 227, Faceta 1

Clasificación: Tropaquod - Podzol Hidromórfico.

Localización: Lat.7°03' S y Long.72°39' W. Municipio Ipixuna, Edo. Amazonas, Brasil.

Posición Fisiográfica: Lugar plano.

Drenaje: Mal drenado.

Vegetación: Campinarama.

Material Originario: Sedimentos arenosos de la Formación Solimoes, Plio-Pleistoceno.

Fuente: Proj. RADAMBRASIL, Vol.13, 1977,(14), perfil 22, pág.224/5.

$O_2$ 10-0 cm; hojas, ramitas y raíces en descomposición.

$A_1$ 0-40 cm; 7.5YR 2.5/; franco arenoso; masivo; suelto ligeramente plástico y ligeramente pegajoso; límite claro.

$A_2$ 40-60 cm; 10YR 6/2; franco arenoso; grano simple; suelto, no plástico y no pegajoso; límite abrupto.

Bhir 60-120 cm; 10YR 3/1; franco arenoso; masivo poco coherente; suelto; no plástico y no pegajoso; límite claro.

$B_3$ 120-150 cm; 7.5YR 4/2; franco arenoso; grano simple; suelto, no plástico y no pegajoso; límite gradual.

C 150-170 cm; 10YR 7/2; franco limoso; masivo; suelto; no plástico y no pegajoso.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $O_2$ | | | >20.0 | | | | |
| $A_1$ | 3.8 | 2.5 | 16.5 | 0.53 | - | 2 | 37 |
| $A_2$ | 4.7 | 3.2 | 0.2 | 0.01 | - | 20 | 33 |
| $Bhi_1$ | 4.1 | 3.0 | 0.6 | 0.02 | - | 4 | 81 |
| $B_3$ | 4.9 | 4.0 | 0.5 | 0.02 | - | 4 | 82 |
| C | 5.1 | 4.2 | 0.5 | 0.02 | - | 8 | 81 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.10 | 0.08 | 0.14 | 0.03 | 29.4 | 0.3 | 0.51 | 30.00 |
| 0.08 | 0.03 | 0.01 | 0.01 | 0.8 | 0.1 | 0.20 | 1.00 |
| 0.05 | 0.03 | 0.01 | 0.01 | 4.6 | 0.8 | 0.19 | 4.80 |
| 0.05 | 0.01 | 0.01 | 0.01 | 4.1 | 0.8 | 0.18 | 4.30 |
| 0.12 | 0.01 | 0.01 | 0.01 | 3.5 | 1.3 | 0.30 | 3.80 |

## SISTEMA DE TIERRA 228, Faceta 1

Clasi ación: Podzólico Vermelho Amarelo Eutrófico - Tropudalf.

Localización: Lat.7°37' S, Long.73°47' W. Municipio Cruzeiro do Sul, Edo. Acre, Brasil.

Posición Fisiográfica: Colinas altas; tercio inferior de ladera, con pendiente de 20%.

Relieve: fuerte ondulado.

Drenaje: Bien drenado.

Vegetación: Floresta densa.

Mat. Originario: Siltito de Formación Ramón, Cretáceo.

Fuente: Proj. Radambrasil, Vol.13, 1977,(14), perfil 44, pág.182/3.

$A_1$ 0-10 cm; 2.5YR 3/4; franco arcillo limoso; granular pequeña moderada; friable, plástico y pegajoso.

$B_1$ 10-35cm; 1.5YR 3/6; franco arcillo limoso; bloques pequeños débiles; friable, plástico y pegajoso.

$B_{21}$ 35-70 cm; 10YR 3/6; arcilloso limoso; bloques pequeños moderados; friable a firme; muy plástico y pegajoso.

$B_{22}$ 70-90 cm; 10R 3/6; arcillo limoso; bloques pequeños moderados; firme, muy plástico y muy pegajoso.

OBS.: Raíces abundantes en $A_1$ y $B_1$; comúnes en B .

| HTE | pH | | C | M.O. | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 6.6 | 6.0 | 4.3 | 7.41 | 48 | 93 | 1 |
| $B_1$ | 6.3 | 5.6 | 1.7 | 2.93 | 21 | 88 | 2 |
| $B_{21}$ | 6.1 | 4.9 | 0.7 | 1.20 | 21 | 89 | 2 |
| $B_{22}$ | 7.5 | 6.3 | 0.5 | 0.80 | 405 | 96 | 1 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 16.1 | 6.27 | 0.38 | 0.10 | 1.52 | 0.26 | 22.9 | 24.7 |
| 11.6 | 4.37 | 0.58 | 0.07 | 1.78 | 0.38 | 16.6 | 18.8 |
| 16.5 | 1.82 | 0.45 | 0.09 | 1.96 | 0.46 | 18.9 | 21.3 |
| 20.9 | 0.90 | 0.10 | 0.22 | 0.83 | 0.13 | 22.1 | 32.1 |

## SISTEMA DE TIERRA 229, Faceta 1

Clasificación: Podzólico Vermelo Amarelo Alico - Tropudult.

Localización: Lat.8 08'S y Long.72 39'W. Municipio de Cruzeiro do Sul, Edo. Acre, Brasil.

Posición Fisiográfica: Cima de elevación, con pendiente de 20 .

Topografía: Fuertemente ondulada.

Drenaje: Moderadamente drenado.

Vegetación: Floresta abierta.

Mat. Originario: Sedimentos Formación Solimoes, Plio-Pleistocenos.

Fuente: Proj. Radambrasil, Vol.13, 1977,(14), perfil 60, pág.208.

$A_1$ 0-15 cm. Pardo amarillento (10YR 5/4); franco arenoso; estructura granular débil muy pequeña a grano simple; muy friable; no plástico y no pegajoso; límite difuso.

$A_3$ 15-35 cm. Pardo amarillento (10YR 5/6); franco arenoso; estructura granular pequeña débil; muy friable; no plástico y no pegajoso; límite gradual.

$B_1$ 35-60 cm. Pardo fuerte (7.5YR 5/6); franco arenoso; estructura granular débil pequeño y bloques subangulares; friable; ligeramente plástico y no pegajoso; límite gradual.

$B_2$ 60-80 cm. Rojo amarillento (5YR 5/6); franco arcillo arenoso; estructura en bloques subangulares moderada muy pequeña y también angulares; friable; ligeramente plástico y ligeramente pegajoso; límite difuso.

$B_3$ 80-100 cm. Rojo (2.5YR 4/6); pocos moteados prominentes amarillos (10YR 7/6); franco arcilloso; estructura en bloques subangulares débiles muy pequeños; firme; ligeramente plástico y pegajoso; límite difuso.

Nota: Raíces comúnes en $A_1$ y $A_3$; pocas en los demás horizontes.

| HTE | pH | | C | N | S.B. | S.Al |
|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | % | % |
| $A_1$ | 5.6 | 4.3 | 0.50 | 0.05 | 25 | 62 |
| $A_3$ | 5.2 | 4.1 | 0.30 | 0.04 | 17 | 84 |
| $B_1$ | 4.9 | 4.2 | 0.20 | 0.03 | 5 | 92 |
| $B_2$ | 4.9 | 4.1 | 0.20 | 0.03 | 6 | 92 |
| $B_3$ | 5.1 | 4.0 | 0.20 | 0.04 | 5 | 93 |
| C | 4.6 | 3.9 | 0.10 | 0.03 | 6 | 91 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.10 | 0.04 | 0.06 | 0.13 | 1.13 | 0.6 | 0.37 | 1.50 |
| 0.05 | 0.16 | 0.05 | 0.03 | 1.49 | 1.6 | 0.31 | 1.80 |
| 0.06 | 0.09 | 0.03 | 0.01 | 3.99 | 2.3 | 0.21 | 4.20 |
| 0.08 | 0.18 | 0.04 | 0.01 | 4.91 | 3.3 | 0.29 | 5.20 |
| 0.10 | 0.12 | 0.03 | 0.01 | 5.67 | 4.2 | 0.33 | 6.00 |
| 0.12 | 0.20 | 0.06 | 0.01 | 6.56 | 4.5 | 0.44 | 7.00 |

Cont.

| GRANULOMETRIA % | | | | | | | |
|---|---|---|---|---|---|---|---|
| Grava | Arena m.gruesa | Arena Gruesa | | Arena 1/2 | Arena Fina | | |
| > 2mm. | 2-1 mm. | mm 1-0.5 | mm 2-0.2 | mm 0.5-0.25 | mm 0.25-0.1 | mm 0.2-0.02 | mm 0.2-0.05 |
| 0 | 0.2 | 7.2 | 42.7 | 29.8 | 24.3 | 45.5 | 28.7 |
| 0 | 0.5 | 5.4 | 33.2 | 22.5 | 20.7 | 39.4 | 27.1 |
| 0 | 0.6 | 4.9 | 29.9 | 20.7 | 18.0 | 36.5 | 24.7 |
| 0 | 0.6 | 4.2 | 27.6 | 19.3 | 16.5 | 31.1 | 22.1 |
| 0 | 0.6 | 4.5 | 25.1 | 17.2 | 13.6 | 25.9 | 17.9 |
| 0 | 0.4 | 6.8 | 30.1 | 19.4 | 11.0 | 19.7 | 11.7 |

Cont.

| GRANULOMETRIA % | | | | | | |
|---|---|---|---|---|---|---|
| Arena muy fina 0.1-0.05 | Limo | | Arcilla | % | % | |
| | mm 0.05-0.02 | mm 0.02-0.002 | mm <0.002 | Arcilla natural | Grado de Floculac. | Limo Arcilla |
| 9.9 | 20.3 | 10.9 | 8.3 | 1.4 | 83 | 2.45 |
| 11.2 | 26.5 | 14.2 | 13.2 | 2.7 | 80 | 2.01 |
| 10.4 | 26.1 | 14.3 | 19.3 | 6.3 | 67 | 1.35 |
| 9.1 | 22.6 | 13.6 | 27.7 | 2.7 | 90 | 0.82 |
| 7.1 | 20.4 | 12.4 | 36.6 | 3.8 | 90 | 0.55 |
| 4.2 | 20.9 | 12.9 | 37.3 | 6.8 | 82 | 0.56 |

## SISTEMA DE TIERRA 230, Faceta 1

Clasificación: Gley Pouco Humico Eutrófico - Tropaquept.

Localización: Frente a la ciudad de Cruzeiro do Sul, Edo. Acre, Brasil.

Posición Fisiográfica: Terraza en la margen derecha del río Juruá.

Topografía: Plano.

Drenaje: Imperfectamente drenado.

Vegetación: Floresta abierta aluvial.

Mat. Originario: Sedimentos inconsolidados del Holoceno.

Fuente: Proj. Radambrasil, Vol.13, 1977,(14), perfil 50, pág. 221.

$A_1$ 0-8 cm. Pardo muy claro ceniciento (10YR 7/4); arcillo limoso; estructura granular pequeña débil; friable; plástico y pegajoso; límite claro.

$A_3$ 8-30 cm. Gris claro (10YR 7/1); moteados medios comúnes prominentes (7.5YR 5/8); arcillo limoso; estructura débil pequeña granular; duro, firme, plástico y pegajoso; límite gradual.

$C_1g$ 30-100 cm. Gris claro (5YR 7/1); pocos moteados pequeños prominentes pardo oscuro (7.5YR 4/4); arcillo limoso; duro, firme; plástico y pegajoso; límite difuso.

$C_2g$ 100-170 cm. Gris claro (5YR 7/1); pocos moteados pequeños prominentes pardo oscuro (7.5YR 4/4); franco arcillo limoso; duro, firme; plástico y pegajoso.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.0 | 3.8 | 3.60 | 0.68 | 8 | 80 | 8 |
| $A_3$ | 4.7 | 4.0 | 0.82 | 0.17 | 4 | 87 | 7 |
| $C_1g$ | 5.0 | 3.9 | 0.17 | 0.06 | 5 | 89 | 9 |
| $C_2g$ | 5.0 | 3.9 | 0.27 | 0.04 | 12 | 93 | 4 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 51.4 | 5.87 | 0.46 | 0.08 | 9.39 | 4.80 | 57.8 | 72.0 |
| 51.4 | 4.95 | 0.15 | 0.09 | 3.85 | 4.40 | 56.5 | 64.8 |
| 59.0 | 6.33 | 0.12 | 0.23 | 1.35 | 6.40 | 65.6 | 73.4 |
| 47.0 | 6.33 | 0.11 | 0.27 | 1.79 | 2.00 | 53.8 | 57.6 |

## SISTEMA DE TIERRA 250, Faceta 1

Clasificación : Suelo litólico distrófico - Troporthent.

Localización : Lat.03°35'N - Long.63°47'W.Gr. Brasil.

Posición Fisiográfica : Planalto arenítico, parte superior.

Topografía : Suave ondulado, pendiente 3%.

Drenaje : Bien drenado.

Vegetación : Arbustiva y graminosa, de altitud.

Mat. Originario : Producto de descomposicion de Arenisca Roraima.

Fuente : Proj. Radambrasil, Vol.8, 1975( 9 ); perfil 12, pág. 260/1.

$A_1$ 0-20 cm; 10YR 5/2; franco limoso; granular pequeña débil; friable.

$A_3$ 20-40 cm; 10YR 5/3 ; franco; granular pequeña débil;friable.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 3.8 | 3.1 | 1.61 | 0.15 | 1 | 4 | 91 |
| $A_3$ | 4.2 | 3.5 | 0.79 | 0.07 | < 1 | 2 | 98 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.05 | 0.24 | 0.15 | 0.04 | 6.38 | 5.12 | 0.48 | 11.98 |
| 0.02 | 0.09 | 0.05 | 0.03 | 2.86 | 4.92 | 0.19 | 7.97 |

## SISTEMA DE TIERRA 251, Faceta 1

Clasificación : Arenas Cuarzosas Hidromórficas Distróficas Quartzipsamment.

Localización : Lat.01 50'N - Long.61 20'W.Gr. Brasil.

Posición Fisiográfica : Area plana.

Topografía : Plano; pendiente 0-2 .

Mat. Originario : Sedimentos arenosos del Cuaternario.

Drenaje : Mal drenado.

Vegetación : Formación pionera.

Fuente : Proj. Radambrasil, Vol.9, 1975( 9); perfil 54, pág. 257/8.

$A_{11}$ 0-12 cm; 5Y 3/1 ; franco arenoso; granular pequeña débil; friable; límite gradual y plano.

$A_{12}$ 12-25 cm; 5Y 3/1 ; franco arenoso; granular pequeña débil; friable; límite gradual y plano.

$C_1$ 25-40 cm; 5Y 4/3 ; franco arenoso; grano simple; suelto; límite gradual y plano.

$C_2$ 40-90 cm; 5Y 6/3; franco arenoso; grano simple; suelto; límite claro y plano.

$C_3$ 90-110 cm; 5Y 7/3; franco arenoso; grano simple; suelto; límite claro y plano.

$C_4$ 110-150 cm; 5Y 7/4; franco arenoso; grano simple;suelto.

OBS.: Muchas raices finas en $A_{11}$ y $A_{12}$; mucha actividad biológica en $A_{11}$ y $A_{12}$

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | | | ppm | % | % |
| $A_{11}$ | 5.6 | 4.2 | 2.35 | 0.20 | 2 | 4 | 80 |
| $A_{12}$ | 5.7 | 4.2 | 1.02 | 0.08 | < 1 | 2 | 88 |
| $C_1$ | 5.2 | 4.1 | 0.32 | 0.03 | < 1 | 5 | 85 |
| $C_2$ | 5.1 | 4.1 | 0.23 | 0.02 | < 1 | 6 | 86 |
| $C_3$ | 5.0 | 4.6 | 0.31 | 0.02 | < 1 | 5 | 80 |
| $C_4$ | 4.8 | 4.3 | 0.14 | 0.02 | 2 | 6 | 81 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.02 | 0.04 | 0.14 | 0.05 | 5.76 | 1.00 | 0.25 | 7.01 |
| 0.02 | 0.03 | 0.04 | 0.01 | 4.15 | 0.80 | 0.10 | 5.05 |
| 0.02 | 0.03 | 0.03 | 0.02 | 1.38 | 0.60 | 0.10 | 2.08 |
| 0.02 | 0.03 | 0.03 | 0.01 | 0.88 | 0.60 | 0.09 | 1.57 |
| 0.02 | 0.03 | 0.03 | 0.02 | 1.41 | 0.40 | 0.10 | 1.91 |
| 0.02 | 0.03 | 0.03 | 0.01 | 0.92 | 0.40 | 0.09 | 1.41 |

## SISTEMA DE TIERRA 252, Faceta 1

Clasificación : Latossolo Vermelho Amarelo Distrófico - Haplorthox.

Localización : 00°42'N - Long.65°06'W.Gr. Brasil.

Posición Fisiográfica : Tercio superior de elevación.

Topografía : Suave ondulado, pendiente 3-5%.

Drenaje : Bien drenado.

Vegetación : Floresta densa.

Mat. Originario : Productos de descomposición de granitos y gneisses del Pre-cambrico.

Fuente : Proj. Radambrasil, Vol.8, 1975( 9 ); perfil 60;pág. 214/5.

$A_1$ 0-20 cm; 7 5YR 4/4 ; franco arcillo arenoso; granular pequeña débil; friable; límite plano y gradual.

$A_3$ 20-50 cm; 7.5YR 5/6; franco arcilloso; granular pequeña débil; friable; límite plano y difuso.

$B_1$ 50-65; 7.5YR 5/8; franco arcilloso; masivo; friable; límite plano y gradual.

$B_{21}$ 65-85 cm; 5YR 5/6; arcilloso; masivo poroso; friable; límite plano y difuso.

$B_{22}$ 85-120 cm; 5YR 5/8; arcilloso; masivo poroso; friable; límite plano y difuso.

$B_{23}$ 120-165 cm; 5YR 5/8; arcilloso; masivo poroso; friable.

OBS.: Raíces comúnes y finas en el $A_1$ y raras en el $A_3$.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 3.9 | 3.8 | 1.30 | 0.10 | 1 | 3 | 86 |
| $A_3$ | 4.8 | 3.9 | 0.83 | 0.06 | < 1 | 3 | 92 |
| $B_1$ | 4.1 | 4.0 | 0.61 | 0.04 | < 1 | 3 | 93 |
| $B_{21}$ | 4.4 | 4.1 | 0.50 | 0.03 | < 1 | 4 | 88 |
| $B_{22}$ | 4.6 | 4.3 | 0.46 | 0.02 | < 1 | 3 | 89 |
| $B_{23}$ | 4.9 | 4.2 | 0.43 | 0.02 | < 1 | 5 | 81 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.06 | 0.07 | 0.08 | 0.02 | 4.83 | 1.60 | 0.23 | 6.66 |
| 0.03 | 0.04 | 0.04 | 0.02 | 2.85 | 1.60 | 0.13 | 4.58 |
| 0.01 | 0.03 | 0.03 | 0.02 | 2.26 | 1.20 | 0.09 | 3.55 |
| 0.02 | 0.02 | 0.03 | 0.03 | 1.84 | 0.80 | 0.10 | 2.74 |
| 0.01 | 0.02 | 0.03 | 0.01 | 1.54 | 0.60 | 0.07 | 2.21 |
| 0.02 | 0.02 | 0.03 | 0.02 | 1.41 | 0.40 | 0.09 | 1.90 |

## SISTEMA DE TIERRA 253, Faceta 1

Clasificación : Latossolo Amarelo Alico - Haplorthox

Localización : Lat.0°22'S - Long.62°45'W.Gr. Brasil.

Posición Fisiográfica : Suave elevación.

Topografía : Suave ondulado, pendiente 2-3%.

Drenaje : Bien drenado.

Vegetación : Floresta densa.

Fuente : Proj. Radambrasil, Vol.18, 1978(19); perfil 26, pág. 273.

$A_1$ 0-18 cm; 10YR 5/3; arcilloso pesado; granular pequeña débil; muy friable; límite gradual.

$A_3$ 18-35 cm; 10YR 6/4 ; arcilloso pesado; granular pequeña débil; friable; límite claro.

$B_1$ 35-45 cm; 7.5YR 6/6; arcilloso pesado; granular pequeña débil; friable; transición gradual.

$B_{21}$ 45-120 cm; 7.5YR 7/6; arcilloso pesado; granular pequeña débil; friable; límite gradual.

$B_{22}$ 20-170 cm; 7.5YR 8/6; arcilloso pesado; granular pequeña débil; friable.

| HTE | pH | | C | M.O. | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | | % | ppm | % | % |
| $A_1$ | 3.7 | 3.7 | 2.9 | 5.00 | 6 | 4 | 88 |
| $A_3$ | 4.1 | 3.8 | 1.7 | 2.93 | 3 | 4 | 89 |
| $B_1$ | 4.2 | 3.8 | 0.7 | 1.21 | 3 | 6 | 89 |
| $B_{21}$ | 4.2 | 3.8 | 0.5 | 0.86 | 3 | 7 | 88 |
| $B_{22}$ | 4.6 | 3.8 | 0.3 | 0.52 | 3 | 8 | 84 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.15 | 0.17 | 0.08 | 0.22 | 4.97 | 4.51 | 0.62 | 13.50 |
| 0.12 | 0.08 | 0.04 | 0.18 | 3.85 | 3.54 | 0.42 | 9.30 |
| 0.17 | 0.11 | 0.02 | 0.14 | 3.67 | 3.45 | 0.44 | 7.42 |
| 0.17 | 0.08 | 0.03 | 0.16 | 3.41 | 3.10 | 0.44 | 6.66 |
| 0.15 | 0.08 | 0.03 | 0.22 | 2.86 | 2.58 | 0.48 | 6.24 |

## SISTEMA DE TIERRA 254, Faceta 1

Clasificación : Podzol Hidromórfico - Tropaquod.

Localización : Lat.00°56' - Long. 61°00'W.Gr. Brasil.

Posición Fisiográfica : Area plana.

Topografía : Plano, pendiente 0-2%.

Drenaje : Imperfectamente drenado.

Vegetación : Formación pionera.

Fuente : Proj. Radambrasil, Vol.8, 1975( 9 ); perfil 64, pág. 247/8.

$A_1$ 0-20 cm; 10YR 5/2; arenoso; grano simple; suelto; límite claro y plano.

$A_2$ 20-120 cm; 5YR 8/1; arenoso; grano simple; suelto; límite plano y abrupto.

Bh 120-140 cm; 5YR 2.5/1; arenoso franco; masivo; muy friable; límite abrupto.

$IIC_1$ 140-155; 7.5YR 4/2; franco arcillo arenoso; masivo muy friable; límite claro.

$IIIC_2$ 155-170 cm; 7.5YR 6/2; franco arcillo arenoso; masivo; muy friable.

OBS.: Raíces pocas y finas en $A_1$.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.3 | 3.8 | 0.39 | 0.01 | 1 | 16 | 81 |
| $A_2$ | 5.8 | 4.4 | 0.24 | 0.01 | 1 | 30 | 57 |
| Bh | 4.1 | 3.5 | 3.84 | 0.04 | 10 | 1 | 98 |
| $IIC_1$ | 4.4 | 3.8 | 1.68 | 0.02 | 7 | 1 | 98 |
| $IIIC_2$ | 4.3 | 3.7 | 0.53 | 0.01 | 2 | 2 | 96 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.01 | 0.02 | 0.03 | 0.03 | 0.09 | 0.09 | 0.09 | 0.58 |
| 0.01 | 0.02 | 0.04 | 0.02 | 0.09 | 0.09 | 0.09 | 0.30 |
| 0.01 | 0.01 | 0.03 | 0.01 | 0.06 | 17.28 | 0.06 | 21.31 |
| 0.01 | 0.01 | 0.03 | 0.01 | 0.06 | 9.67 | 0.06 | 12.93 |
| 0.02 | 0.01 | 0.03 | 0.04 | 0.10 | 2.71 | 0.10 | 5.21 |

## SISTEMA DE TIERRA 255, Faceta 1

Clasificación : Gley pouco Húmico Distrófico - Aquent.

Localización : Territorio Roraima, camino Perimetral Norte, hacia el Este, a 5 km de Caracaraí. Brasil.

Posición Fisiográfica : Planicie aluvial.

Topografía : Plano.

Drenaje : Imperfectamente a moderadamente drenado.

Vegetación : Sabana.

Mat. Originario : Sedimientos arcillo arenosos del Cuaternario.

Fuente : Proj. Radambrasil, Vol.8, 1975( 9 ); perfil 55, pág. 240/1.

$A_1$ 0-30 cm; 10YR 4/1; franco arenoso; granular pequeña débil; friable.

$C_{1g}$ 30-65 cm; 10YR 7/1; franco arcillo arenoso; masivo; friable.

$C_{2g}$ 65-100 cm; 10YR 8/2; franco arcillo arenoso; masivo; friable.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.6 | 3.8 | 0.50 | 0.04 | 1 | 5 | 88 |
| $C_{1g}$ | 5.0 | 4.0 | 0.20 | 0.02 | < 1 | 5 | 88 |
| $C_{2g}$ | 5.3 | 4.0 | 0.19 | 0.01 | < 1 | 8 | 83 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.03 | 0.04 | 0.04 | 0.02 | 1.47 | 1.00 | 0.13 | 2.60 |
| 0.02 | 0.02 | 0.03 | 0.01 | 0.88 | 0.60 | 0.08 | 1.56 |
| 0.04 | 0.02 | 0.03 | 0.03 | 0.88 | 0.60 | 0.12 | 1.60 |

## SISTEMA DE TIERRA 257, Faceta 1

Clasificación : Podzdilico Vermelho Amarelo - Tropudult.

Localización : Lat.02°13'N - Long.62°55'W.Gr. Brasil.

Posición Fisiográfica : Tercio inferior de elevación.

Topografía : Fuertemente ondulado; pendiente 15-20%.

Drenaje : Bien drenado.

Vegetación : Floresta densa.

Mat. Originario : Granitos y gnaisses del Pre-cambrico.

Fuente : Proj. Radambrasil, Vol.8,1975( 9 ); perfil 38, pág. 227/8.

$A_1$ 0-5 cm; 10YR 5/6; arcillo limoso; granular media moderada; firme; límite plano y gradual.

$A_3$ 5-20 cm; 10YR 5/6; arcilloso; granular media moderada; límite plano y gradual.

$B_1$ 20-45 cm; 7.5YR 5/6; arcilla pesada; bloques pequeños moderados; pocos barnices; firme; límite plano y gradual.

$B_{21}$ 45-90 cm; 7.5YR 5/6; arcilla pesada; bloques pequeños moderados; barnices comúnes; límite plano y gradual.

$B_{22}$ 90-140 cm; 7.5YR 6/6; arcilloso pesado; bloques pequeños moderados; barnices comúnes; firme.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.2 | 3.8 | 1.79 | 0.24 | 4 | 13 | 64 |
| $A_3$ | 4.0 | 3.7 | 1.23 | 0.15 | 1 | 10 | 68 |
| $B_1$ | 4.1 | 3.7 | 0.78 | 0.12 | < 1 | 9 | 80 |
| $B_{21}$ | 4.9 | 3.9 | 0.33 | 0.05 | < 1 | 8 | 84 |
| $B_{22}$ | 5.3 | 4.0 | 0.30 | 0.04 | < 1 | 8 | 79 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.15 | 0.38 | 0.33 | 0.03 | 4.50 | 1.60 | 0.89 | 6.99 |
| 0.08 | 0.24 | 0.18 | 0.04 | 3.91 | 1.20 | 0.54 | 5.65 |
| 0.06 | 0.21 | 0.13 | 0.03 | 2.82 | 1.80 | 0.43 | 5.05 |
| 0.04 | 0.16 | 0.07 | 0.02 | 1.86 | 1.60 | 0.29 | 3.75 |
| 0.03 | 0.16 | 0.06 | 0.01 | 2.13 | 1.00 | 0.26 | 3.33 |

## SISTEMA DE TIERRA 261, Faceta 1

Clasificación : Hidromórfico Cinzento Distrófico - Albaquult.

Localización : Territorio Roraima, a 800 m. del aeropuerto de Boa Vista. Brasil.

Posición Fisiográfica : Area plana.

Topografía : Plano.

Drenaje : Moderadamente drenado.

Vegetación : Sabana.

Mat. Originario : Sedimentos arcillo arenosos del Cuaternario.

Fuente : Proj. Radambrasil, Vol.8,1975( 9 ); perfil 42, pág. 249/50.

Ap 0-19 cm; 10YR 4/1; arenoso franco; masivo poroso; suelto; límite plano y gradual.

$A_2$ 19-35 cm; 10YR 5/1; franco arenoso; masivo poroso; friable; límite plano y gradual.

$B_1$ 35-64 cm; 10YR 5/1; franco arcillo arenoso; masivo poroso; friable; límite ondulado y claro.

$B_{21}$ 67-78 cm; 10YR 7/7; moteados 7.5YR 6/8; franco arcillo arenoso; masivo poroso; friable; límite plano y difuso.

$B_{22}$ 78-140 cm; 10YR 7/4 con moteados 7.5YR 6/8; franco arcillo arenoso; masivo poroso; friable.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| Ap | 4.3 | 4.0 | 0.32 | 0.02 | 1 | 18 | 73 |
| $A_2$ | 4.0 | 3.9 | 0.28 | 0.02 | 1 | 10 | 80 |
| $B_1$ | 5.0 | 4.1 | 0.17 | 0.01 | < 1 | 8 | 80 |
| $B_{21}$ | 5.0 | 4.3 | 0.13 | 0.01 | < 1 | 12 | 50 |
| $B_{22}$ | 5.6 | 4.3 | 0.14 | 0.01 | < 1 | 9 | 78 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.09 | 0.08 | 0.04 | 0.01 | 0.88 | 0.60 | 0.22 | 1.70 |
| 0.06 | 0.04 | 0.05 | 0.03 | 0.85 | 0.80 | 0.18 | 1.83 |
| 0.03 | 0.03 | 0.03 | 0.01 | 0.26 | 0.40 | 0.10 | 1.25 |
| 0.03 | 0.03 | 0.04 | 0.03 | 0.79 | 0.20 | 0.13 | 1.12 |
| 0.03 | 0.03 | 0.03 | 0.02 | 0.75 | 0.40 | 0.11 | 1.26 |

## SISTEMA DE TIERRA 262, Faceta 1

Clasificación : Latossolo Amarelo Distrófico - Haplorthox.

Localización : Territorio Roraima; BR 174, a 6 km del río Uraricoera en dirección a Boa Vista. BR.

Posición Fisiográfica : Plano y suave ondulado

Topografía : Pendiente 3 .

Drenaje : Acentuadamente drenado.

Vegetación : Sabana (campo).

Mat. Originario : Sedimentos arcillo arenosos del Cuaternario.

Fuente : Proj. Radambrasil, Vol.8,1975( 9 ); perfil 21, pág. 203.

$A_1$ 0-10 cm; 10YR 4/3; franco arcillo arenoso; granular pequeña débil; friable.

$A_3$ 10-30 cm; 7.5YR 5/5; franco arcillo arenoso; granular pequeña débil; friable.

$B_1$ 30-70 cm; 7.5YR 5/6, arcillo arenoso; masivo poroso; friable.

$B_{21}$ 70-110 cm; 7.5YR 5/8; franco arcillo arenoso; masivo poroso; friable.

$B_{22}$ 110-165 cm; 7.5YR 5/8 ; arcillo arenoso; masivo poroso; friable.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | | | ppm | % | % |
| $A_1$ | 4.9 | 3.9 | 0.66 | 0.04 | 1 | 18 | 32 |
| $A_3$ | 5.9 | 3.8 | 0.46 | 0.04 | < 1 | 13 | 71 |
| $B_1$ | 5.4 | 4.2 | 0.32 | 0.03 | < 1 | 8 | 77 |
| $B_{21}$ | 5.5 | 4.4 | 0.20 | 0.02 | < 1 | 9 | 62 |
| $B_{22}$ | 5.5 | 4.4 | 0.19 | 0.02 | < 1 | 8 | 80 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.47 | 0.27 | 0.09 | 0.02 | 3.56 | 0.40 | 0.85 | 4.81 |
| 0.16 | 0.12 | 0.04 | 0.01 | 1.34 | 0.80 | 0.33 | 2.74 |
| 0.04 | 0.03 | 0.04 | 0.01 | 1.08 | 0.40 | 0.12 | 1.59 |
| 0.03 | 0.04 | 0.04 | 0.01 | 0.95 | 0.20 | 0.12 | 1.27 |
| 0.04 | 0.01 | 0.04 | 0.01 | 0.75 | 0.40 | 0.10 | 1.25 |

## SISTEMA DE TIERRA 265, Faceta 1

Clasificación : Solo Litólico Distrófico - Haplustox.

Localización : 04 38'N - Long.60°40'W.Gr. Brasil.

Posición Fisiográfica : Cima de elevación.

Topografía : Fuerte ondulado a montañoso, local 3%.

Drenaje : Fuertemente drenado,

Vegetación : Campo de sabana.

Mat. Originario : Gneisses del Pre-cambrico.

Fuente : Proj. Radambrasil, Vol.8,1975( 9 ), Perfil 3, pág. 260.

A 0-20 cm; 10YR 4/3; arcilloso; granular pequeña débil; friable; límite plano y abrupto.

R 20 cm+; roca gneissica.

OBS.: Muchas raíces finas en A.
Presencia de concreciones y piedras en el A.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| A | 4.9 | 4.4 | 1.43 | 0.16 | < 1 | 4 | 86 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.10 | 0.12 | 0.05 | 0.01 | 5.62 | 1.80 | 0.28 | 7.70 |

## SISTEMA DE TIERRA 270, Faceta 1

Clasificación : Gley Pouco Húmico Eutrófico - Tropaqualf

Localización : Lat.0°13'N - Long.50°55'W.Gr. Brasil.

Posición Fisiográfica : Planicie fluvio-marina.

Topografía : Plano.

Drenaje : Mal drenado.

Vegetación : Formaciones pioneiras. Campos naturales.

Mat. Originario : Arcillos y limos cuaternarios.

Fuente : Proj. Radambrasil, Vol.6, 1974( 7 ); perfil 27, pág. 61/3.

$A_{1g}$ 0-10 cm; N5/; franco arcillo limoso; granular grande débil; muy duro, firme; límite plano y claro.

$C_{2g}$ 50-120 cm; mezcla de 7.5YR 5/8 y N/5; franco arcillo limoso; masivo; muy duro; firme.

OBS.: Nivel freático a 100 cm.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_{1g}$ | 4.6 | 3.5 | 3.49 | 0.37 | 2 | 19 | 37 |
| $C_{1g}$ | 5.4 | 3.8 | 0.20 | 0.05 | 2 | 79 | 0 |
| $C_{2g}$ | 5.5 | 3.9 | 0.15 | 0.04 | 3 | 86 | 0 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 1.40 | 1.40 | 0.14 | 0.10 | 11.23 | 1.80 | 3.04 | 16.07 |
| 5.60 | 5.30 | 0.09 | 0.35 | 3.13 | 0.00 | 11.34 | 14.47 |
| 6.90 | 4.40 | 0.10 | 0.50 | 0.50 | 0.00 | 11.90 | 13.88 |

## SISTEMA DE TIERRA 271, Faceta 1

Clasificación : Gley pouco Húmico Distrófico - Haplaquent.

Localización : Edo. Pará, Isla Marajó; margen izquierda del río Camará, próximo al Furo de Amaral. BR.

Posición Fisiográfica : Planicie fluvio-marina.

Topografía : Plano.

Drenaje : Imperfectamente drenado.

Vegetación : Gramíneas y ciperáceas.

Mat. Originario : Sedimentos arcillosos.

Fuente : Proj. Radambrasil, Vol.5,1974( 6 ); perfil 18, pág. 73/4.

$A_1$ 0-18 cm; 10YR 3/1; arcilloso; bloques medios moderados; duro; firme; pocos poros y canales; límite plano y claro.

$A_{1g}$ 18-46 cm; 10YR 5/1; moteados 2.5YR 5/8 y 10YR 6/8; arcilloso; masivo; duro; firme; límite plano y gradual.

Cg 46-105; 10YR 7/1; moteados 10R 4/8; arcilloso; masivo; duro; firme.

OBS.: Raíces comúnes y medias finas; pocas gruesas en $A_1$. Actividad de organismo común en $A_1$.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.4 | 3.7 | 2.40 | 0.17 | 1 | 5 | 88 |
| $A_3g$ | 4.6 | 3.4 | 1.02 | 0.07 | < 1 | 8 | 67 |
| Cg | 4.5 | 3.5 | 0.73 | 0.05 | < 1 | 3 | 68 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.45 | 0.09 | 0.20 | 0.28 | 10.37 | 7.62 | 1.02 | 19.01 |
| 0.15 | 0.06 | 0.17 | 0.70 | 4.52 | 7.09 | 1.08 | 12.69 |
| 0.50 | 0.12 | 0.10 | 2.30 | 3.60 | 6.32 | 3.02 | 13.23 |

## SISTEMA DE TIERRA 272, Faceta 1

Clasificación : Latossolo Amarelo Distrófico - Haplustox.

Localización : Lat.1°18'N - Long.59°00'W.Gr. Brasil.

Posición Fisiográfica : Tercio superior de elevación en área aplanada.

Topografía : Suave ondulado, pendiente 1-3%.

Drenaje : Fuertemente drenado.

Vegetación : Cerrado, Campos naturales.

Mat. Originario : Sedimientos areno arcillosos del Terciario.

Fuente : Proj. Radambrasil, Vol.6,1974( 7 ); perfil 26, pág. 36/7.

$A_1$ 0-10 cm; 10YR 4/3; franco arenoso; masivo; ligeramente duro; muy friable; límite claro y plano.

$A_3/B_1$ 10-30 cm; 10YR 5/6; franco arenoso; masivo; ligeramente duro; muy friable; límite plano y gradual.

$B_{21}$ 30-60 cm; 10YR 6/6; franco arenoso; masivo; ligeramente duro; muy friable; límite plano y difuso.

$B_{22}$ 60-120 cm; 10YR 6/6; franco arenoso; masivo; ligeramente duro; muy friable.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.9 | 4.1 | 0.51 | 0.04 | < 2 | 12 | 63 |
| $A_3/B_1$ | 4.8 | 4.2 | 0.24 | 0.02 | < 2 | 13 | 71 |
| $B_{21}$ | 5.0 | 4.2 | 0.15 | 0.01 | < 2 | 15 | 64 |
| $B_{22}$ | 5.0 | 4.3 | 0.12 | 0.01 | < 2 | 18 | 59 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.15 | 0.15 | 0.07 | 0.04 | 2.27 | 0.70 | 0.41 | 3.38 |
| 0.15 | 0.05 | 0.06 | 0.03 | 1.28 | 0.70 | 0.29 | 2.27 |
| 0.15 | 0.05 | 0.05 | 0.03 | 1.15 | 0.50 | 0.28 | 1.93 |
| 0.10 | 0.10 | 0.05 | 0.03 | 0.92 | 0.40 | 0.28 | 1.60 |

## SISTEMA DE TIERRA 274, Faceta 1

Clasificación : Gley Pouco Húmico Eutrófico - Eutropept.

Localización : Lat.2°30'N - Long.50°48'W.Gr. Brasil.

Posición Fisiográfica : Planicie fluvio-marina.

Topografía : Plano.

Drenaje : Imperfectamente drenado.

Vegetación : Formaciones pioneras (mangue, tacuara).

Mat. Originario : Arcillas y limos del cuaternario.

Fuente : Proj. Radambrasil; Vol.6,1974( 7 ); perfil 20; pág. 67/8/9.

$A_1$ 0-18 cm; 10YR 4/1; moteados 2.5YR 3/6 ; arcillo limoso; masivo; firme; limite gradual y ondulado.

$A_3$ 18-45 cm; 10YR 5/1; moteados 5YR 5/6; franco arcillo limoso; masivo; firme; límite gradual y ondulado.

Cg 45-95 cm; mezcla de 10YR 5/3 y 2.5YN 6/, moteados 5YR 5/6; franco arcillo limoso; masivo; firme.

OBS.: Nivel freático a 100 cm.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.0 | 4.4 | 1.66 | 0.17 | 23 | 75 | 48 |
| $A_3$ | 5.1 | 4.6 | 0.59 | 0.07 | 23 | 88 | 31 |
| Cg | 5.1 | 4.7 | 0.54 | 0.07 | 37 | 90 | 26 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 3.60 | 10.80 | 0.29 | 1.00 | 4.48 | 0.80 | 15.69 | 20.97 |
| 2.60 | 8.50 | 0.30 | 1.22 | 1.25 | 0.40 | 12.62 | 14.27 |
| 3.20 | 10.40 | 0.33 | 1.22 | 1.25 | 0.40 | 15.15 | 16.80 |

## SISTEMA DE TIERRA 276, Faceta 1

Clasificación : Latossolo Amarelo Distrófico - Haplorthox

Localización : Edo. Pará, Porto de Moz, punto 114.Brasil.

Posición Fisiográfica : Area aplanada.

Topografía : Plano.

Drenaje : Acentuadamente drenado.

Vegetación : Floresta.

Mat. Originario : Sed. areno arcillosos terciarios.

Fuente : Proj. Radambrasil, Vol.5,1974( 6 ); perfil 3, pág. 30/1.

$A_1$ 0-20 cm; 10YR 3/2; franco arenoso; grano simple; suelto; muy friable; límite plano y gradual.

$A_3$ 20-35 cm; 10YR 4/3; franco arcillo arenoso; masivo poroso; muy friable; límite plano gradual.

$B_1$ 35-50 cm; 10YR 5/4; franco arcillo arenoso; masivo poroso; friable; límite; plano y difuso.

$B_{21}$ 50-80 cm; 10YR 5/6; franco arcillo arenoso; masivo poroso; friable; límite plano y difuso.

$B_{22}$ 80-140 cm; 10YR 6/6 ; franco arcillo arenoso; masivo poroso; friable.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.7 | 3.7 | 1.66 | 0.10 | < 2 | 4 | 86 |
| $A_3$ | 4.7 | 4.0 | 1.12 | 0.07 | 2 | 4 | 82 |
| $B_1$ | 4.9 | 4.0 | 0.45 | 0.03 | 2 | 8 | 74 |
| $B_{21}$ | 5.0 | 4.1 | 0.19 | 0.02 | < 2 | 16 | 71 |
| $B_{22}$ | 5.3 | 4.2 | 0.11 | 0.01 | < 2 | 16 | 52 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.15 | 0.05 | 0.08 | 0.03 | 7.67 | 1.90 | 0.31 | 8.17 |
| 0.15 | 0.05 | 0.06 | 0.03 | 5.53 | 1.40 | 0.31 | 7.24 |
| 0.10 | 0.10 | 0.05 | 0.03 | 2.33 | 0.80 | 0.28 | 3.41 |
| 0.15 | 0.05 | 0.05 | 0.02 | 1.15 | 0.50 | 0.27 | 1.65 |
| 0.15 | 0.05 | 0.05 | 0.03 | 1.18 | 0.30 | 0.28 | 1.76 |

## SISTEMA DE TIERRA 277, Faceta 1

Clasificación : Latossolo Amarelo Distrófico - Haplorthox

Localización : Edo. Pará, Municipio Acará, km.8, camino Acará-Tomé Acú. Brasil.

Posición Fisiográfica : Area plana.

Topografía : Plano.

Drenaje : Bien drenado.

Vegetación : Floresta.

Mat. Originario : Sed. arcillosos terciarios - Formación Barreiras.

Fuente : Proj. Radambrasil, Vol.5,1974( 6 ); perfil 26, pág. 136/7.

$A_1$ 0-10 cm; 10YR 4/3; arenoso franco; granular pequeña muy débil.

$A_3$ 10-25 cm; 10YR 5/6; franco arcillo arenoso pesado; granular pequeña muy débil; muy friable; límite plano y gradual.

$B_{11}$ 25-45 cm; 10YR 5/6; franco arcillo arenoso; masivo poroso; muy friable; límite plano y difuso.

$B_{12}$ 45-70 cm; 10YR 5/8; franco arcillo arenoso pesado; masivo poroso; friable; límite plano y difuso.

$B_{21}$ 70-110 cm; 7.5YR 5/8; arcillo arenoso; masivo poroso; friable; límite plano y difuso.

$B_{22}$ 110-140 cm; 7.5YR 5/8; arcillo arenoso; masivo poroso; friable.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.4 | 3.9 | 1.04 | 0.10 | 1.5 | 23 | 67 |
| $A_3$ | 4.3 | 3.8 | 0.74 | 0.05 | < 1 | 7 | 72 |
| $B_{11}$ | 4.3 | 3.9 | 0.59 | 0.04 | < 1 | 5 | 79 |
| $B_{12}$ | 4.5 | 4.0 | 0.49 | 0.03 | < 1 | 4 | 87 |
| $B_{21}$ | 4.6 | 4.0 | 0.32 | 0.02 | < 1 | 5 | 84 |
| $B_{22}$ | 4.9 | 4.0 | 0.14 | 0.02 | < 1 | 5 | 88 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 1.08 | 0.31 | 0.05 | 0.05 | 3.95 | 1.00 | 1.49 | 6.44 |
| 0.14 | 0.11 | 0.03 | 0.03 | 3.65 | 0.80 | 0.31 | 4.76 |
| 0.08 | 0.09 | 0.02 | 0.02 | 3.65 | 0.80 | 0.21 | 4.66 |
| 0.05 | 0.06 | 0.02 | 0.02 | 2.30 | 1.00 | 0.15 | 3.45 |
| 0.06 | 0.09 | 0.02 | 0.02 | 2.30 | 1.00 | 0.19 | 3.49 |
| 0.04 | 0.06 | 0.02 | 0.02 | 1.64 | 1.00 | 0.14 | 2.78 |

## SISTEMA DE TIERRA 278, Faceta 1

Clasificación : Podzolico Vermelho Amarelo - Tropudult.

Localización : Km.48 de la Transamazónica, entre Marabá y Itupiranga, Estado de Pará. Brasil.

Posición Fisiográfica : Tercio superior de elevación.

Topografía : Ondulado, localmente 5-8% de pendiente.

Drenaje : Bien drenado.

Vegetación : Floresta.

Mat. Originario : Granitos y gneisses Precambrianos.

Fuente : Proj. Radambrasil, Vol.4,1974( 5 ); perfil 8, pág. 40/1.

$A_1$ 0-8 cm; 10YR 3/4; franco limoso; granular pequeña débil friable; límite claro y plano.

$A_2$ 8-22 cm; 10YR 5/6; franco arcillo arenoso; bloques pequeños débiles; friable a firme; límite plano gradual.

$B_1$ 22-46 cm; 10YR 5/8; arcilloso; bloques medios moderados; barnices; firme; límite plano y difuso.

$B_{21}$ 46-71 cm; 7.5YR 6/6; arcilloso; bloques medios moderados; barnices; firme; límite plano y difuso.

$B_{22}$ 71-110 cm; 7.5YR 5/6; arcilloso; bloques medios moderados; barnices; firme.

OBS.: Muchas raíces en $A_1$; comúnes en $A_2$ y $B_1$; pocas en $B_{21}$ y $B_{22}$ - Presencia de gravas pequeñas comúnes en todo el perfil.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.9 | 4.5 | 1.31 | 0.10 | 2 | 53 | 49 |
| $A_2$ | 4.7 | 4.2 | 0.54 | 0.08 | 2 | 35 | 25 |
| $B_1$ | 5.0 | 4.0 | 0.50 | 0.06 | 2 | 15 | 68 |
| $B_{21}$ | 5.5 | 4.1 | 0.36 | 0.04 | 2 | 24 | 46 |
| $B_{22}$ | 5.9 | 4.2 | 0.14 | 0.02 | 3 | 23 | 46 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 2.70 | 1.00 | 0.13 | 0.01 | 3.26 | 0.20 | 3.84 | 7.30 |
| 0.70 | 0.70 | 0.07 | 0.01 | 2.30 | 0.50 | 1.48 | 4.28 |
| 0.20 | 0.20 | 0.09 | 0.01 | 1.70 | 1.10 | 0.50 | 3.30 |
| 0.20 | 0.40 | 0.19 | 0.01 | 1.77 | 0.70 | 0.80 | 3.27 |
| 0.40 | 0.20 | 0.09 | 0.01 | 1.71 | 0.60 | 0.70 | 3.01 |

## SISTEMA DE TIERRA 281, Faceta 1

Clasificación : Latossolo Amarelo Distrófico - Haplorthox.

Localización : Edo. Pará, Municipio Altamira, punto No.113.

Posición Fisiográfica : Tercio superior de elevación.

Topografía : Suave ondulado, pendiente 5.8%.

Drenaje : Fuertemente drenado.

Vegetación : Floresta.

Mat. Originario : Sedimentos arenosos terciarios.

Fuente : Proj. Radambrasil, Vol.5,1974( 6 ); perfil 30, pág. 144/5.

$A_1$ 0-15 cm; 10YR 4/4; arenoso; grano simple; suelto; límite plano.

$A_3$ 15-40 cm; 10YR 5/4; arenoso franco; masivo poroso; muy friable; límite plano y gradual.

$B_1$ 40-80 cm; 10YR 5/6; drenoso franco; masivo poroso; muy friable; límite plano y difuso.

$B_{21}$ 80-100 cm; 10YR 5/8; franco arenoso; masivo poroso; muy friable; límite plano y difuso.

$B_{22}$ 100-130 cm$^+$; 10YR 5/8; franco arenoso; masivo poroso; muy friable.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.4 | 3.6 | 0.79 | 0.07 | 3 | 6 | 83 |
| $A_3$ | 4.5 | 4.0 | 0.62 | 0.05 | 3 | 6 | 84 |
| $B_1$ | 4.6 | 4.2 | 0.41 | 0.03 | 2 | 6 | 82 |
| $B_{21}$ | 4.6 | 4.2 | 0.26 | 0.02 | < 2 | 9 | 82 |
| $B_{22}$ | 4.7 | 4.2 | 0.28 | 0.03 | < 2 | 9 | 80 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.10 | 0.10 | 0.07 | 0.03 | 3.45 | 1.50 | 0.30 | 5.25 |
| 0.15 | 0.05 | 0.06 | 0.02 | 2.95 | 1.50 | 0.28 | 4.73 |
| 0.10 | 0.10 | 0.05 | 0.02 | 2.76 | 1.20 | 0.27 | 4.23 |
| 0.10 | 0.10 | 0.05 | 0.02 | 1.44 | 1.20 | 0.27 | 2.91 |
| 0.10 | 0.10 | 0.05 | 0.02 | 1.54 | 1.10 | 0.27 | 2.91 |

## SISTEMA DE TIERRA 282, Faceta 1

Clasificación : Gley Pouco Húmico Eutrófico - Tropaquept.

Localización : Lat.02°24'S - Long.54°01'W.Gr. Brasil.

Posición Fisiográfica : Contacto de varzea y tierra firme.

Topografía : Plano.

Drenaje : Mal drenado.

Vegetación : Contacto de floresta - formaciones pioneras.

Mat. Originario : Sedimentos arcillo arenosos cuaternarios.

Fuente : Proj. Radambrasil, Vol.10,1976(11); perfil 59,pág. 250/1.

$A_1$ 0-20 cm; 10YR 5/1; franco limoso; granular pequeña débil; friable; límite gradual.

$C_1g$ 20-45 cm; 10YR 5/1; moteados 7.5YR 5/8 y 2.5YR 4/8; franco limoso; masivo; límite abrupto.

$C_2g$ 45-80 cm; 10YR 6/1; moteado 7.5YR 5/8 y 2.5YR 4/6; franco arcilloso; masivo; límite difuso.

$C_3g$ 80-100 cm; 10YR 7/1; moteado 10YR 5/8, 7.5YR 5/8 y 7.5YR 5/6; franco arcilloso; masivo; límite difuso.

$C_4g$ 110-150 cm; 10YR 7/1; moteados 7.5YR 5/6 y 7.5YR 6/6; franco arcilloso; masivo.

| HTE | pH | | C | M.O. | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 3.7 | 3.5 | 1.36 | 2.3 | 24 | 19.21 | 43.3 |
| $C_1g$ | 4.0 | 3.7 | 0.64 | 1.1 | 6 | 22.45 | 52.6 |
| $C_2g$ | 4.9 | 3.5 | 0.28 | 0.5 | 3 | 29.32 | 64.2 |
| $C_3g$ | 5.2 | 3.7 | 0.12 | 0.2 | 3 | 76.29 | 9.0 |
| $C_4g$ | 5.6 | 4.2 | 0.04 | 0.1 | 3 | 88.25 | 1.5 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.48 | 0.54 | 0.09 | 0.07 | 4.06 | 0.90 | 1.18 | 6.14 |
| 0.21 | 0.80 | 0.04 | 0.05 | 2.78 | 1.22 | 1.10 | 4.90 |
| 0.16 | 2.45 | 0.14 | 0.17 | 1.80 | 5.24 | 2.92 | 9.96 |
| 0.70 | 10.50 | 0.13 | 0.32 | 2.46 | 1.16 | 11.65 | 15.27 |
| 0.40 | 14.80 | 0.18 | 0.40 | 1.86 | 0.24 | 15.78 | 17.88 |

## SISTEMA DE TIERRA 284, Faceta 1

Clasificación : Haplorthox - Latossolo Amarelo Distrófico.

Localización : Km.109 del camino Belterra - Curuá - Una-Municipio de Santarem, Estado Pará. BR.

Posición Fisiográfica : Tercio inferior de elevación.

Topografía : Suave ondulado, pendiente 4-6%.

Drenaje : Acentuadamente drenado.

Vegetación : Floresta densa.

Mat. Originario : Sedimentos areno arcillosos terciarios.

Fuente : Proj. Radambrasil, Vol.10,1976(11); perfil 58,pág. 227/8.

$A_1$ 0-6 cm; 10YR 4/4; arenoso franco; grano simpleñ suelto; límite plano y gradual.

$A_3$ 6-15 cm; 10YR 4/4; arenoso franco; grano simple; suelto; límite plano y difuso.

$B_{11}$ 15-39 cm; 10YR 5/6; arenoso franco; grano simple; muy friable; límite plano y difuso.

$B_{12}$ 39-88 cm; 10YR 5/6; arenoso franco; grano simple; muy friable; límite plano y difuso.

$B_2$ 88-165 cm; 10YR 6/8; franco arenoso; granular pequeña débil; muy friable.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.0 | 4.0 | 0.81 | 0.07 | 1.5 | 13 | 61 |
| $A_3$ | 4.1 | 3.8 | 0.80 | 0.03 | < 1 | 5 | 85 |
| $B_{11}$ | 4.5 | 4.0 | 0.52 | 0.03 | < 1 | 4 | 90 |
| $B_{12}$ | 4.7 | 4.0 | 0.32 | 0.03 | < 1 | 3 | 90 |
| $B_2$ | 4.4 | 4.0 | 0.42 | 0.03 | < 1 | 4 | 90 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.25 | 0.17 | 0.06 | 0.03 | 2.50 | 0.80 | 0.51 | 3.81 |
| 0.04 | 0.04 | 0.04 | 0.02 | 2.00 | 0.80 | 0.14 | 2.94 |
| 0.02 | 0.01 | 0.03 | 0.02 | 1.18 | 0.80 | 0.08 | 2.06 |
| 0.03 | 0.01 | 0.03 | 0.01 | 1.67 | 0.80 | 0.08 | 2.55 |
| 0.02 | 0.01 | 0.03 | 0.02 | 2.01 | 0.80 | 0.08 | 1.89 |

## SISTEMA DE TIERRA 285, Faceta 1

Clasificación : Terra Roxa Estruturada Eutrófica-Paleudalf.

Localización : Tansamazónica trecho Jamira - Itaituba, a 17 km de Agrovila Medicilandia. Brasil.

Posición Fisiográfica : Tercio medio de elevación.

Topografía : Ondulado, 17% de pendiente.

Drenaje : Bien drenado.

Vegetación : Floresta ecuatorial.

Mat. Originario : Rocas eruptivas básicas.

Fuente : Embrapa, Bol.T.No.34,1973( ), perfil 18,pág.33/4.

$A_1$ 0-15 cm; 1.5YR 3/3; arcilloso; bloques y granular pequeña muy fuerte; muchos poros; duro, friable; límite plano y gradual.

$B_{1t}$ 15-30 cm; 1YR 3/4; arcilloso; bloques medios fuertes; barnices; muchos poros; furo, friable; límite plano y difuso.

$B_{21t}$ 30-75 cm; 1YR 3/5; muy arcilloso; bloques pequeños fuertes; barnices; muchos poros; duro, friable; límite plano y difuso.

$B_{22t}$ 75-155 cm; 1YR 3/5; muy arcilloso, bloques pequeños fuertes; muchos poros; barnices; duro, friable; límite plano y difuso.

$B_{23t}$ 155-210 cm; 1.5YR 4/6; moteados 7.5YR 5/6; muy arcilloso; bloques medios moderados; barnices; muchos poros; duro, friable.

$B_3$ 210-270 cm; 2.5YR 5/8; moteado 7.5YR 5/8; arcilloso; plástico y pegajoso.

OBS: Raíces abundantes en $A_1$, comúnes en $B_{1t}$ y $B_{21t}$; pocas en $B_{22t}$ y $B_{23t}$.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 6.4 | 5.7 | 2.15 | 0.25 | 1 | 80 | 0 |
| $B_{1t}$ | 5.5 | 4.8 | 0.87 | 0.13 | < 1 | 56 | 0 |
| $B_{21t}$ | 5.4 | 4.8 | 0.59 | 0.09 | < 1 | 55 | 0 |
| $B_{22t}$ | 5.4 | 5.2 | 0.31 | 0.06 | < 1 | 63 | 0 |
| $B_{23t}$ | 5.4 | 5.0 | 0.18 | 0.02 | < 1 | 58 | 0 |
| $B_3$ | 5.3 | 4.6 | 0.28 | 0.04 | < 1 | 47 | 3 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 8.7 | 3.6 | 0.49 | 0.05 | 3.3 | 0 | 12.8 | 16.1 |
| 2.4 | 2.7 | 0.26 | 0.02 | 4.3 | 0 | 5.4 | 9.7 |
| 2.3 | 2.3 | 0.10 | 0.02 | 3.8 | 0 | 4.7 | 8.5 |
| 2.0 | 2.0 | 0.04 | 0.03 | 2.7 | 0 | 4.5 | 7.2 |
| 1.8 | 1.8 | 0.03 | 0.02 | 2.9 | 0 | 4.0 | 6.9 |
| 1.5 | 1.5 | 0.05 | 0.13 | 3.9 | 0.1 | 3.6 | 7.6 |

## SISTEMA DE TIERRA 291, Faceta 1

Clasificación : Podzólico Vermelho Amarelo - Tropudult.

Localización : Territorio Amapá, Municipio Mazagao, margen izquierda río Jari, punto 130. Brasil.

Posición Topográfica : Ladera.

Topografía : Ondulado, pendiente 3-5%.

Drenaje : Bien drenado.

Vegetación : Floresta.

Mat. Originario : Rocas gneissicas ácidas del Precámbrico.

Fuente : Proj. Radambrasil, Vol.5,1974( 6 ); perfil 10, pág. 49/50.

A 0-15 cm; 10YR 4/3; franco arcillo arenoso; granular grande débil; friable; límite plano y claro.

B 15-30 cm; 10YR 5/4; franco arcillo arenoso; bloques medios débiles; friable; límite plano y gradual.

B 30-90 cm; 7.5YR 5/6 ; franco arcilloso; bloques medios débiles; friable; límite plano y gradual.

B 90-130 cm; 7.5YR 5/6; arcilloso; bloques medios débiles; friable.

OBS.: A 120 cm piedras y clastos de cuarzo transportado.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.1 | 3.5 | 0.98 | 0.08 | 4 | 9 | 73 |
| $B_1$ | 4.4 | 3.8 | 0.65 | 0.05 | 3 | 7 | 79 |
| $B_{21}$ | 4.4 | 3.8 | 0.50 | 0.04 | < 2 | 6 | 84 |
| $B_{22}$ | 4.7 | 3.8 | 0.26 | 0.03 | < 2 | 6 | 85 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.20 | 0.30 | 0.11 | 0.03 | 4.57 | 1.70 | 0.64 | 6.91 |
| 0.20 | 0.10 | 0.07 | 0.02 | 3.45 | 1.50 | 0.39 | 5.34 |
| 0.10 | 0.10 | 0.06 | 0.02 | 2.79 | 1.50 | 0.28 | 4.57 |
| 0.10 | 0.10 | 0.05 | 0.01 | 2.46 | 1.50 | 0.26 | 4.22 |

## SISTEMA DE TIERRA 294, Faceta 1

Clasificación : Latossolo Vermelho Amarelo Distrófico - Haplorthox.

Localización : Lat.01°03'N - Long.55°52'W. Brasil.

Posición Topográfica : Parte superior de elevación.

Topografía : Ondulado, pendiente 8-12%.

Drenaje : Bien drenado.

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Vegetación : Floresta densa.

Mat. Originario : Derivados de biotita granitos, granitos peralcalinos y hornblenda granitos.

Fuente : Proj. Radambrasil, Vol.9,1975(10), perfil 27, pág. 190/1.

$A_1$ 0-5 cm; 7.5YR 4/4; arcillo arenoso gravoso; bloques y granular media moderada; friable; límite plano y abrupto.

$A_3$ 5-20 cm; 7.5YR 5/4; arcilloso; bloques pequeños débiles; friable; límite plano y gradual.

$B_1$ 20-45 cm; 7.5 YR 5/6 ; arcilloso; bloques pequeños débiles; friable; límite plano y gradual.

$B_{21}$ 45-80 cm; 5YR 5/6; arcilloso; bloques pequeños débiles; friable; límite plano y difuso.

$B_{22}$ 80-110; 3.5YR 5/6; arcilloso; bloques pequeños débiles; friable; límite plano y difuso.

$B_{23}$ 110-130 cm; 2.5YR 4/6; arcilloso; bloques pequeños débiles; friable; límite plano y difuso.

$B_3$ 130-155; 10R 4/8; franco; bloques pequeños débiles;friable.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.4 | 4.2 | 1.67 | 0.12 | < 1 | 4 | 87 |
| $A_3$ | 5.3 | 4.3 | 0.94 | 0.08 | < 1 | 5 | 82 |
| $B_1$ | 5.5 | 4.5 | 0.52 | 0.05 | < 1 | 6 | 71 |
| $B_{21}$ | 5.7 | 4.5 | 0.28 | 0.04 | < 1 | 9 | 0 |
| $B_{22}$ | 5.7 | 4.8 | 0.28 | 0.03 | < 1 | 8 | 0 |
| $B_{23}$ | 5.9 | 4.7 | 0.24 | 0.03 | < 1 | 8 | 0 |
| $B_3$ | 5.7 | 4.5 | 0.13 | 0.02 | < 1 | 8 | 0 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.05 | 0.06 | 0.05 | 0.07 | 3.68 | 1.60 | 0.23 | 5.51 |
| 0.03 | 0.03 | 0.04 | 0.07 | 2.50 | 0.80 | 0.17 | 3.47 |
| 0.03 | 0.01 | 0.04 | 0.03 | 1.91 | 0.40 | 0.16 | 2.47 |
| 0.03 | 0.03 | 0.04 | 0.07 | 1.81 | 0.00 | 0.17 | 1.98 |
| 0.01 | 0.01 | 0.04 | 0.03 | 1.65 | 0.00 | 0.14 | 1.79 |
| 0.02 | 0.01 | 0.03 | 0.07 | 1.48 | 0.00 | 0.13 | 1.61 |
| 0.02 | 0.01 | 0.04 | 0.08 | 1.81 | 0.00 | 0.15 | 1.96 |

## SISTEMA DE TIERRA 295, Faceta 1

Clasificación : Latossolo Vermelho Amarelo distrófico - Haplorthox.

Localización : Lat.01 21'N - Long.54 17'W. Brasil.

Posición Topográfica : Lugar con 3-6 de pendiente, ladera media.

Topografía : Fuertemente ondulado.

Drenaje : Bien drenado.

Vegetación : Floresta densa.

Mat. Originario : Granitos anfibolitos, migmatitos Precámbricos.

Fuente : Proj. Radambrasil, Vol.9,1975(10), perfil 36, pág. 192/3.

$A_1$ 0-30 cm; 5YR 4/6; arcilloso; granular pequeña débil; friable; límite plano y difuso.

$A_3$ 30-60 cm; 5YR 5/6; arcilloso; granular y bloques pequeños débiles; firme; límite plano y gradual.

$B_1$ 60-95 cm; 5YR 5/8; arcilloso; masivo poroso; friable a firme; límite plano y gradual.

$B_{21}$ 95-125 cm; 2.5YR 5/8; arcilloso; masivo poroso; firme; firme; límite plano y difuso.

$B_{22}$ 125-150 cm; 2.5YR 5/8; arcilloso; masivo poroso; firme; límite plano y gradual.

$B_{23}$ 150-180 cm; 2.5YR 5/8; arcilloso; masivo poroso; firme.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.0 | 4.1 | 1.95 | 0.18 | < 1 | 7 | 75 |
| $A_3$ | 5.2 | 4.1 | 0.71 | 0.10 | < 1 | 5 | 84 |
| $B_1$ | 5.4 | 4.4 | 0.41 | 0.05 | < 1 | 6 | 70 |
| $B_{21}$ | 5.3 | 4.5 | 0.31 | 0.05 | < 1 | 7 | 70 |
| $B_{22}$ | 5.4 | 4.5 | 0.23 | 0.03 | < 1 | 6 | 80 |
| $B_{23}$ | 5.4 | 4.4 | 0.21 | 0.03 | < 1 | 9 | 76 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.10 | 0.18 | 0.14 | 0.10 | 5.82 | 1.60 | 0.52 | 7.94 |
| 0.03 | 0.06 | 0.05 | 0.08 | 2.92 | 1.20 | 0.22 | 4.34 |
| 0.03 | 0.03 | 0.04 | 0.07 | 2.24 | 0.40 | 0.17 | 2.81 |
| 0.03 | 0.03 | 0.04 | 0.07 | 1.91 | 0.40 | 0.17 | 2.48 |
| 0.03 | 0.01 | 0.04 | 0.07 | 1.71 | 0.60 | 0.15 | 2.46 |
| 0.04 | 0.03 | 0.07 | 0.07 | 0.24 | 0.80 | 0.24 | 2.71 |

## SISTEMA DE TIERRA 304, Faceta 1

Clasificación : Podzolico Vermelho Amarelo Eutrófico - Tropudalf.

Localización : Marabá - Estado de Pará - Punto 1. Brasil.

Posición Fisiográfica : Tercio superior de elevación.

Topografía : Ondulado, pendiente 8%.

Drenaje : Bien drenado.

Vegetación : Floresta con babucu.

Mat. Originario : Descomposición de granitos.

Fuente : Proj. Radambrasil, Vol.4,1974( 5 ); perfil 10, pág. 44/5.

$A_1$ 0-15 cm; 10YR 3/3; franco arenoso; granular media moderada; friable; límite plano y gradual.

$A_3$ 15-30 cm; 10YR 5/3; franco; bloques pequeños débiles; firme; límite plano y gradual.

$B_1$ 30-45 cm; 7.5YR 5/6; franco arcilloso; bloques pequeños moderados; firme; límite plano y gradual.

$B_2$ 45-80 cm+; 6YR 5/8; franco arcilloso; bloques pequeños moderados; barnices; firme.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.0 | 4.5 | 0.91 | 0.09 | 2 | 47 | 65 |
| $A_3$ | 5.1 | 4.4 | 0.59 | 0.07 | < 2 | 48 | 80 |
| $B_1$ | 5.1 | 4.5 | 0.39 | 0.05 | < 2 | 49 | 93 |
| $B_2$ | 5.3 | 4.8 | 0.32 | 0.04 | 2 | 57 | 43 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 2.00 | 0.70 | 0.16 | 0.03 | 3.10 | 0.20 | 2.89 | 6.19 |
| 1.60 | 0.50 | 0.17 | 0.03 | 2.27 | 0.20 | 2.30 | 4.77 |
| 1.60 | 0.20 | 0.12 | 0.02 | 1.78 | 0.20 | 1.94 | 3.92 |
| 1.80 | 0.30 | 0.08 | 0.02 | 1.55 | 0.10 | 2.20 | 3.85 |

## SISTEMA DE TIERRA 307, Faceta 1

Clasificación : Podzólico Vermelho Amarelo - Tropudult.

Localización : San Félix de Xingú - Punto 1. Brasil.

Posición Fisiográfica : Tercio superior de elevación.

Topografía : Suave ondulado. Pendiente local 8%.

Drenaje : Bien drenado.

Vegetación : Floresta.

Mat. Originario : Granitos Precámbrianos.

Fuente : Proj. Radambrasil, Vol.4,1974( 5 ); perfil 5, pág. 31/2/3.

$A_1$ 0-10 cm; 10YR 4/4; franco arcilloso; granular pequeña débil; ligeramente duro, friable; límite plano y claro.

$A_3$ 10-30 cm; 8YR 5/4; franco arcilloso; bloques pequeños débiles; ligeramente duro, friable; límite plano y gradual.

$B_1$ 30-50 cm; 7.5YR 5/6; franco arcilloso; bloques pequeños débiles; ligeramente duro, friable; límite plano y claro

$B_{21}$ 50-80 cm; 5YR 5/8 ; arcillo limoso; bloques pequeños moderados; barnices; duro, firme; límite plano y gradual.

$B_{22}$ 80-100 cm; 5YR 5/8; arcillo limoso; bloques pequeños moderados, duro, firme; límite plano y difuso.

$B_3$ 100-120 cm+; 5YR 5/8; franco arcillo limoso; bloques pequeños moderados; ligeramente duro, firme.

OBS.: Presencia de concreciones ferroginosas en $B_2$ y $B_3$. Moteado del material de origen en $B_3$.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.2 | 3.6 | 0.93 | 0.12 | 3 | 15 | 69 |
| $A_3$ | 4.4 | 3.7 | 0.60 | 0.07 | 2 | 10 | 76 |
| $B_1$ | 4.5 | 3.8 | 0.46 | 0.06 | 3 | 10 | 76 |
| $B_{21}$ | 4.9 | 3.8 | 0.25 | 0.04 | 4 | 10 | 79 |
| $B_{22}$ | 4.8 | 3.7 | 0.33 | 0.04 | 4 | 10 | 81 |
| $B_3$ | 4.6 | 3.8 | 0.33 | 0.04 | 3 | 12 | 79 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.20 | 0.50 | 0.12 | 0.02 | 3.05 | 1.90 | 0.84 | 5.79 |
| 0.20 | 0.20 | 0.10 | 0.02 | 2.92 | 1.70 | 0.52 | 5.14 |
| 0.30 | 0.10 | 0.08 | 0.02 | 2.85 | 1.60 | 0.50 | 4.95 |
| 0.30 | 0.10 | 0.09 | 0.02 | 2.55 | 1.90 | 0.51 | 4.96 |
| 0.30 | 0.10 | 0.10 | 0.02 | 2.25 | 2.20 | 0.52 | 4.97 |
| 0.20 | 0.20 | 0.12 | 0.02 | 2.02 | 2.10 | 0.54 | 4.66 |

## SISTEMA DE TIERRA 308, Faceta 1

Clasificación : Terra Roxa Estruturada Eutrófica - Tropudalf.

Localización : Margen derecha del río Fresco, a 53 km de San Félix. Brasil.

Posición Fisiográfica : Ladera.

Topografía . Suave ondulado, pendiente 0-2%.

Drenaje : Bien drenado.

Vegetación : Floresta

Mat. Originario : Rocas básicas (andesitas, riolitas) del Precámbrico.

Fuente : Proj. Radambrasil, Vol.4,1974( 5 ); perfil 15, pág. 55/6.

$A_1$ 0-15 cm; 10R 5/4; franco arcilloso; granular pequeña débil; friable; límite plano y gradual.

$B_2$ 15-50 cm; 10R 3/3; arcilloso; bloques pequeños débiles; firme; límite plano y difuso.

$B_{21}$ 50-100 cm; 10R 3/3; arcilloso; bloques pequeños moderados.

$B_{22}$ 100-150 cm; 10R 3/3; arcilloso; bloques pequeños moderados ; firme.

OBS.: Concreciones en $B_{22}$.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | | | ppm | | |
| $A_1$ | 5.0 | 4.6 | 1.37 | 0.08 | 1.3 | 54 | 6 |
| $B_1$ | 5.4 | 4.5 | 0.67 | 0.03 | < 1 | 43 | 11 |
| $B_{21}$ | 5.4 | 4.5 | 0.45 | 0.03 | < 1 | 44 | 12 |
| $B_{22}$ | 5.6 | 4.8 | 0.34 | 0.02 | < 1 | 40 | 11 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 5.10 | 2.07 | 0.15 | 0.06 | 5.76 | 0.43 | 7.38 | 13.62 |
| 3.03 | 1.31 | 0.04 | 0.03 | 5.35 | 0.56 | 4.41 | 10.32 |
| 2.39 | 1.43 | 0.03 | 0.02 | 4.06 | 0.52 | 3.87 | 8.85 |
| 1.71 | 1.55 | 0.02 | 0.02 | 4.53 | 0.40 | 3.30 | 8.23 |

## SISTEMA DE TIERRA 309, Faceta 1

Clasificación : Gley Pouco Húmica Distrófico - Haplaquent.

Localización : San Félix de Xingú, Estado de Pará, punto 7. Brasil.

Posición Fisiográfica : Planicie fluvial.

Topografía : Plano.

Drenaje : Mal drenado.

Vegetación : Floresta.

Mat. Originarin : Sedimentos arcillo limosos.

Fuente : Proj.Radambrasil, Vol.4,1974( 5 );perfil 21,pág.70/3.

$A_1$ 0-30 cm; 10YR 5/2; moteados 7.5YR 6/6; franco arcillo limoso; bloques medios débiles; firme; límite plano y gradual.

$A_3$ 30-50 cm; 2.5Y 5/2; moteados 7.5YR 6/6; arcillo limoso; bloques medios débiles; firme; límite claro y plano.

$C_{1g}$ 50-90 cm; 10YR 6/1; moteados 7.5YR 6/6, y pocos 10R 4/8; arcillo limoso; masivo; límite plano y gradual.

$C_{2g}$ 90-120 cm; mezcla de 10YR 6/1 y 7.5YR 6/6; arcillo limoso; masivo.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.3 | 3.6 | 0.51 | 0.08 | 4 | 7 | 88 |
| $A_3$ | 4.5 | 3.5 | 0.35 | 0.06 | 3 | 9 | 88 |
| $C_{1g}$ | 4.9 | 3.6 | 0.19 | 0.06 | 2 | 8 | 88 |
| $C_{2g}$ | - | - | - | 0.04 | 3 | 14 | 81 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.30 | 0.20 | 0.06 | 0.03 | 3.39 | 4.20 | 0.59 | 8.18 |
| 0.30 | 0.30 | 0.06 | 0.01 | 2.01 | 6.40 | 0.87 | 9.28 |
| 0.40 | 0.30 | 0.04 | 0.01 | 2.61 | 5.80 | 0.75 | 9.16 |
| 1.10 | | 0.03 | 0.01 | 2.13 | 4.80 | 1.14 | 8.07 |

## SISTEMA DE TIERRA 310, Faceta 1

Clasificación : Podzólico Vermelho Amarelo - Tropudult.

Localización : Punto 22. Brasil.

Posición Fisiográfica : Ladera media.

Topografía : Fuerte ondulado a montañoso; localmente 4-8%.

Drenaje : Bien drenado.

Vegetación : Floresta.

Mat. Originario : Descomposición de granitos.

Fuente : Proj. Radambrasil, Vol.7, 1975( 8 ); perfil 37, pág. 204/5.

$A_1$ 0-30 cm; 10YR 2.5/1; franco arenoso; granular pequeña débil; friable; límite plano y gradual.

$B_{21}$ 30-70 cm; 10YR 3/4; arcilloso; granular pequeña débil; friable; límite plano y difuso.

$B_{22}$ 70-110; 10YR 4/4; arcilloso; granular pequeña débil; friable; límite plano y difuso.

$B_{23}$ 110-150 cm; 10 YR 6/6; franco arcilloso; granular pequeña débil; friable.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.5 | 4.7 | 1.59 | 0.06 | 62 | 36 | 13 |
| $B_{21}$ | 4.8 | 3.6 | 0.44 | 0.05 | 64 | 26 | 12 |
| $B_{22}$ | 4.9 | 3.7 | 0.38 | 0.06 | 82 | 34 | 13 |
| $B_{23}$ | 5.3 | 4.3 | 0.36 | 0.05 | 94 | 19 | 23 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 3.58 | 0.48 | 0.29 | 0.02 | 7.20 | 0.68 | 4.37 | 12.25 |
| 2.31 | 0.24 | 0.03 | 0.02 | 6.86 | 0.36 | 2.60 | 9.82 |
| 1.91 | 1.11 | 0.03 | 0.02 | 5.43 | 0.48 | 3.07 | 8.98 |
| 1.75 | 0.28 | 0.02 | 0.01 | 7.90 | 0.64 | 2.06 | 10.60 |

## SISTEMA DE TIERRA 311, Faceta 1

Clasificación : Areias Quartzosas Distróficas - Quartzipsamment.

Localización : Km 66 de la Transamazónica, entre Marabá y Araguantins, Estado de Pará. Brasil.

Posición Fisiográfica : Area aplanada.

Topografía : Plano.

Drenaje : Excesivamente drenado.

Vegetación : Floresta.

Mat. Originario : Areniscas del Carbonífero.

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Fuente : Proj. Radambrasil, Vol.4,1974( 5 ); perfil 18, pág. 62/3.

$A_1$ 0-17 cm; 10YR 6/2; arenoso franco muy fino; granular pequeña débil y grano simple; suelto; límite plano y gradual.

$A_2$ 17-75 cm; 10YR 6/3; arenoso franco; masivo poroso y grano simple; suelto; límite plano y claro.

C 75-145 cm; 2.5YR 5/8; franco arenoso; masivo poroso y grano simple; muy friable.

OBS.: Raíces finas abundantes en $A_1$; finas comúnes en $A_2$. Mucha actividad de organismos en $A_1$.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.3 | 3.6 | 1.37 | 0.09 | 4 | 18 | 35 |
| $A_2$ | 3.8 | 3.6 | 0.82 | 0.07 | 2 | 10 | 73 |
| C | 4.7 | 4.1 | 0.28 | 0.02 | 2 | 9 | 77 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.80 | 0.40 | 0.08 | 0.01 | 5.24 | 0.70 | 1.29 | 7.23 |
| 0.20 | 0.30 | 0.05 | 0.01 | 3.45 | 1.50 | 0.56 | 5.51 |
| 0.15 | 0.05 | 0.03 | 0.01 | 1.51 | 0.80 | 0.24 | 2.55 |

## SISTEMA DE TIERRA 313, Faceta 1

Clasificación : Brunizem Avermelhado - Argiudoll.

Localización : Ruta Transamazónica, Trecho Estreito - Río Araguaia, km.93. Brasil.

Posición Fisiográfica : Suave ondulado.

Topografía : Suave ondulado.

Drenaje : Bien drenado.

Vegetación : Floresta de transición con babuçu.

Mat. Originario : Descomposición de rocas básicas.

Fuente : Proj. Radambrasil, Vol.4,1974( 5 ); perfil 17, pág. 60/1.

$A_1$ 0-30 cm; 2.5YR 3/4; arcillo limoso; granular pequeña moderada; firme; concreciones lateríticas comúnes.

$B_2$ 12-50 cm; 2.5YR 3/6; arcilloso; prismática media fuerte; barnices moderados comúnes; concreciones pequeñas de manganeso.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.8 | 5.2 | 4.48 | 0.42 | 1.6 | 82 | 0 |
| $A_3$ | 5.7 | 5.1 | 2.26 | 0.25 | < 1 | 80 | 0 |
| $B_2$ | 5.0 | 4.3 | 1.06 | 0.12 | < 1 | 79 | 12 |
| $B_3$ | 5.8 | 5.3 | 0.53 | 0.05 | < 1 | 91 | 0 |
| C | 5.0 | 4.0 | 0.36 | 0.03 | < 1 | 75 | 12 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 18.67 | 7.25 | 0.64 | 0.05 | 5.85 | 0.00 | 26.61 | 32.46 |
| 11.22 | 6.67 | 0.79 | 0.06 | 4.73 | 0.00 | 18.84 | 23.57 |
| 6.52 | 9.39 | 0.37 | 0.06 | 4.02 | 0.20 | 16.34 | 20.56 |
| 6.09 | 10.84 | 1.30 | 0.06 | 1.84 | 0.00 | 18.29 | 20.13 |
| 2.30 | 11.81 | 1.07 | 0.08 | 2.99 | 2.03 | 15.35 | 20.37 |

## SISTEMA DE TIERRA 316, Faceta 1

Clasificación : Areias Quartzosas Distróficas - Quartzipsamments.

Localización : Punto 3 - Municipio Itaituba - Edo.Pará.BR.

Topografía : Relieve suave ondulado.

Drenaje : Excesivamente bien drenado.

Vegetación : Floresta.

Mat.Originario : Sedimentos arenosos.

Fuente : Proj. Radambrasil, Vol.7,1975( 8 ); perfil 25, pág. 219/20.

$A_0$ 0-10 cm; 10R 2/2; arenoso con materia orgánica; granular media moderada y grano simple; muy friable; límite plano y abrupto.

$A_{11}$ 10-25 cm; 5YR 2/2; arenoso; grano simple; suelto; límite plano y gradual.

$A_{12}$ 25-45 cm; 5YR 2/1; arenoso; grano simple; suelto; suelto; límite plano y claro.

$A_{31}$ 45-65 cm; 7.5YR 3.5/2; arenoso; grano simple; suelto; límite plano y gradual.

$A_{32}$ 65-100 cm; 7.5YR 3/2; arenoso; grano simple; suelto; límite plano y gradual.

C 100-130 cm; 7.5YR 5/2; arenoso; grano simple; suelto

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_0$ | 4.1 | 2.8 | 6.25 | 0.72 | 1.7 | 1 | 91 |
| $A_{11}$ | 4.3 | 3.9 | 2.10 | 0.12 | 1.4 | 2 | 93 |
| $A_{12}$ | 4.5 | 4.3 | 1.82 | 0.10 | < 1 | 2 | 84 |
| $A_{31}$ | 4.6 | 4.4 | 0.60 | 0.03 | < 1 | 5 | 74 |
| $A_{32}$ | 4.9 | 4.7 | 0.29 | 0.02 | < 1 | 7 | 66 |
| C | 4.9 | 4.7 | 0.09 | 0.01 | < 1 | 27 | 62 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.18 | 0.23 | 0.21 | 0.16 | 57.63 | 8.20 | 0.78 | 66.61 |
| 0.04 | 0.09 | 0.04 | 0.03 | 9.28 | 2.60 | 0.20 | 12.08 |
| 0.03 | 0.07 | 0.03 | 0.02 | 6.79 | 0.80 | 0.15 | 7.74 |
| 0.03 | 0.06 | 0.02 | 0.03 | 2.24 | 0.40 | 0.14 | 2.78 |
| 0.02 | 0.06 | 0.01 | 0.01 | 1.12 | 0.20 | 0.10 | 1.42 |
| 0.03 | 0.06 | 0.01 | 0.01 | 0.13 | 0.20 | 0.12 | 0.45 |

## SISTEMA DE TIERRA 318, Faceta 1

Clasificación : Latossolo Vermelho Amarelo Distrófico - Haplorthox.

Localización : Punto 03, Estado de Pará. Brasil.

Posición Fisiográfica : Tercio inferior de pendiente.

Topografía : Ondulado, pendiente 10%.

Drenaje : Bien drenado.

Vegetación : Floresta.

Mat. Originario : Granitos.

Fuente: Proj. Radambrasil, Vol.7,1975( 8 ); perfil 32, pág. 201/2.

$A_1$ 0-5 cm; 10YR 5/4; arcilloso; granular pequeña débil; friable; límite plano y gradual.

$A_3$ 5-20 cm; 10YR 5/6; arcilloso; granular pequeña débil; friable; límite plano y gradual.

$B_{21}$ 20-50 cm; 10YR 5/8; arcilloso pesado; masivo poroso y bloques pequeños débiles; friable; límite plano y gradual.

$B_{22}$ 50-130 cm; 7.5YR 5.5/8; arcilloso gravoso; masivo poroso y bloques pequeños débiles; friable.

OBS.: Raíces abundantes en $A_1$ y $A_3$; muchas en $B_{21}$ y $B_{22}$. Presencia de gravas en $B_{21}$ y $B_{22}$.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.1 | 3.6 | 1.60 | 0.14 | 2.9 | 3 | 89 |
| $A_3$ | 3.8 | 3.6 | 1.11 | 0.10 | 1.2 | 2 | 94 |
| $B_{21}$ | 4.3 | 3.9 | 0.72 | 0.06 | < 1 | 2 | 94 |
| $B_{22}$ | 4.9 | 3.9 | 0.31 | 0.03 | < 1 | 3 | 91 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.08 | 0.12 | 0.09 | 0.03 | 6.11 | 2.00 | 0.32 | 9.23 |
| 0.03 | 0.06 | 0.05 | 0.02 | 3.80 | 2.80 | 0.16 | 6.76 |
| 0.02 | 0.03 | 0.03 | 0.03 | 2.95 | 2.00 | 0.11 | 5.06 |
| 0.03 | 0.02 | 0.03 | 0.03 | 2.43 | 1.20 | 0.11 | 3.74 |

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## SISTEMA DE TIERRA 328, Faceta 1

Clasificación : Latossolo Amarelo Distrófico - Haplorthox.

Localización : Lat.03°19'S - Long.57°27' W. Gr. Brasil.

Posición Fisiográfica : Relieve plano.

Topografía : Plano.

Drenaje : Bien drenado.

Vegetación : Floresta densa.

Mat. Originario : Sedimentos arcillosos del terciario.

Fuente : Proj. Radambrasil, Vol.10,1976(11); perfil 49, pág. 225/6.

$A_1$ 0-10 cm; 10YR 5/3; arcilloso; granular pequeña muy débil; friable; límite gradual.

$A_3$ 10-25 cm; 10YR 5/4; arcilloso pesado; granular pequeña débil; friable; límite difuso.

$B_1$ 25-55 cm; 10YR 6/6; arcilloso pesado; granular pequeña débil; friable; límite difuso.

$B_{21}$ 55-90 cm; 10YR 7/6; arcilloso pesado; granular media débil; friable; límite difuso.

$B_{22}$ 90-170 cm; 10YR 7/6; arcilloso pesado; granular media débil; friable.

| HTE | pH | | C | M.O. | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 3.3 | 3.2 | 4.40 | 7.6 | 24 | 7 | 67 |
| $A_3$ | 3.8 | 3.8 | 1.40 | 2.4 | 9 | 12 | 55 |
| $B_1$ | 3.9 | 3.7 | 0.80 | 1.4 | 3 | 7 | 75 |
| $B_{21}$ | 4.3 | 3.8 | 0.52 | 0.9 | 3 | 5 | 79 |
| $B_{22}$ | 4.6 | 3.9 | 0.34 | 0.6 | 3 | 5 | 82 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.16 | 0.56 | 0.14 | 0.09 | 10.56 | 1.94 | 0.95 | 13.45 |
| 0.19 | 0.66 | 0.06 | 0.06 | 5.72 | 1.18 | 0.97 | 7.87 |
| 0.04 | 0.19 | 0.03 | 0.12 | 3.66 | 1.14 | 0.38 | 5.18 |
| 0.05 | 0.14 | 0.02 | 0.04 | 3.12 | 0.98 | 0.25 | 4.35 |
| 0.03 | 0.11 | 0.02 | 0.04 | 2.62 | 0.88 | 0.20 | 3.70 |

## SISTEMA DE TIERRA 330, Faceta 1

Clasificación : Solo Litólico Eutrófico - Troporthent.

Localización : Lat.10°16'S - Long.62°51'W.Gr. Brasil.

Posición Fisiográfica : Ladera media.

Topografía : Fuerte ondulado a montañoso; 25-30% pend.

Drenaje : Bien drenado.

Vegetación : Floresta abierta.

Mat. Originario : Granitos Precámbricos.

Fuente : Proj. Radambrasil; Vol.16,1978(17); perfil 154, pág.311/2.

$A_{11}$ 0-15 cm; 2.5YR 3/4; franco arenoso; granular pequeña débil; friable ; límite gradual.

$A_{12}$ 15-40 cm; 2.5YR 3/6; franco arcillo arenoso; bloques pequeños moderados; plástico y ligeramente pegajoso.

R 40 cm+; roca.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_{11}$ | 5.5 | 5.0 | 1.51 | 0.13 | 1.6 | 82 | 0 |
| $A_{12}$ | 5.7 | 4.8 | 0.59 | 0.07 | < 1 | 77 | 0 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 6.10 | 1.11 | 0.34 | 0.02 | 1.65 | 0.02 | 7.57 | 9.22 |
| 3.80 | 0.38 | 0.15 | 0.03 | 1.32 | 0.00 | 4.36 | 5.68 |

## SISTEMA DE TIERRA 331, Faceta 1

Clasificación : Latossolo Vermelho Amarelo Alico - Acrorthox.

Localización : Lat.9°21' - Long.62°15'W. Brasil.

Posición Fisiográfica : Lugar con pendiente 2-4%.

Topografía : Plano a suave ondulado.

Drenaje : Bien drenado.

Vegetación : Floresta densa.

Mat. Originario : Rocas del Precámbrico.

Fuente : Proj. Radambrasil, Vol.16,1978(17); perfil 101, pág. 283.

$A_1$ 0-10 cm; 10YR 5/6; arcilloso pesado; bloques medio débiles; firme; límite plano y claro.

$A_3$ 10-30 cm; 7.5YR 5/8; arcilloso pesado; masivo tendiendo a bloques medio débiles; poros comúnes pequeños; friable; límite plano y difuso.

$B_1$ 30-55 cm; 7.5YR 5/8; arcilloso pesado; masivo tendiendo a bloques medios débiles; poros pequeños; friable; límite plano y difuso.

$B_{21}$ 55-95 cm; 7.5YR 6/8; arcilloso pesado; masivo poroso tendiendo a granular pequeña débil; poros abundantes; muy friable; límite plano y difuso.

$B_{22}$ 95-170 cm; 7.5YR 6/8; arcilloso pesado; masivo poroso tendiendo a granular pequeña débil; muchos poros; muy friable.

OBS.: Raíces abundantes en $A_1$, $A_3$ y $B_1$ y escasas en $B_{21}$

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 3.5 | 3.2 | 1.86 | 0.13 | 3 | 4 | 88 |
| $A_3$ | 4.0 | 3.8 | 0.84 | 0.06 | < 1 | 5 | 88 |
| $B_1$ | 4.2 | 4.0 | 0.57 | 0.04 | < 1 | 5 | 87 |
| $B_{21}$ | 4.6 | 4.2 | 0.34 | 0.03 | < 1 | 6 | 85 |
| $B_{22}$ | 5.6 | 4.3 | 0.17 | 0.02 | < 1 | 9 | 82 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.09 | 0.13 | 0.11 | 0.03 | 6.92 | 2.60 | 0.36 | 9.88 |
| 0.09 | 0.05 | 0.05 | 0.03 | 2.69 | 1.60 | 0.22 | 4.51 |
| 0.06 | 0.04 | 0.04 | 0.03 | 2.10 | 1.20 | 0.17 | 3.47 |
| 0.05 | 0.03 | 0.03 | 0.03 | 1.51 | 0.80 | 0.14 | 2.45 |
| 0.06 | 0.04 | 0.04 | 0.03 | 1.01 | 0.80 | 0.17 | 1.98 |

## SISTEMA DE TIERRA 332, Faceta 1

Clasificación : Podzólico Vermelho Amarelo Eutrófico - Tropudalf.

Localización : Lat.11°01'S - Long.62°17'W. Brasil.

Posición Fisiográfica : Lugar plano pendiente inferior 2%.

Topografía : Plano.

Drenaje : Bien drenado.

Vegetación : Floresta densa.

Mat. Originario : Rocas del Precámbrico.

Fuente : Proj. Radambrasil, Vol.16,1978(17); perfil 193;pág. 291.

$A_1$ 0-20 cm; 5YR 3/4; franco arenoso; granular pequeña débil; friable; límite difuso.

$A_3$ 20-40 cm; 5YR 4/4; franco arenoso; bloques y granular media pequeña; friable; límite difuso.

$B_1$ 40-60 cm; 5YR 4/6; franco arcillo arenoso; bloques pequeños débiles; friable; límite difuso.

$B_2$ 60-90 cm; 2.5YR 4/6; arcilloso; bloques pequeños moderados; barnices comúnes débiles; friable; límite difuso.

$B_3$ 90-110 cm; 2.5YR 5/8; moteados 7.5YR 7/6; franco arcilloso; masivo; friable; límite abrupto.

$C_1$ 110-130 cm; 2.5YR 5/8; moteado 7.5YR 7/6; franco arcilloso; masivo; friable; límite abrupto.

$C_2$ 130-160 cm; mezcla de 7.5YR 7/8, 7.5YR 5/8; 5Y 5/8 y 2.5 YR 6/8; franco arcillo arenoso; masivo; friable.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.8 | 5.1 | 0.58 | 0.11 | 1 | 66 | 0 |
| $A_3$ | 5.8 | 5.0 | 0.33 | 0.07 | < 1 | 77 | 0 |
| $B_1$ | 5.5 | 5.0 | 0.33 | 0.07 | < 1 | 66 | 0 |
| $B_2$ | 5.3 | 5.2 | 0.27 | 0.06 | < 1 | 71 | 0 |
| $B_3$ | 5.4 | 5.3 | 0.20 | 0.05 | < 1 | 83 | 0 |
| $C_1$ | 5.5 | 5.1 | 0.14 | 0.05 | < 1 | 75 | 0 |
| $C_2$ | 5.5 | 5.0 | 0.13 | 0.04 | < 1 | 69 | 0 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 2.3 | 0.5 | 0.11 | 0.01 | 1.5 | 0 | 2.1 | 4.4 |
| 1.2 | 1.4 | 0.07 | 0.01 | 0.8 | 0 | 2.7 | 3.5 |
| 1.2 | 0.8 | 0.08 | 0.01 | 1.1 | 0 | 2.1 | 3.2 |
| 1.5 | 0.9 | 0.08 | 0.01 | 1.0 | 0 | 2.5 | 3.5 |
| 1.6 | 1.2 | 0.08 | 0.01 | 0.6 | 0 | 2.9 | 3.5 |
| 1.6 | 1.0 | 0.09 | 0.02 | 0.9 | 0 | 2.7 | 3.6 |
| 1.1 | 1.0 | 0.11 | 0.01 | 1.0 | 0 | 2.2 | 3.2 |

## SISTEMA DE TIERRA 333, Faceta 1

Clasificación : Podzólico Vermelho Amarelo Alico - Paleudult.

Localización : Lat.09°11'S - Long.66°56'W. Brasil.

Posición Fisiográfica : Lugar con 2-4% pendiente.

Topografía : Suave ondulado.

Drenaje : Bien drenado.

Vegetación : Floresta tropical densa.

Mat. Originario : F. Solimoes. Sedimentos complejos y variados Plio-Pleistocenos, de origen fluvio - lacustre.

Fuente : Proj. Radambrasil, Vol.12,1 976(13); perfil 79, pág.243/4.

$A_1$ 0-6 cm; 10YR 3/3; franco limoso; granular pequeña débil; suelto; muy friable; límite plano y claro.

$A_3$ 6-20 cm; 10YR 4/3, franco arcillo limoso; granular pequeña débil; suelto; límite plano y claro.

$B_1$ 20-60 cm; 7.5YR 5/6; arcilloso; bloques pequeños débiles; ligeramente duro, firme; límite plano y gradual.

$B_2$ 60-110 cm; 5YR 5/6; arcilloso; bloques pequeños débiles; duro, firme; límite plano y gradual.

$B_3$ 110-140 cm; 5YR 5/8; moteados 2.5YR 4/8 y 10YR 6/6; arcilloso pesado; bloques pequeños débiles; duro, firme; límite plano y gradual.

C 140-160 cm; mezcla de 10YR 7/1, 2.5YR 5/8 y 10YR 6/6; arcilloso pesado; bloques pequeños débiles; duro, firme.

OBS.: Raíces finas y medias en $A_1$ y $A_3$. Actividad biológica común en $A_1$ y $A_3$, ausente en $B_1$ .

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 3.5 | 3.1 | 7.47 | 0.79 | 50 | 5 | 80 |
| $A_3$ | 3.6 | 3.0 | 2.33 | 0.27 | 89 | 3 | 94 |
| $B_1$ | 3.9 | 3.5 | 0.62 | 0.08 | < 1 | 1 | 98 |
| $B_2$ | 4.2 | 3.7 | 0.53 | 0.06 | < 1 | 1 | 98 |
| $B_3$ | 4.4 | 3.7 | 0.42 | 0.07 | < 1 | 2 | 98 |
| C | 4.5 | 3.8 | 0.43 | 0.05 | < 1 | 2 | 97 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.56 | 0.85 | 0.50 | 0.07 | 30.61 | 8.00 | 1.98 | 40.59 |
| 0.09 | 0.22 | 0.17 | 0.03 | 9.65 | 8.00 | 0.51 | 18.16 |
| 0.02 | 0.04 | 0.04 | 0.03 | 1.78 | 6.80 | 0.13 | 8.71 |
| 0.02 | 0.04 | 0.04 | 0.03 | 1.74 | 7.00 | 0.13 | 8.87 |
| 0.01 | 0.05 | 0.04 | 0.03 | 1.45 | 6.80 | 0.13 | 8.38 |
| 0.03 | 0.06 | 0.04 | 0.03 | 1.26 | 6.00 | 0.16 | 7.42 |

## SISTEMA DE TIERRA 334, Faceta 1

Clasificación : Laterita Hidromórfica Alica - Plinthaquox.

Localización : Municipio Lábrea, Edo. Amazonas. A 77 km.del río Madeira (Porto Velho) en dirección a Humaita BR 319.

Posición Fisiográfica : Lugar plano.

Topografía : Plano.

Drenaje : Imperfectamente drenado.

Vegetación : Sabana.

Mat. Originario : Sedimentos variados Pliopleistocenos. Formación Solimoes.

Fuente : Proj. Radambrasil, Vol.16,1978(17); perfil 12,pág-301.

$A_1$ 0-8 cm; 5YR 3/1; franco limoso; granular pequeña débil; friable; límite claro.

$A_3$ 8-20 cm; 5YR 4/1; franco; granular pequeña débil; friable; límite abrupto.

$B_1pl$ 20-50 cm; 10YR 4/2; moteado 2.5YR 4/6; franco; bloques medios moderados; friable; límite gradual.

$B_{21}pl$ 50-70 cm; mezcla de 10YR 5/2 y 2.5YR 4/8; franco limoso; bloques grandes moderados; firme; límite claro.

$B_{22}pl$ 70-110 cm; mezcla de 10YR 5/2 y 2.5YR 3/6; franco limoso; bloques grandes moderados; firme; límite claro.

$B_{23}pl$ 110-140 cm+; mezcla de N7/ y 10R 4/6; franco arcillo limoso; bloques grandes moderados; firme.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.0 | 3.8 | 2.74 | 0.28 | 1.64 | 6 | 84 |
| $A_3$ | 4.2 | 3.9 | 1.36 | 0.17 | 1.11 | 6 | 88 |
| $B_1pl$ | 4.3 | 4.0 | 0.35 | 0.05 | 0.48 | 9 | 77 |
| $B_{21}pl$ | 4.7 | 4.1 | 0.49 | 0.05 | 0.53 | 9 | 80 |
| $B_{22}pl$ | 4.3 | 3.9 | 0.29 | 0.03 | 0.53 | 7 | 85 |
| $B_{23}pl$ | 4.4 | 3.8 | 0.21 | 0.06 | 0.44 | 5 | 89 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.16 | 0.32 | 0.15 | 0.01 | 6.30 | 3.84 | 0.64 | 10.78 |
| 0.28 | 0.16 | 0.09 | 0.01 | 4.71 | 3.84 | 0.54 | 9.09 |
| 0.12 | 0.51 | 0.05 | 0.01 | 4.60 | 2.36 | 0.69 | 7.65 |
| 0.12 | 0.43 | 0.05 | 0.01 | 3.84 | 2.50 | 0.61 | 6.95 |
| 0.12 | 0.47 | 0.07 | 0.02 | 5.03 | 3.84 | 0.68 | 9.55 |
| 0.08 | 0.47 | 0.09 | 0.02 | 6.66 | 5.38 | 0.66 | 12.70 |

## SISTEMA DE TIERRA 335, Faceta 2

Clasificación : Terra Roxa Estruturada Distrófica - Paleudult.

Localización : Lat.10°41'S - Long.63°48'W.Gr. Brasil.

Posición Fisiográfica : Lugar plano.

Topografía : Plano, pendiente inferior a 2%.

Drenaje : Bien drenado.

Vegetación : Floresta abierta.

Mat. Originario : Producto descomposición rocas básicas.

Fuente : Proj. Radambrasil, Vol.16,1978(17); perfil 147; pág. 289.

$A_1$ 0-20 cm; 10R 3/3.5; arcilloso; granular media moderada; friable; límite difuso.

$A_3$ 20-40 cm; 10R 3/4; arcilloso pesado; bloques medios moderados; friable; límite difuso.

$B_1$ 40-60 cm; 10R 3/5; arcilloso pesado; bloques medios moderados; friable; límite difuso.

$B_{21}$ 60-90 cm; 10R 3/6; arcilloso pesado; bloques medios moderados; pocos barnices; friable; límite difuso.

$B_{22}$ 90-130 cm; 10R 3/6; arcilloso pesado; bloques medios moderados; barnices comúnes; friable; límite difuso.

$B_{23}$ 130-160 cm; 10R 3/6; arcilloso pesado; bloques medios moderados; barnices comúnes; friable; límite difuso.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.3 | 4.8 | 2.01 | 0.37 | 7 | 50 | 0 |
| $A_3$ | 5.1 | 4.6 | 1.23 | 0.24 | 5 | 33 | 3 |
| $B_1$ | 5.1 | 4.5 | 0.73 | 0.17 | 8 | 18 | 14 |
| $B_{21}$ | 5.6 | 4.7 | 0.37 | 0.12 | 16 | 15 | 11 |
| $B_{22}$ | 5.6 | 4.7 | 0.31 | 0.10 | 17 | 13 | 13 |
| $B_{23}$ | 5.6 | 4.8 | 0.28 | 0.08 | 18 | 14 | 13 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 5.4 | 1.1 | 0.19 | 0.01 | 6.6 | 0.0 | 6.7 | 13.3 |
| 2.1 | 0.6 | 0.09 | 0.01 | 5.7 | 0.1 | 2.8 | 8.6 |
| 1.0 | 0.1 | 0.06 | 0.01 | 5.3 | 0.2 | 1.2 | 6.7 |
| 0.7 | | 0.05 | 0.01 | 4.5 | 0.1 | 0.8 | 5.4 |
| 0.7 | | 0.03 | 0.01 | 4.5 | 0.1 | 0.7 | 5.3 |
| 0.7 | | 0.03 | 0.01 | 4.1 | 0.1 | 0.7 | 4.9 |

## SISTEMA DE TIERRA 338, Faceta 1

Clasificación : Gley Pouco Húmico Alico - Tropaquept.

Localización : Lat.9°45'S - Long.65°16'W. Brasil.

Posición Fisiográfica : Lugar plano, varzea.

Topografía : Plano, pendiente 0-2%.

Drenaje : Mal drenado.

Vegetación : Floresta densa aluvial.

Mat. Originario : Sedimentos arcillosos y arenosos del cuaternario.

Fuente : Proj. Radambrasil, Vol.16,1978(17); perfil 61, pág. 307.

$A_{11}$ 0-20 cm; 10YR 4/1; franco limoso; masivo, límite gradual.

$A_{12}$ 20-40 cm; 10YR 4/2; franco arcillo limoso; masivo; límite gradual.

$C_{1g}$ 40-55 cm; 10YR 5/1; franco arcilloso; masivo; límite gradual.

$C_{2g}$ 55-80 cm; 5Y 6/1; franco limoso; masivo; límite claro.

$C_{3g}$ 80-140 cm; 5Y 6.5/1, moteados 2.5YR 4/8 y 10YR 6/6; franco; masivo.

| HTE | pH | | C | M.O. | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_{11}$ | 3.9 | 3.7 | 2.10 | 3.62 | 6 | 10.21 | 79 |
| $A_{12}$ | 5.0 | 4.0 | 1.38 | 2.38 | 9 | 20.95 | 59 |
| $C_{1g}$ | 4.9 | 3.9 | 0.75 | 1.29 | 9 | 9.84 | 81 |
| $C_{2g}$ | 4.9 | 3.8 | 0.30 | 0.52 | 3 | 15.29 | 79 |
| $C_{3g}$ | 4.8 | 3.8 | 0.15 | 0.26 | 6 | 16.86 | 81 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| - | 1.04 | 0.07 | 0.05 | 5.88 | 4.32 | 1.16 | 11.36 |
| 0.27 | 1.89 | 0.05 | 0.07 | 5.29 | 3.31 | 2.28 | 10.88 |
| 0.11 | 0.50 | 0.05 | 0.06 | 3.42 | 3.18 | 0.72 | 7.32 |
| 0.13 | 0.43 | 0.04 | 0.05 | 1.10 | 2.50 | 0.65 | 4.25 |
| 0.06 | 0.58 | 0.02 | 0.05 | 0.51 | 2.99 | 0.71 | 4.21 |

## SISTEMA DE TIERRA 343, Faceta 1

Clasificación : Latossolo Vermelho Amarelo distrófico - Haplorthox.

Localización : Lat.00°03'S - Long.57°30'W. Brasil.

Posición Fisiográfica : Ladera media.

Topografía : Montañoso, pendiente 45°.

Drenaje : Bien drenado.

Vegetación : Floresta densa.

Mat. Originario : Derivado de granitos, gnaisses; biotita granito y granitos peralcalinos-Precámbricos.

Fuente : Proj. Radambrasil, Vol.9,1977(10); perfil 17,pág. 108.

A 0-20 cm; 7.5YR 4/4; arcilloso; granular pequeña débil; friable; límite plano y gradual.

$B_1$ 20-40 cm; 7.5YR 4/4; arcilloso pesado; granular pequeña moderada; friable; límite plano y difuso.

$B_{21}$ 40-65 cm; 7.5YR 5/6; arcilloso pesado; granular pequeña moderada; friable; límite plano y difuso.

$B_{22}$ 65-105 cm; 7.5YR 5/6; arcilloso pesado; bloques pequeños moderados; friable.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| A | 4.3 | 4.0 | 1.71 | 2.95 | 0.5 | 12 | 40 |
| $B_1$ | 4.7 | 4.3 | 0.97 | 1.67 | 0.5 | 7 | 0 |
| $B_{21}$ | 5.7 | 4.9 | 0.48 | 0.07 | 0.5 | 8 | 0 |
| $B_{22}$ | 5.5 | 5.1 | 0.29 | 0.30 | 0.5 | 10 | 0 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.22 | 0.26 | 0.08 | 0.02 | 4.05 | 0.40 | 0.58 | 5.03 |
| 0.07 | 0.10 | 0.05 | 0.02 | 2.97 | 0.00 | 0.24 | 3.21 |
| 0.05 | 0.04 | 0.04 | 0.02 | 1.65 | 0.00 | 0.15 | 1.80 |
| 0.04 | 0.04 | 0.04 | 0.02 | 1.32 | 0.00 | 0.14 | 1.46 |

## SISTEMA DE TIERRA 345, Faceta 1

Clasificación : Podzólico Vermelho Amarelo - Tropudult.

Localización : Lat.56°35'W - Lat.00°50'N. (Approx.). BR.

Posición Fisiográfica : Tercio inferior de ladera.

Topografía : Ondulado, pendiente 6-8%.

Drenaje : Bien drenado.

Vegetación : Floresta densa.

Mat. Originario : Derivado de granitos Precámbricos.

Fuente : Proj. Radambrasil, Vol.9,197 (10); perfil 28, pág. 198.

$A_1$ 0-10 cm; 10YR 5/4; franco arenoso; grano simple y granular; friable; límite plano y gradual.

$A_3$ 10-20 cm; 10YR 5/8; franco arcillo arenoso; granular pequeña débil; friable; límite plano y claro.

$B_1$ 20-40 cm; 7.5YR 6/6; franco arcilloso; bloques pequeños débiles; friable; límite plano y gradual.

$B_{21}$ 40-75 cm; 7.5YR 6/6; arcilloso; bloques medios débiles; friable; límite plano y difuso.

$B_{22}$ 75-110 cm; 7.5YR 6/8; arcilloso; bloques medios débiles; friable.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.6 | 4.0 | 1.69 | 0.13 | 1.06 | 8 | 71 |
| $A_3$ | 4.6 | 4.0 | 0.85 | 0.08 | < 0.5 | 4 | 86 |
| $B_1$ | 5.1 | 4.2 | 0.52 | 0.04 | < 0.5 | 5 | 85 |
| $B_{21}$ | 5.4 | 4.2 | 0.52 | 0.04 | < 0.5 | 5 | 87 |
| $B_{22}$ | 6.1 | 5.3 | 0.37 | 0.03 | < 0.5 | 5 | 75 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.15 | 0.23 | 0.09 | 0.03 | 4.24 | 1.20 | 5.94 | 5.94 |
| 0.04 | 0.05 | 0.05 | 0.02 | 2.46 | 1.00 | 3.62 | 3.62 |
| 0.03 | 0.05 | 0.04 | 0.02 | 1.84 | 0.80 | 2.78 | 2.78 |
| 0.03 | 0.04 | 0.04 | 0.01 | 1.67 | 0.80 | 2.59 | 2.59 |
| 0.03 | 0.04 | 0.04 | 0.02 | 1.91 | 0.40 | 2.44 | 2.44 |

## SISTEMA DE TIERRA 347, Faceta 1

Clasificación : Latossolo Amarelo Distrófico - Umbriorthox.

Localización : Aprox. Lat.02°13'S - Long.56°55'W. Brasil.

Posición Fisiográfica : Tercio medio de ladera.

Topografía : Ondulado, pendiente 8-9%.

Drenaje : Bien drenado.

Vegetación : Floresta densa.

Mat. Originario : Sedimentos arcillosos del Terciario.

Fuente : Proj. Radambrasil, Vol.10,197 (11); perfil 50, pág.226.

$A_1$ 0-20 cm, 10YR 3/3; arcilloso; granular pequeña débil; friable; límite gradual.

$A_3$ 20-50 cm; 10YR 4/4; arcilloso; granular pequeña débil; friable; límite difuso.

$B_1$ 50-70 cm; 10YR 5/6; arcilloso pesado; masivo tendiendo a granular; friable; límite difuso.

$B_{21}$ 70-110 cm; 7.5YR 5/6; arcilloso pesado; masivo tendiendo a granular; friable; límite difuso.

$B_{22}$ 110-150 cm; 7.5YR 5/8; arcilloso pesado; masivo; tendiendo a granular; friable.

| HTE | pH | | C | M.O. | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 3.0 | 3.2 | 3.60 | 6.2 | 1.8 | 5 | 82 |
| $A_3$ | 3.8 | 3.9 | 1.96 | 3.4 | 6.0 | 4 | 83 |
| $B_1$ | 4.0 | 3.9 | 1.01 | 1.7 | 3.0 | 5 | 79 |
| $B_{21}$ | 3.9 | 3.7 | 0.57 | 0.9 | 6.0 | 19 | 81 |
| $B_{22}$ | 4.2 | 4.0 | 0.45 | 0.8 | 6.0 | 27 | 73 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.29 | 0.29 | 0.09 | 0.10 | 11.45 | 3.46 | 0.77 | 15.65 |
| 0.13 | 0.16 | 0.04 | 0.04 | 8.14 | 1.76 | 0.37 | 10.27 |
| 0.13 | 0.19 | 0.03 | 0.03 | 5.14 | 1.76 | 0.38 | 6.98 |
| 0.11 | 0.11 | 0.02 | 0.03 | 3.74 | 1.14 | 0.27 | 5.15 |
| 0.10 | 0.12 | 0.02 | 0.03 | 2.96 | 0.72 | 0.27 | 3.95 |

## SISTEMA DE TIERRA 348, Faceta 1

Clasificación : Latossolo Amarelo Alico - Acrustox.

Localización : Lat.2°53'S - Long.60°06'W. Brasil.

Posición Fisiográfica : Tercio medio de elevación.

Topografía : Suave ondulado, pendiente 2-6%.

Drenaje : Bien drenado.

Vegetación : Floresta densa.

Mat. Originario : Sedimentos intercalados de areniscas y arcilitas del Terciario.(Formación Grupo Barreiras).

Fuente : Proj. Radambrasil, Vol.18,1978(19); perfil 105, pág.277.

A 0-30 cm; 10YR 4/4; arcillo arenoso; granular pequeña débil; muy friable; límite gradual.

$B_1$ 30-50 cm; 10YR 5/6; arcillo arenoso; granular media débil; friable; límite difuso.

$B_{21}$ 50-130 cm; 10YR 6/6; arcillo arenoso; bloques pequeños débiles; friable; límite difuso.

$B_{22}$ 130-160 cm; 10YR 6/8; arcilloso; bloques pequeños débiles; friable.

OBS.: Concreciones ferruginosas medias a partir de 140 cm.

| HTE | pH | | C | M.O. | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| A | 3.8 | 3.8 | 2.1 | 3.61 | 6 | 8 | 72 |
| $B_1$ | 4.3 | 4.1 | 0.8 | 1.38 | 3 | 7 | 74 |
| $B_{21}$ | 4.5 | 4.3 | 0.4 | 0.69 | 3 | 10 | 63 |
| $B_{22}$ | 4.6 | 4.4 | 0.4 | 0.69 | 3 | 11 | 72 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.10 | 0.10 | 0.08 | 0.40 | 2.00 | 1.73 | 0.68 | 8.02 |
| 0.07 | 0.02 | 0.04 | 0.23 | 1.15 | 1.04 | 0.36 | 5.24 |
| 0.12 | 0.02 | 0.05 | 0.21 | 0.82 | 0.69 | 0.40 | 3.90 |
| 0.10 | 0.02 | 0.04 | 0.23 | 0.66 | 0.58 | 0.23 | 3.65 |

## SISTEMA DE TIERRA 349, Faceta 1

Clasificación : Laterita Hidromorfica Distrófica - Plinthaquult.

Localización : BR 319, km. 30 del trech Careiro - Manaus, Edo. Amazonas. Brasil.

Posición Fisiográfica : Lugar plano.

Topografía : Plano.

Drenaje : Moderadamente drenado.

Vegetación : Floresta densa.

Mat. Originario : Sedimentos arcillos del Terciario.

Fuente : Proj. Radambrasil, Vol.10,1976(11); perfil 45,pág. 251.

Ap 0-10 cm; 10YR 3/4; franco limoso; bloques medios moderados; friable; límite claro.

$A_3$ 10-30 cm; 10YR 5/6; moteado 2.5YR 5/8 y 5Y 6/1; franco limoso; bloques medios moderados; firme; límite claro.

$B_1pl$ 30-45 cm; 2.5YR 4/8; moteado 5Y 6/1; franco arcillo limoso; bloques medios fuertes; firme; límite gradual.

$B_{21}pl$ 45-60 cm; mezcla de 2.5YR 4/8 y 5Y 6/1; arcillo limoso; bloques medios fuertes; firme; límite claro.

$B_{22}pl$ 60-90 cm; mezcla de 10R 5/8 y 5Y 7/1; arcilloso pesado; bloques medios fuertes; firme.

| HTE | pH | | C | M.O. | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| A | 4.1 | 3.9 | 4.00 | 6.9 | 15 | 39 | 13 |
| $A_3$ | 3.7 | 3.5 | 0.94 | 1.6 | 6 | 7 | 85 |
| $B_1p$ | 4.1 | 3.5 | 0.60 | 1.0 | 6 | 5 | 93 |
| $B_{21}pl$ | 4.3 | 3.6 | 0.48 | 0.8 | 6 | 4 | 94 |
| $B_{22}pl$ | 4.4 | 3.4 | 0.32 | 0.5 | 6 | 4 | 96 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 4.40 | 1.01 | 0.23 | 0.06 | 8.28 | 0.82 | 5.70 | 14.80 |
| 0.10 | 0.33 | 0.10 | 0.03 | 4.62 | 3.28 | 0.56 | 8.46 |
| 0.05 | 0.29 | 0.04 | 0.03 | 3.52 | 5.18 | 0.41 | 9.11 |
| 0.02 | 0.30 | 0.06 | 0.03 | 2.92 | 6.38 | 0.41 | 9.71 |
| 0.03 | 0.42 | 0.09 | 0.04 | 3.12 | 12.68 | 0.58 | 16.38 |

## SISTEMA DE TIERRA 350, Faceta 1

Clasificación : Solo Aluvial Eutrófico - Haplaquent.

Localización : Ilha Amador, Río Amazonas, Municipio de Obidos, Edo. Pará. Brasil.

Posición Fisiográfica : Terraza aluvial.

Topografía : Plano.

Drenaje : Imperfectamente drenado.

Vegetación : Formaciones pioneras.

Mat. Originario : Sedimentos areno-limosos Cuaternarios.

Fuente : Proj. Radambrasil, Vol.10,1976(11); perfil 34,pág. 253.

A 0-20 cm; 10YR 3/1; franco limoso; granular pequeña débil; muy friable.

IIC 40-60 cm; 10YR 4/1; franco arenoso; masivo; plástico y ligeramente pegajoso.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| A | 5.9 | 5.1 | 0.67 | 0.06 | 60 | 84 | 0 |
| IIC | 5.9 | 4.6 | 0.57 | 0.04 | 75 | 54 | 0 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 16.80 | 1.70 | 0.31 | 0.10 | 3.59 | 0.00 | 18.91 | 22.50 |
| 5.18 | 1.26 | 0.16 | 0.05 | 5.57 | 0.00 | 6.65 | 12.22 |

## SISTEMA DE TIERRA 352, Faceta 1

Clasificación : Latossolo Vermelho Amarelo - Acrorthox.

Localización : Lat.01°15'N - Long.66°48'W. Brasil.

Posición Fisiográfica : Tercio superior de elevación.

Topografía : Suave ondulado, pendiente 5%.

Drenaje : Bien drenado.

Vegetación : Floresta densa.

Mat. Originario : Granitos; migmatitos y granodioritos del Precámbrico.

Fuente : Proj. Radambrasil, Vol.11,1976(12); perfil 53, pág. 218.

$A_1$ 0-20 cm; 10YR 5/4. franco arenoso; granular pequeña débil y grano simple; friable; límite difuso.

$A_3$ 20-35 cm; 10YR 5/6; franco arcillo arenoso; granular pequeña débil; friable; límite difuso.

$B_1$ 35-50 cm; 10YR 5/8; franco arcillo arenoso; granular pequeña débil y grano simple; friable; límite difuso.

$B_2$ 50-160 cm+; 7.5YR 5/8; franco arcillo arenoso;granular pequeña media y grano simple; friable.

OBS.: Raíces abundantes en $A_1$; muchas en $A_3$; comúnes en $B_1$ y $B_2$

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 3.6 | 3.4 | 1.45 | 0.12 | 1 | 3 | 88 |
| $A_3$ | 4.3 | 4.0 | 0.67 | 0.07 | < 0.5 | 4 | 83 |
| $B_1$ | 4.6 | 4.4 | 0.40 | 0.04 | < 0.5 | 6 | 77 |
| $B_2$ | 5.0 | 4.8 | 0.37 | 0.02 | < 0.5 | 7 | 71 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.08 | 0.07 | 0.07 | 0.03 | 6.45 | 1.80 | 0.25 | 8.50 |
| 0.03 | 0.03 | 0.03 | 0.03 | 2.37 | 0.60 | 0.12 | 3.09 |
| 0.05 | 0.03 | 0.03 | 0.01 | 1.41 | 0.40 | 0.12 | 1.93 |
| 0.02 | 0.01 | 0.03 | 0.02 | 0.79 | 0.20 | 0.08 | 0.07 |

## SISTEMA DE TIERRA 353, Faceta 1

Clasificación : Podzol Hidromórfico - Tropaquod.

Localización : Lat.01°14'N - Long.67°48'W. Brasil.

Posición Fisiográfica : Lugar plano, pendiente 0-2%.

Topografía : Plano.

Drenaje : Mal drenado.

Vegetación : Campinarama.

Mat. Originario : Rocas del Precámbrico.

Fuente : Proj. Radambrasil, Vol.11,1976( ); perfil 41,pág. 232.

$O_2$ 10-0 cm; restos de vegetales en descomposición.

$A_2$ 0-30 cm; 10YR 4/2; arenoso franco; grano simple; suelto; límite gradual.

Bhir 30-70 cm; 10YR 3/2; franco arenoso; grano simple; friable.

OBS.: Material consolidado impidiendo el barrenado.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $O_2$ | 3.5 | 3.0 | 16.53 | 0.97 | 10 | 4 | 66 |
| $A_2$ | 5.0 | 3.9 | 0.82 | 0.03 | 0.7 | 4 | 86 |
| Bhir | 4.8 | 3.8 | 3.14 | 0.20 | 0.5 | 1 | 93 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.08 | 2.09 | 1.28 | 0.20 | 71.50 | 7.20 | 3.65 | 82.35 |
| 0.02 | 0.07 | 0.04 | 0.03 | 2.63 | 1.00 | 0.16 | 3.79 |
| 0.07 | 0.04 | 0.04 | 0.05 | 11.59 | 2.60 | 0.20 | 14.39 |

## SISTEMA DE TIERRA 356, Faceta 1

Clasificación : Podzólico Vermelho Amarelo - Paleudult.

Localización : Lat.01°56'N - Long.67°01'W. Brasil.

Posición Fisiográfica : Lugar con pendiente 10-12%.

Topografía : Ondulado.

Drenaje : Bien drenado

Vegetación : Floresta densa.

Mat. Originario : Granitos, et. del Precámbrico.

Fuente : Proj. Radambrasil, Vol.11,1976(12); perfil 54,pág. 221.

$A_1$ 0-10 cm; 10YR 5/4; franco; granular pequeña débil; friable; límite gradual.

$A_3$ 10-40 cm; 10YR 5/6; franco arcillo arenoso; bloques medios moderados; firme; límite claro.

$B_2$ 40-100 cm; 10YR 6/8; franco arcillo arenoso; bloques medios moderados; friable.

OBS.: Muchas raíces en $A_1$; comúnes en $A_3$; pocas en $B_2$

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 3.8 | 3.6 | 1.27 | 0.13 | < 0.5 | | |
| $A_3$ | 4.2 | 4.0 | 0.80 | 0.07 | < 0.5 | | |
| $B_2$ | 5.0 | 4.4 | 0.46 | 0.06 | < 0.5 | | |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.05 | 0.05 | 0.05 | 0.03 | | | | |
| 0.03 | 0.03 | 0.03 | 0.03 | | | | |
| 0.03 | 0.01 | 0.01 | 0.02 | | | | |

## SISTEMA DE TIERRA 357, Faceta 1

Clasificación : Podzólico Vermelho Amarelo Alico - Plinthudult.

Localización : Lat.3°23'S - Long.69°25'W. Brasil.

Posición Fisiográfica : Plano, pendiente 1-2%.

Topografía : Plano.

Drenaje : Imperfectamente drenado.

Vegetación : Floresta abierta.

Mat. Originario : Sedimentos variados Terciario - Cuaternarios. (Formación Solimoes).

Fuente : Proj. Radambrasil, Vol.14,1977(15); perfil 62,pág. 224.

A 0-30 cm; 10YR 7/6; franco arcillo limoso; bloques pequeños débiles; ligeramente duro, firable; límite gradual.

$B_1$ 30-60 cm; 7.5YR 5/8; franco arcillo limoso; bloques pequeños débiles; ligeramente duro, friable; límite gradual.

$B_{21}$ 60-80 cm; 5YR 6/8; moteados N 7/; arcillo limoso; bloques pequeños débiles; ligeramente duro, friable; límite gradual.

$B_{22}$ 80-110 cm; 5YR 5/8; moteado 5YR 5/8; moteado 5YR 8/2; arcillo limoso; bloques medios moderados; duro, friable; límite gradual.

$B_{23}pl$ 110-150 cm+; mezcla de 2.5YR 4/6; N7/, 7.5YR 6/8; arcilloso pesado; bloques medios moderados; duro, friable.

OBS.: Raíces muchas finas en A , pocas y finas en B . Presencia de moteados a partir de los 60 cm y nivel freático a los 150 cm.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| A | 4.8 | 3.7 | 1.74 | 0.26 | < 1 | 7 | 84 |
| $B_1$ | 4.5 | 3.7 | 0.53 | 0.17 | 1 | 6 | 92 |
| $B_{21}$ | 4.7 | 3.2 | 0.52 | 0.14 | < 1 | 6 | 92 |
| $B_{22}$ | 4.9 | 3.8 | 0.44 | 0.14 | < 1 | 5 | 94 |
| $B_{23}pl$ | 5.1 | 3.8 | 0.34 | 0.13 | < 1 | 5 | 94 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca + Mg | K | Na | H | Al | TBI | CIC |
| 0.7 | 0.13 | 0.01 | 5.8 | 4.3 | 0.8 | 10.9 |
| 0.4 | 0.05 | 0.01 | 2.4 | 6.1 | 0.5 | 9.0 |
| 0.5 | 0.06 | 0.01 | 2.1 | 7.3 | 0.6 | 10.0 |
| 0.5 | 0.09 | 0.01 | 2.5 | 9.1 | 0.6 | 12.2 |
| 0.5 | 0.17 | 0.02 | 2.3 | 11.5 | 0.7 | 14.5 |

## SISTEMA DE TIERRA 358, Faceta 1

Clasificación : Gley Pouco Húmico Eutrófico - Tropaquept.

Localización : Lat.3°26' - Long.60°28'W.Gr. Brasil.

Posición Fisiográfica : Area plana, pendiente 0 a 1%.

Topografía : Plano.

Drenaje : Mal drenado.

Vegetación : Floresta abierta aluvial.

Mat. Originario : Sedimentos recientes del Cuaternario.

Fuente : Proj. Radambrasil, Vol.18,1978(19); perfil 131, pág.312/3.

$A_1$ 0-10 cm; N7/; moteado 5YR 5/8; arcillo limoso; masivo; límite gradual.

$C_{1g}$ 10-20 cm; 5Y 6/1; moteado 5YR 5/8; arcillo limoso; masivo; límite gradual.

$C_{2g}$ 20-100 cm; 5Y 6/1; moteado 5YR 6/8; arcillo limoso; masivo; límite gradual.

$C_{3g}$ 100-160 cm; N6/; moteado 5YR 6/8; arcilloso; masivo; muy plástico y muy pegajoso.

OBS.: Area utilizada con pecuaria.

| HTE | pH $H_2O$ | pH KCl | C | M.O. | P ppm | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.1 | 3.3 | 2.3 | 3.96 | 27 | 68 | 13 |
| $C_{1g}$ | 4.0 | 3.2 | 0.8 | 1.37 | 6 | 69 | 21 |
| $C_{2g}$ | 4.5 | 3.2 | 0.3 | 0.51 | 6 | 64 | 25 |
| $C_{3g}$ | 4.7 | 3.4 | 0.2 | 0.34 | 6 | 86 | 3 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 14.44 | 6.44 | 0.31 | 0.27 | 3.56 | 3.10 | 21.46 | 31.74 |
| 13.84 | 7.15 | 0.21 | 0.30 | 6.63 | 5.62 | 21.50 | 31.22 |
| 3.08 | 10.07 | 0.20 | 0.56 | 5.25 | 4.61 | 13.91 | 21.59 |
| 13.84 | 11.59 | 0.17 | 0.73 | 1.45 | 0.89 | 26.33 | 30.43 |

## SISTEMA DE TIERRA 360, Faceta 1

Clasificación : Gley Pouco Húmico Eutrófico - Tropaquept.

Localización : Lat.4 21' - Long.66 30'W. Brasil.

Posición Fisiográfica : Lugar plano, pendiente 0-2 .

Topografía : Plano.

Drenaje : Mal drenado.

Vegetación : Campo.

Mat. Originario : Sedimentos aluviales Cuaternarios.

Fuente : Proj. Radambrasil, Vol.15,1977(16); perfil 41, pág. 210/1.

$A_1$ 0-20 cm; 10YR 5/2; franco arcilloso; bloques medios moderados; duro, firme; límite gradual.

$C_{1g}$ 20-45 cm; 10YR 5/1; moteado 2.5YR 5/8 y 10YR 6/8; franco arcillo limoso, masivo, firme; límite gradual.

$C_{2g}$ 45-120 cm; 10YR 4/1; moteado 2.5YR 5/8; franco arcillo limoso; masivo, firme.

| HTE | pH $H_2O$ | pH KCl | C | N | P ppm | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| $A_1$ | 6.0 | 4.6 | 0.55 | 0.19 | 16 | 99 | 0 |
| $C_{1g}$ | 6.6 | 5.5 | 0.52 | 0.16 | 15 | 94 | 0 |
| $C_{2g}$ | 6.8 | 5.6 | 0.50 | 0.16 | 14 | 94 | 0 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 21.1 | 4.0 | 0.12 | 0.07 | 2.7 | 2.7 | 25.3 | 28.0 |
| 22.7 | 4.7 | 0.13 | 0.06 | 1.7 | 1.7 | 27.6 | 29.3 |
| 20.6 | 4.8 | 0.15 | 0.05 | 1.7 | 1.7 | 25.6 | 27 3 |

## SISTEMA DE TIERRA 361, Faceta 1

Clasificación : Podzólico Vermelho Amarelo Alico - Paleudult.

Localización : Lat.08°22'S - Long.66°08'W. Brasil.

Posición Fisiográfica : Tope de elevación.

Topografía : Plano a suave ondulado, pendiente 1-2%.

Drenaje : Bien a moderadamente drenado.

Vegetación : Floresta tropical aberta.

Mat. Originario : Sedimentos variados Plio-Pleistocenos.

Fuente : Proj. Radambrasil, Vol.12,1976(13); perfil 74,pág. 241/2.

$A_1$ 0-10 cm; 10YR 4/3; franco arcillo limoso; granular pequeña débil; duro, friable; límite plano y claro.

$B_1$ 10-25 cm; 10YR 4/4; franco arcillo limoso; masivo poroso; duro, friable; límite plano y gradual.

$B_2$ 25-90 cm; 10YR 5/4; arcillo limoso; masivo poroso, duro, friable; límite plano y claro.

$B_{3}pl$ 90-150 cm; 10YR 6/4; moteado 2.5YR 4/8; arcilloso; masivo poroso; duro, firme.

OBS.: Raíces abundantes en $A_1$; muchas en $B_1$; comúnes en $B_2$; pocas en $B_{3}pl$. Carnada plíntica con algunas concreciones endurecidas a partir del $B_{3}pl$.

| HTE | pH $H_2O$ | pH KCl | C | N | P ppm | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| $A_1$ | 3.7 | 3.5 | 1.00 | 0.10 | 2 | 3 | 95 |
| $B_1$ | 3.7 | 3.5 | 0.52 | 0.07 | < 1 | 3 | 96 |
| $B_2$ | 4.1 | 3.6 | 0.44 | 0.05 | < 1 | 2 | 97 |
| $B_{3}pl$ | 4.6 | 3.6 | 0.23 | 0.04 | < 1 | 2 | 98 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.05 | 0.08 | 0.09 | 0.03 | 4.01 | 4.40 | 0.25 | 8.66 |
| 0.05 | 0.04 | 0.05 | 0.03 | 2.40 | 2.40 | 0.17 | 6.77 |
| 0.03 | 0.02 | 0.04 | 0.03 | 1.90 | 1.90 | 0.12 | 6.22 |
| 0.03 | 0.02 | 0.04 | 0.03 | 1.46 | 1.46 | 0.12 | 7.38 |

## SISTEMA DE TIERRA 362, Faceta 1

Clasificación : Latossolo Vermelho Amarelo Alico - Haplorthox.

Localización : A 199,3 km de Rio Blanco, en dirección a Albuná. Municipio Porto Velho, Territorio Rondonia. Brasil.

Posición Fisiográfica : Cima de elevación.

Topografía : Bien drenado.

Mat. Originario : Granito. Complejo Xingú - Precámbrico.

Fuente : Proj. Radambrasil, Vol.12,1976(13); perfil 86,pág. 200.

$A_1$ 0-8 cm; 7.5YR 4/4; arcilloso pesado; granular pequeña débil; suelto; límite plano y claro.

$A_3$ 8-30 cm; 5YR 5/4; arcilloso pesado; masivo; ligeramente duro, friable; límite plano y gradual.

$B_1$ 30-60 cm; 5YR 4/6; arcilloso pesado; masivo; ligeramente duro, friable; límite plano y difuso.

$B_{21}$ 60-90 cm; 5YR 5/6; arcilloso; masivo; ligeramente duro, friable; límite plano y difuso.

$B_{22}$ 90-150 cm; 5YR 5/6; arcilloso; masivo; ligeramente duro, friable; límite plano y difuso.

$B_{23}$ 150-200 cm; 5YR 5/8; arcilloso; masivo; ligeramente duro, friable.

OBS.: Pocas concreciones ferruginosas aparecen a partir de los 50 cm. Muchas raíces en $A_1$; comúnes en $A_3$.

| HTE | pH $H_2O$ | pH KCl | C | N | P ppm | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| $A_1$ | 4.3 | 3.7 | 5.80 | 0.47 | 9 | 17 | 54 |
| $A_3$ | 4.0 | 3.5 | 1.86 | 0.20 | 2 | 6 | 86 |
| $B_1$ | 4.2 | 3.6 | 1.07 | 0.12 | 1 | 5 | 90 |
| $B_{21}$ | 4.5 | 3.7 | 0.66 | 0.07 | < 1 | 3 | 95 |
| $B_{22}$ | 4.4 | 3.6 | 0.62 | 0.05 | < 1 | 2 | 96 |
| $B_{23}$ | 4.5 | 3.8 | 0.35 | 0.05 | < 1 | 6 | 90 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 3.00 | 1.36 | 0.31 | 0.05 | 17.83 | 5.60 | 4.72 | 28.15 |
| 0.49 | 0.27 | 0.14 | 0.04 | 8.19 | 6.00 | 0.94 | 15.13 |
| 0.07 | 0.27 | 0.12 | 0.05 | 4.31 | 4.60 | 0.51 | 9.42 |
| 0.04 | 0.09 | 0.04 | 0.05 | 3.65 | 4.60 | 0.22 | 8.47 |
| 0.08 | 0.05 | 0.04 | 0.05 | 4.44 | 4.80 | 0.22 | 9.46 |
| 0.19 | 0.05 | 0.02 | 0.05 | 2.11 | 3.00 | 0.32 | 5.43 |

## SISTEMA DE TIERRA 364, Faceta 1

Clasificación : Podzólico Vermelho Amarelo Alico - Tropudult.

Localización : A 45 km de Brasiléa en dirección a Assis, Brasil (BR-317) Estado de Acre. Brasil.

Posición Fisiográfica : Cima de elevación.

Topografía : Ondulado, pendiente 2%.

Drenaje : Bien drenado.

Vegetación : Floresta tropical densa.

Mat. Originario : Sedimentos diversos, Plio-Pleistocenos.

Fuente : Proj. Radambrasil, Vol.12,1976(13); perfil 27,pág. 220.

$A_1$ 0-8 cm; 5YR 3/4; franco arenoso; grano simple; suelto; límite plano y claro.

$A_3$ 8-25 cm; 5YR 4/4; franco arenoso; granular pequeña débil; muy friable; límite plano y gradual.

$B_1$ 25-40 cm; 5YR 4/6; franco; bloques pequeños débiles; ligeramente duro, firme; límite plano y gradual.

$B_{21}$ 40-70 cm; 2.5YR 3/6; arcilloso; bloques pequeños débiles; ligeramente duro; firme; límite plano y gradual.

$B_{22}$ 70-110 cm; 2.5YR 3/6; franco arcilloso; bloques pequeños débiles; ligeramente furo, firme; límite plano y gradual.

$B_{23}$ 110-140 cm; 2.5YR 3/6; franco arcilloso; bloques pequeños; débiles; ligeramente duro, firme.

OBS.: Raíces finas y medias en $A_1$; pocas en $A_3$. Uso actual: cultivo de mandioca, maíz y banana.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.3 | 5.0 | 2.92 | 0.27 | 15 | 84 | 2 |
| $A_3$ | 4.7 | 4.3 | 1.42 | 0.13 | 5 | 49 | 11 |
| $B_1$ | 4.5 | 4.0 | 0.29 | 0.05 | < 1 | 15 | 85 |
| $B_{21}$ | 4.9 | 4.0 | 0.11 | 0.03 | < 1 | 8 | 90 |
| $B_{22}$ | 4.7 | 3.8 | 0.11 | 0.03 | 1 | 8 | 89 |
| $B_{23}$ | 4.6 | 3.6 | 0.20 | 0.03 | 1 | 9 | 88 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 22.00 | 3.92 | 0.96 | 0.04 | 4.68 | 0.60 | 26.92 | 32.20 |
| 3.18 | 1.40 | 0.42 | 0.04 | 4.68 | 0.60 | 5.04 | 10.32 |
| 0.16 | 0.26 | 0.24 | 0.03 | 1.82 | 2.80 | 0.49 | 3.29 |
| 0.02 | 0.34 | 0.05 | 0.03 | 1.11 | 4.00 | 0.44 | 5.55 |
| 0.04 | 0.27 | 0.06 | 0.03 | 1.05 | 3.40 | 0.40 | 4.85 |
| 0.02 | 0.34 | 0.07 | 0.03 | 1.38 | 3.40 | 0.46 | 5.24 |

## SISTEMA DE TIERRA 365, Faceta 1

Clasificación : Podzólico Vermelho Amarelo Eutrófico - Tropudalf.

Localización : A 144 km de Rio Blanco en dirección a Xapurí (BR-317). Estado de Acre. Brasil.

Posición Fisiográfica : Tercio superior de elevación.

Topografía : Ondulado, pendiente 5-7%.

Drenaje : Bien drenado.

Vegetación : Floresta tropical densa con seringueira.

Mat. Originario : Sedimentos variados Plio-Pleistocénicos (Formación Solimoes).

Fuente : Proj. Radambrasil, Vol.12,1976(13); perfil 57,pág. 214.

$A_1$ 0-5 cm; 5YR 3/2: franco arenoso; grano simple; suelto; límite plano y claro.

$A_3$ 5-20 cm; 5YR 3/4; franco arenoso; granular pequeña débil; muy friable; límite claro y plano.

$B_1$ 20-60 cm; 2.5YR 4/4; franco; bloques pequeños débiles; firable; límite plano y gradual.

$B_1$ 60-120 cm; 2.5YR 3/6; arcilloso; bloques medios débiles; barnices comúnes moderados; duro, firme; límite plano y difuso.

$B_{21}cn$ 120-160 cm; 2.5YR 4/6; arcilloso; bloques pequeños débiles; barnices comúnes y moderados; duro, firme; límite plano y difuso.

$B_{22}$ 160-190 cm+; 5YR 4/6; franco arcilloso; bloques pequeños débiles; duro, firme.

OBS.: Concreciones ferruginosas a partir del $B_1$. Raíces abundantes en $A_1$ y comúnes en $A_3$, finas; gruesas pocas en $A_1$ y $A_3$. Actividad biológica común en $A_1$ y $A_3$. El relieve ondulado se presenta con pendientes cortas.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.5 | 5.2 | 0.35 | 0.47 | 16 | 93 | 0 |
| $A_3$ | 4.7 | 4.5 | 1.19 | 0.14 | 4 | 56 | 0 |
| $B_1$ | 5.4 | 4.3 | 0.17 | 0.03 | 1 | 54 | 0 |
| $B_1$ | 5.1 | 4.5 | 0.18 | 0.09 | 3 | 53 | 13 |
| $B_{21}cn$ | 5.2 | 4.0 | 0.19 | 0.04 | 3 | 56 | 21 |
| $B_{22}$ | 5.3 | 4.5 | 0.11 | 0.04 | 3 | 40 | 35 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 37.30 | 3.40 | 0.04 | 0.03 | 2.80 | 0.00 | 40.77 | 43.57 |
| 3.63 | 1.20 | 0.21 | 0.04 | 3.96 | 0.00 | 5.08 | 9.04 |
| 1.27 | 0.61 | 0.04 | 0.02 | 1.65 | 0.00 | 1.94 | 3.59 |
| 1.81 | 0.88 | 0.05 | 0.03 | 2.07 | 0.40 | 2.77 | 5.24 |
| 1.72 | 1.12 | 0.05 | 0.03 | 1.51 | 0.80 | 2.92 | 5.23 |
| 1.09 | 0.68 | 0.04 | 0.03 | 1.80 | 1.00 | 1.84 | 4.64 |

## SISTEMA DE TIERRA 366, Faceta 1

Clasificación : Podzólico Vermelho Amarelo Epieutrófico Endoálico - Tropudult.

Localización : Lat.09°48'S - Long.68°30'W.Gr. Brasil.

Posición Fisiográfica : Area con 0-2% pendiente.

Topografía : Suave ondulado.

Drenaje : Bien a moderadamente drenado.

Vegetación : Bambuzal

Mat.Originario : Sedimentos variados Plio-Pleistocénicos. Formación Solimoes.

Fuente: Proj. Radambrasil, Vol.12,1976(13); perfil 44, pág. 226.

$A_1$ 0-5 cm; 10YR 4/4; franco limoso; granular pequeña débil; friable; límite claro.

$A_3$ 5-15 cm; 10YR 5/6; franco arcillo limoso; granular pequeña débil; ligeramente duro, friable; límite gradual.

$B_1$ 15-40 cm; 7.5YR 5/6; franco arcillo limoso; bloques pequeños débiles; duro, friable; límite gradual.

$B_{21}$ 40-70 cm; 7.5YR 5/8; arcillo limoso; bloques pequeños débiles; duro, firme; límite gradual.

$B_{22}$ 70-110 cm; 7.5YR 5/8; arcilloso; bloques pequeños débiles; duro, firme; límite gradual.

$B_3$ 110-140 cm; mezcla de 7.5YR 5/6 y 5YR 4/6; arcilloso; bloques pequeños débiles; duro, firme; límite gradual.

C 140-170 cm: mezcla de 7.5YR 6/6 y 5YR 5/6; arcilloso; bloques medios débiles; duro, firme.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.0 | 4.8 | 2.42 | 0.31 | 8 | 83 | 0 |
| $A_3$ | 5.0 | 4.0 | 0.78 | 0.15 | 3 | 60 | 15 |
| $B_1$ | 4.7 | 3.5 | 0.40 | 0.10 | 2 | 30 | 61 |
| $B_{21}$ | 4.6 | 3.7 | 0.28 | 0.08 | 2 | 25 | 65 |
| $B_{22}$ | 4.6 | 4.0 | 0.38 | 0.08 | 3 | 20 | 83 |
| $B_3$ | 4.8 | 4.0 | 0.32 | 0.09 | 4 | 17 | 80 |
| C | 4.8 | 4.5 | 0.19 | 0.07 | 6 | 14 | 85 |

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Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 10.00 | 5.10 | 0.32 | 0.12 | 3.13 | 0.00 | 15.54 | 18.67 |
| 3.00 | 3.40 | 0.13 | 0.05 | 3.25 | 1.20 | 6.58 | 11.03 |
| 1.20 | 2.30 | 0.07 | 0.06 | 2.98 | 5.60 | 3.63 | 12.21 |
| 1.10 | 2.30 | 0.06 | 0.04 | 4.32 | 6.40 | 3.50 | 14.22 |
| 1.00 | 2.30 | 0.07 | 0.05 | 2.09 | 11.60 | 3.42 | 17.11 |
| 0.72 | 2.20 | 0.06 | 0.04 | 2.35 | 12.00 | 3.02 | 17.37 |
| 0.47 | 2.40 | 0.08 | 0.05 | 1.44 | 17.20 | 3.00 | 21.64 |

## SISTEMA DE TIERRA 367, Faceta 1

Clasificación : Podzólico Vermelho Amarelo Alico - Plinthudult.

Localización : Lat.08°57'S - Long.67°13'W.Gr. Brasil.

Posición Fisiográfica : Lugar con 2 a 5% de pendiente.

Topografía : Suave ondulado a plano.

Drenaje : Moderadamente drenado.

Mat. Originario : Sedimentos variados Plio-Pleistocenos, Formación Solimoes.

Vegetación : Floresta tropical densa.

Fuente : Proj. Radambrasil, Vol.12,1976(13); perfil 77,pág. 243.

$A_1$ 0-4 cm; 10YR 4/4; franco arcillo limoso; granular pequeña débil; suelto, muy friable; límite claro y plano.

$A_3$ 4-15 cm; 10YR 5/4; franco arcillo limoso; granular pequeña débil; friable; límite plano y gradual.

$B_1$ 15-45 cm; 7.5YR 5/6; arcillo limoso; bloques pequeños débiles; ligeramente duro, friable; límite plano y gradual.

$B_2$ 45-80 cm; mezcla de 10YR 6/2 y 2.5YR 4/6; arcillo limoso; bloques pequeños débiles; ligeramente duro, friable; límite plano y gradual.

$B_3$ 80-120 cm; mezcla de 10YR 7/1 y 10R 4/8; arcilloso; bloques pequeños débiles; ligeramente duro, firme; límite plano y gradual.

C 120-150 cm; 5Y 7/1; moteados 10R 4/6 y pocos 7.5YR 6/8; arcilloso; bloques pequeños débiles; duro, muy firme.

OBS.: Raíces finas, muchas en $A_1$ y pocas en $A_3$; medias, pocas en $A_1$ y abundantes en $A_3$.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 3.7 | 3.4 | 3.64 | 0.43 | 21 | 15 | 61 |
| $A_3$ | 3.5 | 3.1 | 1.91 | 0.23 | 6 | 5 | 90 |
| $B_1$ | 3.9 | 3.4 | 0.86 | 0.09 | 1 | 2 | 97 |
| $B_2$ | 4.0 | 3.5 | 0.64 | 0.08 | < 1 | 2 | 98 |
| $B_3$ | 4.2 | 3.8 | 0.53 | 0.07 | < 1 | 1 | 98 |
| C | 4.5 | 3.4 | 0.35 | 0.04 | < 1 | 2 | 98 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 1.80 | 1.13 | 0.33 | 0.04 | 12.95 | 5.20 | 3.30 | 21.45 |
| 0.16 | 0.37 | 0.16 | 0.03 | 6.43 | 6.60 | 0.72 | 13.75 |
| 0.04 | 0.10 | 0.05 | 0.03 | 3.59 | 6.80 | 0.22 | 10.61 |
| 0.03 | 0.07 | 0.05 | 0.03 | 2.69 | 8.20 | 0.18 | 11.07 |
| 0.02 | 0.04 | 0.05 | 0.03 | 2.32 | 8.40 | 0.14 | 10.86 |
| 0.02 | 0.07 | 0.07 | 0.04 | 1.35 | 10.20 | 0.20 | 11.75 |

## SISTEMA DE TIERRA 368, Faceta 1

Clasificación : Cambissolo Alico - Dystropept.

Localización : Lat.08°34'S - Long.68°11'W.Gr. Brasil.

Posición Fisiográfica : Area con 0-2% de pendiente.

Topografía : Suave ondulado.

Drenaje : Moderadamente drenado.

Vegetación : Floresta tropical densa.

Mat. Originario : Sedimentos variados Plio-Pleistocenos de la formación Solimoes.

Fuente : Proj. Radambrasil, Vol.12,1976(13); perfil 38,pág. 256/7.

$A_1$ 0-10 cm; 7.5YR 5/4; franco arcillo limoso; bloques pequeños débiles; ligeramente duro, friable; límite claro.

$A_3$ 10-30 cm; 5YR 5/6; franco arcillo limoso; bloques pequeños débiles; ligeramente duro, friable; límite gradual.

$(B)_1$ 30-50 cm, 5YR 5/4; arcillo limoso; bloques medios moderados; duro, firme; límite gradual.

$(B)_{21}$ 50-80 cm; 5YR 4/4; arcillo limoso; bloques medios moderados; duro, firme; límite gradual.

$(B)_{22}$ 80-100 cm; mezcla de 2.5YR 4/6 y 7.5YR 7/6; arcilloso; bloques medios moderados; duro, firme; límite gradual.

$(B)_3$ 100-150 cm; mezcla de 2.5YR 4/6, 7.5YR 7/6 y 7.5YR 7/2; franco arcilloso; bloques medios moderados; duro, firme.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.5 | 3.9 | 0.50 | 0.09 | 3 | 10 | 87 |
| $A_3$ | 4.6 | 3.8 | 0.38 | 0.07 | 1.5 | 7 | 91 |
| $(B)_1$ | 4.6 | 4.0 | 0.35 | 0.07 | 1 | 4 | 95 |
| $(B)_{21}$ | 4.6 | 4.1 | 0.25 | 0.06 | 1.5 | 4 | 96 |
| $(B)_{22}$ | 4.5 | 3.5 | 0.37 | 0.06 | 1 | 3 | 96 |
| $(B)_3$ | 4.4 | 3.6 | 0.08 | 0.03 | 1 | 4 | 95 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.80 | 0.24 | 0.18 | 0.05 | 2.78 | 8.60 | 1.27 | 12.65 |
| 0.04 | 0.76 | 0.09 | 0.04 | 2.61 | 9.60 | 0.93 | 13.14 |
| 0.04 | 0.44 | 0.06 | 0.04 | 2.10 | 10.60 | 0.58 | 13.28 |
| 0.04 | 0.36 | 0.06 | 0.04 | 2.07 | 10.80 | 0.50 | 13.37 |
| 0.08 | 0.32 | 0.05 | 0.05 | 1.86 | 12.00 | 0.50 | 14.36 |
| 0.08 | 0.32 | 0.06 | 0.03 | 0.85 | 10.20 | 0.49 | 11.54 |

## SISTEMA DE TIERRA 369, Faceta 1

Clasificación : Latossolo Vermelho Amarelo Alico - Haplorthox.

Localización : Lat.08°20'S - Long.63°10'W.Gr. Brasil.

Posición Fisiográfica : Lugar con 1-4% de pendiente.

Topografía : Suave ondulado.

Drenaje : Bien a moderadamente drenado.

Vegetación : Floresta tropical densa.

Mat. Originario : Sedimentos variados Plio-Pleistocenos de la formación Solimoes.

Fuente : Proj. Radambrasil, Vol.12,1976(13); perfil 29,pág. 196/7.

$A_1$ 0-5 cm; 10YR 4/3; franco arcillo arenoso; granular pequeña débil; friable; límite plano y claro.

$A_3$ 5-30 cm; 10YR 5/6; franco arcilloso; granular pequeña débil; friable; límite plano y gradual.

$B_1$ 30-50 cm; 10YR 6/8; arcilloso, masivo; ligeramente duro, firme; límite plano y difuso.

$B_{21}$ 50-90 cm; 7.5YR 5/8; arcilloso; masivo; duro, firme; límite plano y difuso.

$B_{22}$ 90-140 cm; 7.5YR 5/8; arcilloso; masivo; duro, firme; límite plano y difuso.

$B_3$ 140-170 cm+; 7.5YR 6/8; moteados 10YR 7/6; arcilloso; masivo; ligeramente duro, friable.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 3.5 | 3.0 | 1.88 | 0.15 | 6 | 9 | 78 |
| $A_3$ | 3.5 | 3.2 | 1.16 | 0.09 | 3 | 4 | 92 |
| $B_1$ | 3.8 | 3.5 | 0.59 | 0.06 | < 1 | 2 | 96 |
| $B_{21}$ | 4.1 | 3.5 | 0.29 | 0.05 | < 1 | 3 | 94 |
| $B_{22}$ | 4.3 | 3.6 | 0.20 | 0.03 | < 1 | 3 | 95 |
| $B_3$ | 4.5 | 3.6 | 0.15 | 0.03 | < 1 | 3 | 93 |

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Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.37 | 0.51 | 0.23 | 0.03 | 7.71 | 4.00 | 1.14 | 12.85 |
| 0.05 | 0.13 | 0.09 | 0.03 | 4.52 | 3.40 | 0.30 | 8.22 |
| 0.03 | 0.04 | 0.04 | 0.02 | 2.74 | 3.20 | 0.13 | 6.07 |
| 0.04 | 0.06 | 0.04 | 0.03 | 2.15 | 2.80 | 0.17 | 5.12 |
| 0.02 | 0.04 | 0.04 | 0.03 | 1.62 | 3.00 | 0.13 | 4.75 |
| 0.04 | 0.02 | 0.04 | 0.03 | 1.29 | 3.00 | 0.13 | 4.42 |

## SISTEMA DE TIERRA 370, Faceta 1

Clasificación : Podzólico Vermelho Amarelo Eutrófico - Tropudalf.

Localización : A 48.8 km.de Sena Madureira en dirección a Manuel Urbano, a 37.6 km. antes del río Purus, Estado de Acre. Brasil.

Posición Fisiográfica : Tercio superior de elevación, con pendiente 3-5%.

Topografía : Ondulado.

Drenaje : Moderadamente drenado.

Vegetación : Floresta tropical densa.

Mat. Originario : Sedimentos variados Plio-Pleistocenos de la formación Solimoes.

Fuente : Proj. Radambrasil, Vol.12,1976(13); perfil 33,pág. 210/1.

$A_1$ 0-5 cm; 10YR 4/2; franco arcillo limoso; granular pequeño débil; friable; límite claro y plano.

$A_3$ 5-15 cm; 10YR 5/2; arcillo limoso; bloques pequeños débiles; duro, firme; límite plano y claro.

$B_1$ 15-30 cm; 10YR 5/4; arcilloso; bloques pequeños débiles; duro, firme; límite plano y gradual.

$B_2$ 30-50 cm; 10YR 6/3; moteado 2.5YR 4/6; arcilloso pesado; bloques pequeños débiles; muy duro, firme; límite plano y gradual.

$B_3$ 50-80 cm; 10YR 7/2; moteado abundantes 7.5YR 5/6 y pocos 10R 4/6; arcilloso pesado; bloques pequeños débiles; muy duro, muy firme; límite plano y gradual.

C 80-130 cm+; 10YR 7/1; moteados 7.5YR 6/6; arcillo limoso; masivo; muy duro, muy firme.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.0 | 4.2 | 5.62 | 0.58 | 13 | 84 | 1 |
| $A_3$ | 4.5 | 4.0 | 1.57 | 0.25 | 3 | 88 | 2 |
| $B_1$ | 4.6 | 4.0 | 0.87 | 0.16 | 1 | 86 | 8 |
| $B_2$ | 4.5 | 4.1 | 0.73 | 0.12 | 1 | 82 | 14 |
| $B_3$ | 4.5 | 3.4 | 0.45 | 0.07 | < 1 | 76 | 21 |
| C | 4.6 | 4.0 | 0.13 | 0.04 | < 1 | 89 | 8 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 44.60 | 5.38 | 0.44 | 0.04 | 8.97 | 0.60 | 50.46 | 60.03 |
| 37.80 | 5.52 | 0.23 | 0.04 | 4.97 | 0.80 | 43.59 | 49.36 |
| 42.30 | 7.65 | 0.13 | 0.04 | 3.32 | 4.60 | 50.12 | 58.04 |
| 42.30 | 8.50 | 0.14 | 0.05 | 2.98 | 8.40 | 0.99 | 62.37 |
| 38.50 | 8.92 | 0.14 | 0.10 | [illegible].54 | 12.80 | 47.66 | 63.00 |
| 52.00 | 10.05 | 0.13 | 0.19 | [illegible].46 | 5.80 | 62.37 | 69.63 |

## SISTEMA DE TIERRA 371, Faceta 1

Clasificación : Podzólico Vermelho Amarelo Alico - Paleudult.

Localización : Lat.08°37'S - Long.68°14'W.Gr. Brasil.

Posición Fisiográfica : Lugar con 7-8 de pendiente.

Topografía : Suave ondulado.

Drenaje : Bien drenado.

Vegetación : Floresta tropical densa.

Mat. Originario : Sedimentos variados Plio-Pleistocenos de la Formación Solimoes.

Fuente : Proj. Radambrasil, Vol.12,1976(13); perfil 32,pág. 222/3.

$A_1$ 0-15 cm; 10YR 4/4; franco arenoso; granular pequeña débil ; muy friable; límite claro.

$A_3$ 15-40 cm; 7.5YR 4/4; franco; bloques pequeños débiles; ligeramente duro, friable, límite gradual.

$B_1$ 40-50 cm; 5YR 5/6; franco arcilloso; bloques pequeños débiles; duro, firme; límite gradual.

$B_{21}$ 50-80 cm; 5YR 4/6; franco arcilloso; bloques pequeños débiles; duro, firme; límite gradual.

$B_{22}$ 80-110 cm; 5YR 4/4; franco arcilloso; bloques pequeños moderados; duro, firme; límite gradual.

$B_3$ 110-160 cm; 5YR 5/6; franco arcillo arenoso; bloques pequeños débiles; duro, friable.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.0 | 3.5 | 1.01 | 0.10 | 4 | 7 | 81 |
| $A_3$ | 4.4 | 3.6 | 0.24 | 0.04 | < 1 | 3 | 94 |
| $B_1$ | 4.2 | 4.0 | 0.14 | 0.03 | < 1 | 4 | 94 |
| $B_{21}$ | 4.1 | 3.7 | 0.20 | 0.03 | < 1 | 3 | 96 |
| $B_{22}$ | 4.3 | 3.6 | 0.17 | 0.02 | < 1 | 3 | 96 |
| $B_3$ | 4.4 | 3.6 | 0.09 | 0.02 | < 1 | 3 | 87 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.18 | 0.11 | 0.14 | 0.04 | 4.43 | 2.00 | 0.47 | 6.90 |
| 0.09 | 0.02 | 0.04 | 0.03 | 2.11 | 3.00 | 0.18 | 5.29 |
| 0.10 | 0.02 | 0.04 | 0.03 | 1.42 | 3.20 | 0.19 | 4.81 |
| 0.10 | 0.02 | 0.03 | 0.03 | 1.77 | 4.00 | 0.18 | 5.95 |
| 0.06 | 0.04 | 0.04 | 0.03 | 1.57 | 4.20 | 0.17 | 5.94 |
| 0.08 | 0.04 | 0.04 | 0.03 | 4.80 | 1.30 | 0.19 | 6.29 |

## SISTEMA DE TIERRA 372, Faceta 1

Clasificación : Podzólico Vermelho Amarelo Eutrófico - Tropudalf.

Localización : Lat.09°10'S - Long.71°10'W.Gr. Brasil.

Posición Fisiográfica : Ladera media con pendiente 2-6%.

Topografía : Ondulado.

Drenaje : Moderadamente drenado.

Vegetación : Floresta tropical abierta.

Mat. Originario : Arcillolita y limolita - Formación Solimoes, Plio-Pleistocenos.

Fuente : Proj. Radambrasil, Vol.12,1976(13); perfil 11, pág.207/8.

$O_1$ 3-0 cm; detritos orgánicos

$A_1$ 0-10 cm; 10YR 4/3; moteados 10YR 5/8; franco; bloques pequeños débiles; firme; límite gradual.

$A_3$ 10-20 cm; 10YR 4/3; moteados 10YR 5/3; franco arcilloso; bloques pequeños débiles; firme; límite gradual.

$B_1$ 20-30 cm; 10YR 5/4; moteados 7.5YR 6/8; franco arcillo limoso; bloques pequeños débiles; firme; límite gradual.

$B_2$ 30-40 cm; mezcla 10YR 5/8, 10YR 7/2, 7.5YR 5/4; arcillo limoso; bloques pequeños débiles; firme; límite gradual.

$B_3$ 40-70 cm; mezcla de 7.5YR 6/4; 7.5YR 5/4; 7.5YR 5/8, 10YR 7/2; franco arcillo limoso; masivo; firme; límite gradual.

$C_1$ 70-100 cm; 5Y 7/1, 7.5YR 5/4 y 7.5YR 7/8; franco arcillo limoso; masivo; firme; límite gradual.

$C_2$ 100-140 cm; mezcla de 5Y 7/1, 7.5YR 5/4; 7.5YR7/8; franco arcillo limoso; masivo; firme.

OBS.: Presencia de concreciones de hierro-manganeso en los horizontes $B_3$ y $C_1$, pocas y pequeñas, duras.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.9 | 5.0 | 1.72 | 0.17 | 7 | 87 | 0 |
| $A_3$ | 6.2 | 4.9 | 0.67 | 0.08 | 3 | 90 | 0 |
| $B_1$ | 6.1 | 4.9 | 0.43 | 0.05 | 1 | 96 | 0 |
| $B_2$ | 6.3 | 5.0 | 0.37 | 0.04 | < 1 | 95 | 0 |
| $B_3$ | 6.4 | 5.0 | 0.31 | 0.02 | < 1 | 97 | 0 |
| $C_1$ | 6.4 | 5.7 | 0.28 | 0.02 | 16 | 99 | 0 |
| $C_2$ | 6.8 | 5.5 | 0.28 | 0.03 | 26 | 100 | 0 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 17.00 | 1.80 | 0.14 | 0.10 | 2.80 | 0.00 | 19.04 | 21.84 |
| 15.00 | 2.00 | 0.10 | 0.10 | 1.81 | 0.00 | 17.20 | 19.01 |
| 25.00 | 3.00 | 0.09 | 0.19 | 1.32 | 0.00 | 28.28 | 29.60 |
| 28.00 | 3.90 | 0.09 | 0.23 | 1.65 | 0.00 | 32.22 | 33.87 |
| 26.00 | 3.90 | 0.08 | 0.23 | 0.99 | 0.00 | 30.21 | 31.20 |
| 30.00 | 3.80 | 0.06 | 0.19 | 0.49 | 0.00 | 34.05 | 34.54 |
| 34.00 | 3.40 | 0.05 | 0.17 | 0.16 | 0.00 | 37.62 | 37.78 |

## SISTEMA DE TIERRA 373, Faceta 1

Clasificación : Cambissolo Eutrófico - Eutropept.

Localización : Lat.09°38' - Long.71°08'W.Gr. Brasil.

Posición Fisiográfica : Tercio superior de elevación con pendiente de 45%.

Topografía : Fuertemente ondulado.

Drenaje : Bien drenado.

Vegetación : Floresta tropical densa.

Mat. Originario : Arenisca fina de la formación Solimoes, Plio-Pleistoceno.

Fuente : Proj. Radambrasil, Vol.12,1976(13); perfil 14;pág. 252/3.

$O_1$ 3-0 cm; detritos orgánicos.

$A_1$ 0-10 cm; 10YR 4/3; franco arenoso; bloques pequeños débiles; muy friable; límite gradual.

$A_3$ 10-25 cm; 10YR 4/3; franco arenoso; bloques pequeños débiles; muy friable; límite gradual.

$(B)_1$ 25-35 cm; 10YR 4/3; franco arcillo arenoso; bloques pequeños débiles; friable; límite gradual.

$(B)_2$ 35-50 cm; 10YR 4/3; franco arcillo arenoso; bloques pequeños débiles; friable; límite gradual.

$(B)_3$ 50-70 cm; 10YR 5/6; franco arcillo arenoso; masivo; muy friable; límite gradual.

C 70-100 cm+; 10YR 6/4; franco arcillo arenoso; masivo; muy friable.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | | | ppm | | |
| $A_1$ | 5.2 | 4.7 | 1.21 | 0.13 | 7 | 95 | 0 |
| $A_3$ | 5.9 | 5.1 | 0.69 | 0.07 | 3 | 98 | 0 |
| $(B)_1$ | 5.6 | 4.5 | 0.52 | 0.06 | 3 | 91 | 0 |
| $(B)_2$ | 5.2 | 4.0 | 0.37 | 0.04 | 15 | 86 | 8 |
| $(B)_3$ | 5.0 | 4.5 | 0.25 | 0.02 | 42 | 83 | 10 |
| C | 5.2 | 4.3 | 0.27 | 0.02 | 100 | 87 | 8 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 10.00 | 1.70 | 0.21 | 0.04 | 0.66 | 0.00 | 11.95 | 12.61 |
| 7.20 | 1.50 | 0.10 | 0.05 | 0.16 | 0.00 | 8.85 | 9.01 |
| 9.00 | 1.50 | 0.10 | 0.05 | 0.99 | 0.00 | 10.65 | 11.64 |
| 11.00 | 1.70 | 0.08 | 0.06 | 1.14 | 1.00 | 12.86 | 15.00 |
| 11.00 | 1.24 | 0.06 | 0.09 | 1.07 | 1.40 | 12.39 | 14.86 |
| 13.00 | 1.20 | 0.07 | 0.13 | 0.94 | 1.20 | 14.40 | 16.54 |

## SISTEMA DE TIERRA 374, Faceta 1

Clasificación : Podzólico Vermelho Amarelo Alico - Tropudult.

Localización : Lat.08 37'S - Long.71 12'W.Gr. Brasil.

Posición Fisiográfica : Ladera media.

Topografía : Fuertemente ondulado.

Drenaje : Moderadamente drenado.

Vegetación : Floresta tropical densa.

Mat. Originario : Sedimentos variados de la formación Solimoes, Plio-Pleistoceno.

Fuente : Proj. Radambrasil, Vol.12,1976(13); perfil 12,pág. 215/6.

$O_1$ 3-0 cm; detritos orgánicos.

$A_1$ 0-20 cm; 10YR 5/3; franco; masivo; muy friable; límite gradual.

$A_3$ 20-40 cm; 10YR 5/4; franco; masivo; muy friable; límite claro.

$B_1$ 40-55 cm; 7.5YR 5/4; franco; masivo; friable; muchos poros pequeños a medios; límite claro.

$B_2$ 55-65 cm; 5YR 5; moteados 2.5YR 4/6; franco arcilloso; masivo; friable; límite claro.

$B_3$ 65-80 cm; mezcla de 2.5YR 4/8, 5YR 4/4; 5Y 6/2; franco arcilloso; masivo; firme; límite claro.

C 80-120 cm+; 2.5YR 5/8; moteados 5Y 6/2, 7.5YR 5/6; franco arcilloso; masivo; límite claro.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.4 | 4.1 | 0.56 | 0.08 | 5 | 36 | 32 |
| $A_3$ | 5.0 | 4.0 | 0.28 | 0.03 | 1 | 32 | 45 |
| $B_1$ | 5.0 | 4.1 | 0.33 | 0.04 | < 1 | 63 | 62 |
| $B_2$ | 4.8 | 4.0 | 0.39 | 0.05 | < 1 | 36 | 74 |
| $B_3$ | 4.5 | 3.8 | 0.41 | 0.06 | < 1 | 19 | 76 |
| C | 4.7 | 4.0 | 0.34 | 0.04 | < 1 | 19 | 79 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 1.10 | 0.52 | 0.12 | 0.03 | 2.33 | 0.80 | 1.77 | 4.90 |
| 0.52 | 0.35 | 0.09 | 0.03 | 1.34 | 0.80 | 0.99 | 3.13 |
| 0.39 | 0.49 | 0.10 | 0.02 | 0.54 | 1.60 | 1.00 | 3.14 |
| 0.42 | 0.74 | 0.10 | 0.03 | 0.85 | 3.60 | 1.29 | 5.74 |
| 0.58 | 1.03 | 0.09 | 0.03 | 1.66 | 5.60 | 1.73 | 8.99 |
| 0.66 | 1.14 | 0.07 | 0.03 | 1.08 | 7.00 | 1.90 | 9.98 |

## SISTEMA DE TIERRA 378, Faceta 1

Clasificación : Podzólico Vermelho Amarelo Alico - Tropudult.

Localización : Lat.6°16'S - Long.70°50'W.Gr. Brasil.

Posición Fisiográfica : Tercio superior de colina, con pendiente de 15%.

Topografía : Fuertemente ondulado.

Drenaje : Bien drenado.

Vegetación : Floresta tropical densa.

Mat. Originario : Sedimentos variados Plio-Pleistocenos de la formación Solimoes.

Fuente : Proj. Radambrasil, Vol.15,1977(16); perfil 67,pág. 184/5.

$O_1$ 3-0 cm; detritos orgánicos.

$A_1$ 0-10 cm; 10YR 5/3; franco; bloques pequeños débiles;friable; límite claro.

$A_3$ 10-30 cm; 7.5YR 5/6; franco arcilloso; bloques pequeños débiles; firme; límite gradual.

$B_1$ 30-50 cm; 7.5YR 5/6; franco arcilloso; bloques pequeños débiles; firme; límite gradual.

$B_{21}$ 50-70 cm; 5YR 5/8; franco arcilloso; masivo; firme;límite difuso.

$B_{22}$ 70-100 cm; 2.5YR 5/8; arcilloso; masivo; firme; límite difuso.

$B_{23}$ 100-140 cm(+); 2.5YR 4/8; arcilloso; masivo; firme; límite difuso.

$B_3$ 140-170 cm(+); 2.5YR 4/8; franco arcilloso; masivo; firme; muy plástico y pegajoso.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.0 | 3.6 | 1.26 | 0.11 | 3 | 4 | 93 |
| $A_3$ | 4.0 | 3.6 | 0.81 | 0.07 | 1 | 3 | 96 |
| $B_1$ | 4.5 | 4.0 | 0.53 | 0.05 | < 1 | 2 | 97 |
| $B_{21}$ | 4.4 | 4.0 | 0.35 | 0.05 | < 1 | 2 | 97 |
| $B_{22}$ | 4.6 | 4.1 | 0.34 | 0.05 | < 1 | 2 | 97 |
| $B_{23}$ | 4.8 | 4.5 | 0.24 | 0.04 | < 1 | 2 | 98 |
| $B_3$ | 4.9 | 4.1 | 0.18 | 0.04 | < 1 | 2 | 98 |

Cont.

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.06 | 0.14 | 0.14 | 0.03 | 4.73 | 5.00 | 0.37 | 10.10 |
| 0.05 | 0.08 | 0.06 | 0.03 | 1.92 | 6.00 | 0.22 | 8.14 |
| 0.04 | 0.07 | 0.04 | 0.03 | 1.46 | 5.80 | 0.18 | 7.44 |
| 0.04 | 0.07 | 0.03 | 0.03 | 1.55 | 6.20 | 0.17 | 7.92 |
| 0.03 | 0.09 | 0.04 | 0.03 | 0.87 | 6.20 | 0.19 | 9.26 |
| 0.03 | 0.05 | 0.04 | 0.03 | 0.61 | 7.80 | 0.15 | 8.56 |
| 0.02 | 0.03 | 0.03 | 0.03 | 0.23 | 6.20 | 0.11 | 6.54 |

## SISTEMA DE TIERRA 380, Faceta 1

Clasificación : Podzólico Vermelho Amarelo Alico plíntico - Plinthudult.

Localización : Lat.3°24'S - Long.66°31'W.Gr. Brasil.

Posición Fisiográfica : Lugar plano con pendiente 1%.

Topografía : Plano y suave ondulado.

Drenaje : Moderadamente drenada.

Vegetación : Floresta densa.

Mat. Originario : Sedimentos variados terciarios-cuaternarios de la formación Solimoes.

Fuente : Proj. Radambrasil, Vol.14,1977(15); perfil 78,pág. 227/8.

$A_1$ 0-5 cm; 10YR 5/3; franco; bloques muy pequeños débiles; muy friable; límite claro.

$A_3$ 5-35 cm; 10YR 5/6; franco arcilloso; granular pequeña débil; friable; límite gradual.

$B_{21}$ 35-120 cm; 5YR 5/8; arcilloso; bloques muy pequeños moderados; friable; límite difuso.

$B_{22}pl$ 120-170 cm+; 5YR 5/8; moteados 10YR 7/4; arcilloso; bloques muy pequeños moderados; friable.

OBS.: Raíces abundantes en $A_1$, comúnes en $A_3$, pocas en $B_{21}$.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.9 | 3.8 | 2.69 | 0.32 | 3 | 7 | 79 |
| $A_3$ | 4.8 | 3.8 | 1.09 | 0.12 | 1 | 6 | 88 |
| $B_{21}$ | 4.9 | 3.8 | 0.34 | 0.09 | 1 | 11 | 86 |
| $B_{22}pl$ | 5.0 | 3.8 | 0.22 | 0.08 | < 1 | 9 | 89 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca + Mg | K | Na | H | Al | TBI | CIC |
| 0.7 | 0.10 | 0.01 | 7.1 | 3.0 | 0.8 | 10.9 |
| 0.5 | 0.03 | 0.01 | 4.3 | 3.7 | 0.5 | 8.5 |
| 0.8 | 0.01 | 0.01 | 1.8 | 4.8 | 0.8 | 7.4 |
| 0.6 | 0.01 | 0.01 | 1.5 | 4.9 | 0.6 | 7.0 |

## SISTEMA DE TIERRA 381, Faceta 1

Clasificación : Latossolo Amarelho Alico - Haplorthox.

Localización : A 22 km.del río Urubu en BR-174 en dirección a Caracaraí, Edo. Amazonas. Brasil.

Posición Fisiográfica : Tercio superior de meseta, con 6% de pendiente.

Topografía : Suave ondulado.

Drenaje : Bien drenado.

Vegetación : Floresta densa.

Mat. Originario : Areniscas y limolitas del Grupo Urupadi, Siluriano (Paleozoico).

Fuente : Proj. Radambrasil, Vol.1978(19); perfil 83, pág. 276.

$A_1$ 0-5 cm; 10YR 5/3; arcilloso pesado; granular pequeña débil; friable; límite claro.

$A_3$ 5-25 cm; 10YR 7/6; arcilloso pesado; granular pequeña débil; friable; límite difuso.

$B_1$ 25-50 cm; 10YR 7/8; arcilloso pesado; granular pequeña débil; friable; límite gradual.

$B_{21}$ 50-80 cm; 7.5YR 7/6; arcilloso pesado; masivo; friable; límite difuso.

$B_{22}$ 80-120 cm; 7.5YR 7/6; arcilloso pesado; masivo; friable; límite difuso.

$B_{23}$ 120-15- cm; 7.5YR 7/8; arcilloso pesado; masivo; friable.

OBS.: Raíces, pocas, finas y medias, en $A_1$ y $A_3$; raras en los demás horizontes.

| HTE | pH | | C | M.O. | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 3.5 | 3.5 | 7.2 | 12.4 | 9 | 8 | 70 |
| $A_3$ | 3.9 | 3.9 | 1.8 | 3.1 | 3 | 12 | 60 |
| $B_1$ | 4.3 | 4.0 | 0.8 | 1.4 | 3 | 12 | 63 |
| $B_{21}$ | 4.3 | 4.0 | 0.7 | 1.2 | 3 | 8 | 74 |
| $B_{22}$ | 4.4 | 4.0 | 0.5 | 0.9 | 3 | 9 | 71 |
| $B_{23}$ | 4.4 | 4.0 | 0.1 | 0.1 | 3 | 9 | 74 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.42 | 0.55 | 0.44 | 0.21 | 4.19 | 3.81 | 1.62 | 21.08 |
| 0.20 | 0.17 | 0.34 | 0.40 | 2.10 | 1.64 | 1.11 | 9.03 |
| 0.22 | 0.10 | 0.04 | 0.39 | 1.72 | 1.25 | 0.75 | 6.41 |
| 0.12 | 0.02 | 0.09 | 0.20 | 1.55 | 1.22 | 0.43 | 5.59 |
| 0.25 | 0.02 | 0.02 | 0.21 | 1.54 | 1.25 | 0.50 | 5.36 |
| 0.20 | 0.05 | 0.04 | 0.16 | 1.47 | 1.25 | 0.45 | 5.01 |

## SISTEMA DE TIERRA 382, Faceta 1

Clasificación : Podzólico Vermelho Amarelo - Haplorthox.

Localización : Long.59°43'W - Lat.00°15'N. Brasil.

Posición Fisiográfica : Cima de elevación, 4-6% pendiente.

Topografía : Suave ondulado.

Drenaje : Bien drenado.

Vegetación : Floresta densa.

Mat. Originario : Granitos, gneisses del Pre-Cámbrico.

Fuente : Proj. Radambrasil, Vol.9,1975(10); perfil 6, pág. 195.

$A_1$ 0-20 cm; 10YR 6/8; arenoso franco; granular pequeña débil; ligeramente duro, friable; límite plano y gradual.

$A_3$ 20-40 cm; 10YR 6/6; franco arenoso; granular pequeña débil; ligeramente duro, friable; límite plano y claro.

$B_1$ 40-70 cm; 7.5YR 5/8; franco arcillo arenoso; granular pequeña débil; ligeramente duro, firme; límite plano y gradual.

$B_{21}$ 70-90 cm; 5YR 6/8; franco arcillo arenoso; granular pequeña débil; firme; poros medios comúnes; límite plano y gradual.

$B_{22}$ 90-150 cm; 5YR 5/8; moteados 2.5YR 4/8; franco arcillo arenoso; granular pequeña débil; ligeramente duro; ligeramente firme.

OBS.: Raíces comúnes en $A_1$ y $A_3$, pocas en $B_1$ y $B_{21}$ y raras en $B_{22}$.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.0 | 3.7 | 0.59 | 0.05 | 2 | 8 | 78 |
| $A_3$ | 4.3 | 4.0 | 0.41 | 0.04 | < 1 | 5 | 89 |
| $B_1$ | 4.6 | 4.2 | 0.38 | 0.03 | < 1 | 7 | 86 |
| $B_{21}$ | 5.0 | 4.4 | 0.31 | 0.03 | < 1 | 5 | 86 |
| $B_{22}$ | 5.5 | 4.3 | 0.21 | 0.02 | < 1 | 6 | 84 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.08 | 0.06 | 0.05 | 0.03 | 1.67 | 0.80 | 0.22 | 2.69 |
| 0.02 | 0.03 | 0.04 | 0.01 | 1.18 | 0.80 | 0.10 | 2.08 |
| 0.04 | 0.03 | 0.04 | 0.02 | 0.85 | 0.80 | 0.13 | 1.78 |
| 0.01 | 0.04 | 0.04 | 0.01 | 1.21 | 0.60 | 0.10 | 1.91 |
| 0.01 | 0.04 | 0.04 | 0.02 | 1.21 | 0.60 | 0.11 | 1.92 |

## SISTEMA DE TIERRA 383, Faceta 1

Clasificación : Podzólico Vermelho Amarelo Epiálico - Paleudult.

424

Localización : Lat.1°51'S - Long.60°53'W.Gr. Brasil.

Posición Fisiográfica : Tercio medio de ladera con pendiente 10-13%.

Topografía : Ondulado.

Drenaje : Bien drenado.

Vegetación : Floresta densa.

Mat. Originario : Arcosas, areniscas silicificadas y arcillosas Pre-Cámbricas.

Fuente : Proj. Radambrasil, Vol.18,1978(19); perfil 71,pág. 291/2.

$A_1$ 0-10 cm; 10YR 5/4; arenoso franco; grano simple; suelto; límite claro.

$A_3$ 10-30 cm; 10YR 6/8 ; franco arenoso; grano simple;suelto; límite gradual.

$B_1$ 30-65 cm; 10YR 7/8; franco arenoso; granular pequeña débil; muy friable; límite gradual.

$B_{21}$ 65-90 cm; 7.5YR 6/6; franco arcillo arenoso; bloques pequeños débiles; muy friable; límite difuso.

$B_{22}$ 90-160 cm; 7.5YR 6/8; franco arcillo arenoso; bloques pequeños débiles; muy friable.

OBS.: Raíces, pocas, finas en $A_1$.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.0 | 3.8 | 0.8 | 0.05 | | 17.7 | 63 |
| $A_3$ | 4.1 | 4.1 | 0.6 | 0.04 | | 30.0 | 48 |
| $B_1$ | 5.6 | 4.3 | 0.3 | 0.04 | | 17.0 | 53 |
| $B_{21}$ | 5.1 | 4.5 | 0.1 | 0.02 | | 52.5 | 32 |
| $B_{22}$ | 5.0 | 4.7 | 0.1 | 0.01 | | 99.7 | 0 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.20 | 0.10 | 0.02 | 0.01 | 1.07 | 0.4 | 0.33 | 1.80 |
| 0.20 | 0.05 | 0.01 | 0.01 | 0.77 | 0.3 | 0.27 | 1.34 |
| 0.12 | 0.03 | 0.01 | 0.01 | 0.88 | 0.2 | 0.17 | 1.25 |
| 0.14 | 0.05 | 0.01 | 0.08 | 0.19 | 0.1 | 0.28 | 0.57 |
| 0.20 | 0.07 | 0.02 | 0.01 | 0.01 | | 0.30 | 0.31 |

## SISTEMA DE TIERRA 384, Faceta 1

Clasificación : Latossolo Vermelho Amarelo Epiálico - Acrustox.

Localización : A 2.5 km. de Abonari, en BR-174 en dirección a Caracaraí, municipio de Airao, Edo. Amazonas. Brasil.

Posición Fisiográfica : Tercio medio de ladera con pendiente de 10%.

Topografía : Ondulado.

Drenaje : Bien drenado.

Vegetación : Floresta densa.

Mat. Originario : Granito Pre-Cámbrico.

Fuente : Proj. Radambrasil, Vol.18,1978(19); perfil 74, pág. 281/2.

$O_2$ 5-0 cm

$A_1$ 0-5 cm; 10YR 5/8; franco arcilloso; granular pequeña moderado; friable; límite difuso.

$A_3$ 5-25 cm; 7.5YR 5/8; arcilloso; granular pequeña débil; friable; límite difuso.

$B_1$ 25-50 cm; 7.5YR 5/8; arcilloso pesado; bloques pequeños débiles; friable; límite difuso.

$B_{21}$ 50-80 cm; 7.5YR 6/8; arcilloso pesado; bloques pequeños débiles; friable; límite difuso.

$B_{22}$ 80-120 cm; 5YR 5/8; arcilloso pesado; bloques pequeños débiles; firme; límite difuso.

$B_{23}$ 120-150 cm(+); 5YR 6/8; arcilloso pesado; bloques pequeños débiles; firme.

OBS.: Presencia de concreciones a partir de los 145 cm.

| HTE | pH | | C | M.O. | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 3.6 | 3.6 | 2.6 | 4.5 | 6 | 7 | 72 |
| $A_3$ | 4.1 | 4.0 | 1.2 | 2.1 | 3 | 8 | 70 |
| $B_1$ | 4.5 | 4.2 | 0.8 | 1.4 | 3 | 9 | 60 |
| $B_{21}$ | 4.8 | 4.1 | 0.6 | 1.0 | - | 9 | 43 |
| $B_{22}$ | 5.2 | 5.1 | 0.4 | 0.7 | - | 9 | 32 |
| $B_{23}$ | 5.3 | 5.3 | 0.3 | 0.5 | - | 8 | 30 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.15 | 0.24 | 0.14 | 0.12 | 2.19 | 1.67 | 0.65 | 8.71 |
| 0.10 | 0.05 | 0.04 | 0.24 | 1.40 | 1.02 | 0.43 | 5.63 |
| 0.15 | 0.05 | 0.07 | 0.16 | 0.87 | 0.65 | 0.43 | 4.79 |
| 0.15 | 0.02 | 0.02 | 0.16 | 0.49 | 0.26 | 0.35 | 3.81 |
| 0.10 | 0.02 | 0.03 | 0.17 | 0.37 | 0.16 | 0.32 | 3.42 |
| 0.07 | 0.02 | 0.03 | 0.14 | 0.29 | 0.11 | 0.26 | 3.38 |

## SISTEMA DE TIERRA 385, Faceta 1

Clasificación : Latossolo Vermelho Amarelo Epiálico - Acrorthox.

Localización : Lat.0°19'S - Long.60°51'W.Gr. Brasil.

Posición Fisiográfica : Tercio superior de elevación, con pendiente de 3-6%.

Topografía : Suave ondulado.

Drenaje : Bien drenado.

Vegetación : Contacto Campinarana/Floresta densa.

Mat. Originario : Rocas Pre-Cámbricas del Complejo Guianense.

Fuente : Proj. Radambrasil, Vol.18,1978(19); perfil 35,pág. 281.

$A_1$ 0-5 cm; 5YR 5/8; arcilloso; granular pequeña débil; friable; límite gradual.

$A_3$ 5-25 cm; 5YR 5/8; arcilloso; granular pequeña débil; friable; límite gradual.

$B_1$ 25-50 cm; 7.5YR 5/8; arcilloso pesado; masivo, friable; límite gradual.

$B_{21}$ 50-90 cm; 7.5YR 6/8; arcilloso pesado; masivo; friable; límite gradual.

$B_{22}$ 90-130 cm; 7.5YR 6/8; arcilloso pesado; masivo; friable; límite gradual.

$B_{23}$ 130-160 cm+; 7.5YR 6/8; arcilloso pesado; masivo friable.

OBS.: Raíces comúnes, finas y medias en $A_1$; pocas en $A_3$.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 3.3 | 3.5 | 1.9 | 0.15 | | 20 | 53 |
| $A_3$ | 3.7 | 3.8 | 1.4 | 0.10 | | 11 | 53 |
| $B_1$ | 4.1 | 4.0 | 1.1 | 0.07 | | 15 | 26 |
| $B_{21}$ | 4.7 | 4.2 | 1.0 | 0.05 | | 11 | 37 |
| $B_{22}$ | 4.9 | 4.4 | 0.6 | 0.04 | | 9 | 39 |
| $B_{23}$ | 4.9 | 4.5 | 0.5 | 0.03 | | 13 | 20 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.37 | 0.03 | 0.05 | 0.03 | 2.38 | 0.7 | 0.48 | 2.93 |
| 0.25 | 0.15 | 0.03 | 0.02 | 3.99 | 0.6 | 0.45 | 4.95 |
| 0.30 | 0.09 | 0.02 | 0.02 | 3.08 | 0.3 | 0.43 | 3.54 |
| 0.25 | 0.02 | 0.01 | 0.01 | 2.76 | 0.2 | 0.29 | 3.20 |
| 0.17 | 0.01 | 0.01 | 0.01 | 2.93 | 0.2 | 0.20 | 3.33 |
| 0.30 | 0.04 | 0.01 | 0.01 | 2.53 | 0.1 | 0.36 | 2.90 |

## SISTEMA DE TIERRA 389, Faceta 1

Clasificación : Podzólico Vermelho Amarelo Alico plíntico-Plinthudult.

Localización : Lat.2°56'S - Long.63°37'W.Gr. Brasil.

Posición Fisiográfica : Lugar plano con 0.1% de pendiente.

Topografía : Plano.

Drenaje : Moderadamente drenado.

Vegetación : Floresta densa.

Mat. Originario : Sedimentos variados de la formación Solimoes, Plio-Pleistocenos.

Fuente : Proj. Radambrasil, Vol.18,1978(19); perfil 88, pág.295.

$O_2$ 3-0 cm.

$A_1$ 0-3 cm; 10YR 5/6; franco limoso; granular pequeña débil; muy friable; límite claro.

$A_3$ 3-15 cm; 10YR 6/6; franco limoso; granular pequeña débil; friable; límite gradual.

$B_1$ 15-35 cm; 7.5YR 6/8; franco limoso; granular pequeña débil; friable; límite gradual.

$B_{21}$ 35-70 cm; 7.5YR 5/8; franco arcillo limoso; granular muy pequeña moderada; firme; límite gradual.

$B_{22}$ 70-100 cm; 5YR 5/8; arcillo limoso; bloques muy pequeños moderados; firme; límite claro.

$B_{23}pl$ 100-150 cm; mezcla de 10YR 6/1, 10YR 7/8 y 10R 4/8; arcillo limoso; bloques muy pequeños moderados; muy firme.

OBS.: Raíces abundantes en $A_1$; comúnes en $A_3$.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 3.8 | 3.5 | 4.2 | 0.34 | | 6.1 | 35 |
| $A_3$ | 3.5 | 3.9 | 2.1 | 0.18 | | 5.3 | 55 |
| $B_1$ | 4.0 | 3.8 | 1.0 | 0.11 | | 7.0 | 47 |
| $B_{21}$ | 4.2 | 3.7 | 0.5 | 0.08 | | 7.8 | 55 |
| $B_{22}$ | 4.3 | 3.5 | 0.4 | 0.07 | | 8.4 | 60 |
| $B_{23}pl$ | 4.3 | 3.5 | 0.1 | 0.01 | | 9.3 | 58 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.50 | 0.20 | 0.06 | 0.02 | 14.18 | 0.5 | 0.78 | 15.01 |
| 0.40 | 0.18 | 0.02 | 0.01 | 8.62 | 0.6 | 0.61 | 9.83 |
| 0.60 | 0.04 | 0.04 | 0.01 | 8.99 | 0.6 | 0.68 | 10.27 |
| 0.68 | 0.18 | 0.02 | 0.01 | 7.79 | 0.8 | 0.89 | 9.49 |
| 0.70 | 0.05 | 0.01 | 0.01 | 7.88 | 1.1 | 0.77 | 10.75 |
| 0.60 | 0.10 | 0.03 | 0.01 | 7.78 | 1.1 | 0.74 | 10.62 |

## SISTEMA DE TIERRA 394, Faceta 1

Clasificación : Latossolo Amarelo Alico - Haplorthox.

Localización : Lat.6°07'S - Long.60 27'W.Gr. Brasil.

Posición Fisiográfica : Lugar con 0.2% de pendiente.

Topografía : Plano.

Drenaje : Bien drenado.

Vegetación : Floresta tropical densa con emergentes.

Mat. Original : Sedimentos variados de la formación Solimoes, Plio-Pleistocenos.

Fuente : Proj. Radambrasil, Vol.17,1978( ); perfil 70; pág.246.

$O_1$ 10-0 cm;

$A_1$ 0-10 cm; 10YR 6/4; arcilloso; masivo; muy firme; límite gradual.

$A_3$ 10-30 cm; 10YR 7/6; arcilloso pesado; masivo; firme; límite gradual.

$B_1$ 30-70 cm; 10YR 7/6; arcilloso pesado; masivo; firme; límite difuso.

$B_{21}$ 70-110 cm; 10YR 7/8; arcilloso pesado; masivo; firme; límite difuso.

$B_{22}$ 110-180 cm; 10YR 7/8; arcilloso pesado; masivo; firme.

| HTE | pH | | C | M.O. | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 3.4 | 3.3 | 3.3 | 5.68 | 21 | 4 | 81 |
| $A_3$ | 3.7 | 3.7 | 1.5 | 2.58 | 9 | 9 | 72 |
| $B_1$ | 4.1 | 3.9 | 0.8 | 1.37 | 6 | 7 | 76 |
| $B_{21}$ | 4.5 | 3.9 | 0.4 | 0.68 | 3 | 9 | 68 |
| $B_{22}$ | 4.6 | 3.9 | 0.3 | 0.51 | 3 | 10 | 66 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.18 | 0.14 | 0.16 | 0.08 | 4.87 | 2.42 | 0.56 | 13.18 |
| 0.25 | 0.28 | 0.06 | 0.06 | 3.17 | 1.68 | 0.65 | 7.39 |
| 0.18 | 0.14 | 0.04 | 0.06 | 2.16 | 1.33 | 0.42 | 6.26 |
| 0.18 | 0.24 | 0.04 | 0.04 | 1.84 | 1.11 | 0.50 | 5.38 |
| 0.25 | 0.17 | 0.03 | 0.06 | 1.58 | 1.01 | 0.51 | 4.91 |

## SISTEMA DE TIERRA 397, Faceta 1

Clasificación : Podzólico Vermelho Amarelo Alico - Paleudult.

Localización : Lat.7°18'S - Long.66°40'W.Gr. Brasil.

Posición Fisiográfica : Lugar aplanado con 0-2% de pendiente.

Topografía : Plano a suave ondulado.

Drenaje : Bien a moderadamente drenado.

Vegetación : Floresta tropical densa.

Mat. Originario : Formación Solimoes. Sedimentos variados Plio-Pleistocenos.

Fuente : Proj. Radambrasil, Vol.15,1977( ); perfil 100, pág.197.

$A_1$ 0-5 cm; 10YR 5/4; franco; masivo; friable; límite gradual.

$A_3$ 5-20 cm; 10YR 5/6; franco; masivo; friable; límite gradual.

$B_1$ 20-40 cm; 10YR 6/6; franco; masivo; ligeramente duro, friable; límite gradual.

$B_{21}$ 40-70 cm; 10YR 6/8; franco; masivo; duro, firme; límite gradual.

$B_{22}$ 70-110 cm; 10YR 6/8; franco arcilloso; masivo; duro, firme; límite gradual.

$B_{23}$ 110-160 cm; mezcla de 2.5YR 4/6 y 10YR 6/6; arcilloso; bloques pequeños débiles; duro, firme.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.0 | 3.5 | 1.63 | 0.17 | 3 | 4 | 88 |
| $A_3$ | 3.7 | 3.5 | 0.97 | 0.09 | < 1 | 3 | 94 |
| $B_1$ | 4.1 | 3.5 | 0.31 | 0.04 | < 1 | 8 | 88 |
| $B_{21}$ | 4.4 | 4.0 | 0.34 | 0.04 | < 1 | 3 | 96 |
| $B_{22}$ | 4.7 | 4.0 | 0.07 | 0.03 | < 1 | 2 | 97 |
| $B_{23}$ | 4.8 | 4.0 | 0.12 | 0.03 | < 1 | 1 | 98 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.12 | 0.09 | 0.16 | 0.06 | 6.86 | 3.20 | 0.43 | 10.49 |
| 0.02 | 0.05 | 0.08 | 0.04 | 3.07 | 3.20 | 0.19 | 6.46 |
| 0.23 | 0.06 | 0.04 | 0.04 | 1.49 | 2.80 | 0.37 | 4.66 |
| 0.01 | 0.01 | 0.04 | 0.05 | 1.12 | 3.00 | 0.11 | 4.23 |
| 0.01 | 0.02 | 0.03 | 0.03 | 1.62 | 3.00 | 0.09 | 4.71 |
| 0.02 | 0.01 | 0.04 | 0.04 | 1.66 | 5.60 | 0.11 | 7.37 |

## SISTEMA DE TIERRA 400, Faceta 1

Clasificación : Haplorthox

Localización : Km. 3 del camino Cobija - Porvenir, Depto. Pando, Cantón Porvenir, Bolivia.

Forma del terreno : Cresta.

Topografía : Suave ondulado, localmente.

Drenaje : Bien drenado.

Vegetación : Pastizales volviéndose monte.

Mat. Originario: Depositación terciaria.

Fuente : Cochrane, T.T., 1973 (27), Sistemas de tierras; perfil VIIIa 1-5; pág. 728/9.

0 - 4 cm; Café rojizo; franco; bloques débiles finos; lig. pegajoso, lig. plástico; pocas manchas rojizas; límite neto, plano.

4 -10 cm; Rojo amarillento; franco arenoso; bloques finos, débiles; lig. pegajoso, lig. plástico; pocos poros; muchos moteados rojo amarillo; límite neto y plano.

10-40 cm; Café rojizo; franco arenoso; bloques finos, débiles; lig. pegajoso, lig. plástico; pocos poros; pocos moteados; límite gradual y plano.

40-80 cm; Rojo; franco arenoso; bloques finos, débiles; lig. pegajoso, lig. plástico; límite gradual y plano.

| Profund. (cm) | pH | Cond. Elec. | P ppm | S.B. % | S. Al % |
|---|---|---|---|---|---|
| 0- 4 | 5.6 | 28 | 1.0 | 79 | |
| 4-10 | 5.1 | 22 | 0.3 | 41 | |
| 15-25 | 4.9 | 16 | 0.3 | 37 | |
| 30-40 | 5.2 | 10 | 0.3 | 28 | |
| 55-70 | 5.3 | 9 | 0.3 | 18 | |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Ac. | Al | H | TBG | CIC |
| 1.2 | 0.4 | 0.14 | 0.15 | 0.5 | - | 0.5 | 1.9 | 2.4 |
| 0.6 | 0.2 | 0.15 | 0.08 | 1.5 | - | 1.5 | 1.1 | 2.6 |
| 0.4 | 0.4 | 0.16 | 0.09 | 1.7 | - | 1.7 | 1.0 | 2.7 |
| 0.4 | 0.4 | 0.15 | 0.08 | 2.5 | 0.6 | 1.9 | 1.0 | 3.5 |
| 0.4 | 0.3 | 0.18 | 0.10 | 4.2 | 2.6 | 1.6 | 0.9 | 5.1 |

## SISTEMA DE TIERRA 402, Faceta 1

Clasificación : Haplorthox

Localización : Lat.11°09'S, Long.64°44'W; Mun. Guajará-Mirim, Rondonia, Brasil.

Posición Fisiográfica: Lugar plano.

Topografía : pendiente < 3%.

Drenaje: Bien drenado.

Vegetación : Floresta densa.

Mat. originario : Sedimentos del Cuaternario.

Fuente : Proj. Radambrasil, Vol.16, 1978 (17), perfil 184, pág. 280/1.

$A_1$ 0-15 cm; 10 YR 4/3; franco arcillo arenoso; granular pequeña débil; muy friable, lig. plástico, lig. pegajoso; límite gradual.

$A_3$ 15-35 cm; 10YR 5/3; franco arcillo arenoso; granular pequeña débil; muy friable, plástico y lig. pegajoso; límite difuso.

$B_1$ 35-65 cm; 10YR 5/4; franco arcillo arenoso; granular pequeña débil; friable, plástico y lig. pegajoso; límite difuso.

$B_{21}$ 65-100 cm; 10YR 6/4; franco arcillo arenoso; bloques pequeños débiles; friable, plástico y pegajoso; límite difuso.

$B_{22}$ 100-150 cm; 10YR 6/4; franco arcillo arenoso; bloques medios débiles; friable, plástico y pegajoso.

$B_{23}$ 150-170 cm; 10YR 6/4; franco arcillo arenoso; bloques pequeños débiles; friable, plástico y pegajoso.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 3.7 | 3.4 | 1.37 | 0.17 | 5 | 9 | 68 |
| $A_3$ | 3.8 | 3.5 | 0.55 | 0.09 | 1 | 6 | 88 |
| $B_1$ | 3.9 | 3.6 | 0.41 | 0.08 | 1 | 3 | 92 |
| $B_{21}$ | 4.4 | 3.9 | 0.29 | 0.07 | 1 | 4 | 92 |
| $B_{22}$ | 4.6 | 3.7 | 0.23 | 0.06 | 1 | 5 | 89 |
| $B_{23}$ | 5.1 | 3.9 | 0.20 | 0.06 | 1 | 6 | 86 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca + Mg | K | Na | H | Al | TBI | CIC |
| 0.5 | 0.07 | 0.02 | 4.6 | 1.3 | 0.6 | 6.5 |
| 0.2 | 0.01 | 0.01 | 2.0 | 1.4 | 0.2 | 3.6 |
| 0.1 | 0.01 | 0.02 | 1.9 | 1.2 | 0.1 | 3.2 |
| 0.1 | 0.01 | 0.01 | 1.3 | 1.1 | 0.1 | 2.5 |
| 0.1 | 0.01 | 0.01 | 1.3 | 0.8 | 0.1 | 2.2 |
| 0.1 | 0.01 | 0.01 | 1.0 | 0.6 | 0.1 | 1.7 |

## SISTEMA DE TIERRA 405, Faceta 1

Clasificación : Tropacuept.

Localización: Localidad de Tres Islas, Perú.

Posición Fisiográfica: Terraza aluvial baja.

Topografía: Plano, 0-2% pendiente.

Drenaje: Imperfectamente drenado.

Vegetación: Monte virgen; cituye, caña brava, shimbiyo, ungurahui.

Material Originario: Aluvial.

Fuente: ONERN

A 0-20 cm; 10YR 3/1; franco limoso; granular, friable; comúnes raíces; límite difuso.

AC 20-60 cm; 10YR 4/1; moteado; franco limoso; masivo, firme; escasas raíces, límite claro.

Cg 60-15- cm; 10YR 6/1; arcillo limoso; masivo, firme.

| HTE | pH $H_2O$ | $P_2O_5$ kg/ha | M.O. % | N % | S.B. % | S.Al % |
|---|---|---|---|---|---|---|
| $A_1$ | 5.9 | 29.31 | 1.31 | 0.04 | 75 | - |
| AC | 5.5 | 21.06 | 2.07 | 0.09 | 73 | - |
| Cg | 5.4 | 29.31 | 1.45 | 0.06 | 72 | - |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | Al | TBI | CIC |
| 6.20 | 0.20 | 0.16 | 0.06 | - | 6.62 | 8.80 |
| 5.20 | 0.76 | 0.20 | 0.08 | - | 6.24 | 8.56 |
| 6.40 | 0.92 | 0.16 | 0.10 | 0.10 | 7.68 | 10.72 |

## SISTEMA DE TIERRA 406, Faceta 1

Clasificación: Tropofluvent.

Forma del terreno: Terraza de río.

Topografía: Plano.

Drenaje: Bien drenado.

Vegetación: Bosque estacional semisiempre verde.

Material Originario: Aluvial.

Fuente: Cochrane, T.T., 1973,(27); Sist. de Tierra de Bolivia; perfil VIIc-2-1, pág. 716/7.

3-0 cm. Principalmente matas de hojas en descomposición.

0-2.5 cm. Café fris muy oscuro; franco arenoso; migajosa media moderada; no pegajoso, no plástico; abundantes raíces; límite neto, plano, abundante materia orgánica.

2.5-8 cm. Café oscuro; arenoso franco; bloques medianos débiles; no pegajoso, no plástico; poros frecuentes; abundantes raíces; moderada materia orgánica; límite neto, plano.

8-40 cm. Café a café oscuro; arenoso; grano simple; no pegajoso, no plástico; poros frecuentes; muchas raíces; poca materia orgánica; límite plano, gradual.

40-80 cm. Café; arenoso; grano simple; no pegajoso, no plástico; poros frecuentes; muchas raíces; poca materia orgánica; límite plano, gradual.

80 + Amarillo rojizo; arenoso; grano simple; no pegajoso, no plástico; frecuentes poros; pocas raíces.

| Prof. (cm) | pH | Cond. elec. | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|
| 0-2 | 6.9 | 420 | - | 96 | - |
| 4-8 | 7.0 | 152 | 29 | 96 | - |
| 15-25 | 7.0 | 34 | 7 | 72 | - |
| 55-65 | 6.9 | 16 | 12 | 67 | - |
| 85-95 | 6.8 | 15 | 11 | 94 | - |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Ac | TBI | CIC |
| 25.8 | 4.1 | 0.6 | 2.2 | 1.2 | 32.8 | 34.0 |
| 11.2 | 1.6 | 0.3 | 0.7 | 0.6 | 13.7 | 14.3 |
| 3.7 | 9.4 | 0.1 | 0.1 | 1.5 | 3.8 | 5.3 |
| 1.7 | 0.3 | 0.1 | 0.04 | 1.0 | 2.1 | 3.1 |
| 1.3 | 1.2 | 0.1 | 0.01 | 0.1 | 2.6 | 2.7 |

## SISTEMA DE TIERRA 408, Faceta 1

**Clasificación:** Tropaquept.

**Localización:** Cerca a las Pampas de Heath, Perú.

**Posición Fisiográfica:** Terraza media.

**Topografía:** Plano, 0-5% pendiente.

**Drenaje:** Mal drenado.

**Vegetación:** Palmeras: ungurahuí y aguajes.

**Mat. Originario:** aluvial.

**Fuente:** ONERN, Inambari y Madre de Dios, perfil Serie Heath, pág.39, 40 y 43.

$A_1$ 0-50 cm; 10YR 2.5/1, sin estructura en húmedo; friable; raíces comúnes; límite claro.

$B_{21}g$ 50-65 cm; franco arcilloso; masivo; pegajoso; raíces comúnes; límite difuso.

$B_{22}g$ 10YR 5/1; franco arcilloso; masivo; pegajoso; abundantes moteados 5YR 4/4; tabla de agua a 80 cm; prof. del hte 65-100.

| HTE | pH $H_2O$ | M.O. % | N % | $P_2O_5$ Kg/ha | S.B. % | S.Al % |
|---|---|---|---|---|---|---|
| $A_1$ | 4.2 | 8.13 | 0.39 | 4.80 | 32 | 67 |
| $B_{21}g$ | 4.4 | 4.14 | 0.20 | 0.70 | 22 | 78 |
| $B_{22}g$ | 4.6 | 1.03 | 0.04 | 0.70 | 24 | 75 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | Al | TBI | CIC |
| 2.00 | 0.13 | 0.10 | 0.08 | 4.90 | 2.31 | 7.21 |
| 1.20 | 0.11 | 0.04 | 0.06 | 5.10 | 1.41 | 6.51 |
| 0.80 | 0.06 | 0.04 | 0.04 | 2.90 | 0.94 | 3.84 |

## SISTEMA DE TIERRA 410, Faceta 1

**Clasificación:** Tropaqualf.

**Localización:** Estación experimental de Trinidad, Depto. Beni, Bolivia.

**Forma del terreno:** Casi plano, con ligera depresión cóncava.

**Topografía:** Plano.

**Drenaje:** Mal drenado, anegado.

**Vegetación:** Pasturas con especies como arrocillo.

**Mat. Originario:** Aluvial.

**Fuente:** Cochrane, T.T., 1973,(27), Sist. de tierras de Bolivia, perfil VII a 1-2, pág.706/5.

0-15 Gris muy oscuro; arcilloso; bloques medianos fuertes; muy pegajoso, muy plástico; pocos poros finos; muchas raíces; muchos moteados, mucha materia orgánica; límite plano.

15-30 cm. Gris muy oscuro; arcilloso; bloques moderados medianos; muy pegajoso, muy plástico; pocos poros; pocas raíces; pocos moteados; concreciones de hierro; límite plano.

30-? cm. Gris oscuro; arcilloso; bloques medianos moderados; muy pegajoso, muy plástico; pocos poros, pocas raíces; muchos moteados.

| Prof. (cm) | pH | Cond. eléc. | P ppm | S.B. % |
|---|---|---|---|---|
| 3-12 | 5.2 | 100 | 5.0 | 67 |
| 18-28 | 5.3 | 120 | 0.3 | 46 |
| 40-50 | 5.2 | 380 | 0.3 | 61 |
| 70-90 | 5.3 | 450 | 0.3 | 68 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 3.3 | 2.2 | 0.88 | 0.46 | 3.4 | 6.9 | 10.3 |
| 2.8 | 2.2 | 1.63 | 0.30 | 8.0 | 6.9 | 14.9 |
| 3.7 | 4.4 | 2.52 | 0.40 | 7.2 | 11.1 | 18.3 |
| 5.1 | 6.4 | 4.00 | 0.50 | 7.4 | 16.0 | 23.4 |

## SISTEMA DE TIERRA 411, Faceta 2

**Clasificación:** Tropaqualf.

**Localización:** 14°31' S; 66°46' O; Cantón San Borja, Depto. Beni, Bolivia.

**Forma de la tierra:** Plano.

**Drenaje:** Pobremente drenado.

**Vegetación:** Pastizal, pastos nativos incluyendo Sporobolis, sp.

**Mat. Originario:** aluvial.

**Fuente:** Cochrane, T.T., Sist. de Tierra de Bolivia, 1973, (27), perfil VIIa 2-3, pág.709/10.

0-15 cm. Café gris oscuro; franco arcillo arenoso; bloques finos débiles; pegajoso, plástico, muchos poros; muchas raíces; mucha materia orgánica; límite gradual y ondulado.

15-43 cm. Café; franco arcillo limoso; bloques medianos, débiles; pegajoso, plástico; muchos poros; muchas raíces; moderada materia orgánica; límite gradual e irregular.

43-? cm. Café, arcilloso; bloques gruesos, moderados; muy pegajoso, muy plástico; muchos poros, pocas raíces; poca materia orgánica; muchos moteados; pocas concreciones de Mn.

| Prof. (cm) | pH | Cond. Eléc. | P ppm | S.B. % |
|---|---|---|---|---|
| 1-9 | 5.3 | 26 | 9 | 38 |
| 31-36 | 5.8 | 12 | 6 | 17 |
| 51-60 | 6.9 | 48 | 6 | 97 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 0.6 | 1.1 | 0.2 | 0.4 | 3.7 | 2.3 | 6.0 |
| 0.2 | 0.3 | 0.1 | 0.3 | 4.6 | 1.0 | 5.6 |
| 2.8 | 4.0 | 0.5 | 0.9 | 0.4 | 12.0 | 12.4 |

## SISTEMA DE TIERRA 413, Faceta 1

**Clasificación:** Tropudult.

**Localización:** 14°08'S; 67 37'O. Cantón Reyes, Depto. Beni, Bolivia.

**Forma del terreno:** Casi plano.

**Microtopografía:** Gilgai.

**Drenaje:** Imperfecto.

**Vegetación:** Bosque estacional semisiempre verde.

**Mat. Originario:** Aluvial.

**Fuente:** Cochrane, T.T., Sist. de tierras de Bolivia, 1973, (27), perfil VIIb 3-1, pág.712/3.

2-1 cm. Manto de plantas en descomposición.

1-0 cm. Café gris muy oscuro; franco; migajosa fina moderada; ligeramente pegajoso, ligeramente plástico; raíces abundantes; mucha materia orgánica; límite brusco, ondulado.

0-7 cm. Café gris; franco; bloques medios moderados; ligeramente pegajoso, plástico; poros frecuentes; muchas raíces; moderada materia orgánica; límite gradual y plano.

8-35 cm. Café pálido; franco; bloques medianos débiles; pegajoso, plástico; poros frecuentes, muchas raíces; grava fina; límite difuso, plano.

35-? cm. Café; franco arcilloso; bloques medianos, débiles; plástico, pegajoso; muchos poros; pocas raíces, grava fina; muchos moteados.

| Prof. (cm) | pH | Cond. Eléc. | P ppm | S.B. % |
|---|---|---|---|---|
| 0-1 | 5.9 | 355 | 29 | 95 |
| 2-6 | 5.6 | 76 | 10 | 67 |
| 15-25 | 5.3 | 11 | 25 | 26 |
| 40-50 | 5.5 | 9 | 10 | 35 |
| 70-80 | 5.7 | 8 | 7 | 60 |

Cont.

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Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 23.6 | 4.9 | 0.5 | 2.2 | 1.6 | 31.1 | 32.7 |
| 4.1 | 1.4 | 0.2 | 0.4 | 3.1 | 6.3 | 9.4 |
| 0.6 | 0.8 | 0.1 | 0.1 | 4.3 | 1.4 | 5.6 |
| 1.0 | 1.6 | 0.2 | 0.2 | 5.7 | 3.1 | 8.8 |
| 1.6 | 1.9 | 0.3 | 0.3 | 3.2 | 4.9 | 8.1 |

## SISTEMA DE TIERRA 415, Faceta 1

Clasificación: Eutropept.

Localización: 14°07'S; 68°47'O. Cantón Tumapasa, Depto. La Paz, Bolivia.

Forma de terreno: Casi plano.

Pendiente: Local, suavemente inclinado.

Drenaje: Moderadamente bien drenado.

Vegetación: Bosque estacional semisiempre verde.

Mat. Originario: Aluvial.

Fuente: Cochrane, T.T., Mapa de Sistemas de Tierras de Bolivia, 1973,(27), perfil Vd 2-1, pág.652/3.

0-3 cm. Café gris muy oscuro; franco; migajoso, mediana, moderada; ligeramente plástico, ligeramente pegajoso; frecuentes poros; abundantes raíces; mucha materia orgánica; límite abrupto y ondulado.

3-20 cm. Café; franco; bloques finos, débiles; ligeramente plástico, ligeramente pegajoso; muchos poros; muchas raíces; moderada materia orgánica; límite gradual y plano.

20-45 cm. Café; franco arenoso; sin estructura, aglomerado; ligeramente plástico y ligeramente pegajoso; muchos poros; muchas raíces, poca materia orgánica; límite difuso y plano.

45-60 cm. Café; arenoso franco; sin estructura, aglomerado; no plástico, no pegajoso; poros frecuentes; pocas raíces; grava, pedregoso, límite gradual y plano.

60-? Café; arenoso; sin estructura, grano simple; no plástico, no pegajoso; poros frecuentes; pocas raíces; grava; muy pedregoso.

| Prof. (cm) | pH | Cond. Elec. | P ppm | S.B. % |
|---|---|---|---|---|
| 0-3 | 6.1 | 9 | 24 | 96 |
| 5-15 | 6.8 | 8 | 9 | 83 |
| 25-35 | 6.1 | 13 | 10 | 97 |
| 50-60 | 6.5 | 13 | 15 | 97 |
| 70-80 | 6.3 | 9 | 15 | 100 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 11.7 | 3.6 | 0.3 | 1.2 | 0.7 | 15.3 | 16.0 |
| 4.2 | 1.3 | 0.2 | 0.2 | 1.3 | 6.2 | 7.5 |
| 2.9 | 1.3 | 0.2 | 0.2 | 0.2 | 5.1 | 5.3 |
| 3.1 | 1.4 | 0.2 | 0.2 | 0.1 | 5.0 | 5.1 |
| 2.0 | 2.2 | 0.2 | 0.2 | - | 5.0 | 5.0 |

## SISTEMA DE TIERRA 417, Faceta 1

Clasificación: Haplorthox.

Localización: 14°23'S; 67°42'O. Cantón San Buena Ventura, Depto. La Paz, Bolivia.

Forma del terreno: Ligeramente elevado y disectado.

Pendiente: Local, casi plano.

Drenaje: Moderadamente bien drenado.

Vegetación: Bosque estacional semisiempre verde.

Fuente: Cochrane, T.T., 1973. Sistemas de Tierra de Bolivia,(27), perfil Vb 1-1, pág.642/3.

5-2 cm. Manto de hojas en descomposición.

0-2 cm. Café grisáceo oscuro; franco arcilloso; migajosa fina débil; plástico, pegajoso; poros frecuentes; raíces abundantes; mucha materia orgánica; límite neto, ondulado.

2-15 cm. Café amarillo oscuro; franco arcilloso; bloques medianos, débiles; pegajoso, plástico; poros frecuentes finos; raíces abundantes; moderada materia orgánica; límite gradual, plano.

15-45 cm. Café amarillo oscuro; franco arcilloso; bloques medianos débiles; plástico, pegajoso; poros frecuentes; raíces comúnes; poca materia orgánica; límite difuso, plano.

45-70 cm. Café; franco arcillo arenoso; bloques gruesos débiles; plástico, pegajoso; pocos poros; pocas raíces; muchos moteados; límite gradual y plano.

70-? cm. Café pálido; franco arcillo arenoso; bloques gruesos, débiles; plástico, pegajoso; pocos poros, pocas raíces; muchos moteados; concreciones de Mn ocasionales.

| Prof. (cm) | pH | Cond. Eléc. | P ppm | S.B. % |
|---|---|---|---|---|
| 0-2 | 5.1 | 365 | 18 | 80 |
| 5-12 | 5.5 | 29 | 7 | 33 |
| 20-30 | 5.3 | 14 | 9 | 16 |
| 50-60 | 5.7 | 8 | 7 | 33 |
| 75-90 | 5.7 | 7 | 12 | 41 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 0.9 | 3.4 | 0.6 | 1.3 | 1.6 | 6.2 | 7.8 |
| 0.9 | 1.0 | 0.4 | 0.2 | 5.0 | 2.4 | 7.4 |
| 0.6 | 0.7 | 0.2 | 0.04 | 7.6 | 1.5 | 9.1 |
| 1.0 | 1.1 | 0.2 | 0.1 | 4.7 | 2.4 | 7.1 |
| 1.0 | 1.9 | 0.2 | 0.1 | 4.3 | 3.1 | 7.4 |

## SISTEMA DE TIERRA 418, Faceta 2

Clasificación: Tropudalf.

Localización: 14°44'S, 67°04'O. Cantón San Borja, Depto. Beni, Bolivia.

Forma del terreno: Casi plana.

Drenaje: Imperfectamente drenado.

Vegetación: Bosque estacional semisiempre verde.

Mat. Originario: Aluvial.

Fuente: Cochrane, T.T., 1973. Sistemas de Tierra de Bolivia,(27), perfil Vd 3-1, pág.655/6.

0-2.5 cm. Café oscuro; franco arcillo limoso; migajosa fina moderada; plástico, pegajoso; muchos poros; abundantes raíces; mucha materia orgánica; límite neto, plano.

2.5-15 cm. Café oscuro; franco arcilloso; bloques medianos, moderados; plástico, pegajoso; muchos poros; muchas raíces; moderada materia orgánica; límite neto, indistinto.

15-40 cm. Café oscuro; franco arcilloso; bloques medianos moderados; plástico, pegajoso; muchos poros, pocas raíces; límite neto.

40-66 cm. Café fuerte; franco arcilloso; bloques medianos moderados; plástico, pegajoso; poros frecuentes; pocas raíces; pocos moteados; límite neto.

66-100 cm. Café rojizo oscuro; arcillo limoso; bloques finos, fuertes; muy plástico, muy pegajoso; poros frecuentes; muy pocas raíces.

100-? cm. Rojo amarillento; franco arenoso; bloques medianos débiles; no plástico, no pegajoso; muchos poros; muy pocas raíces; muchos moteados débiles.

| Prof. (cm) | pH | Cond. Eléc. | P ppm | S.B. % |
|---|---|---|---|---|
| 0-2 | 6.5 | 150 | 20 | 82 |
| 5-15 | 6.2 | 18 | 5 | 75 |
| 25-40 | 6.2 | 12 | 10 | 70 |
| 46-61 | 6.3 | 11 | 8 | 80 |
| 76-91 | 6.5 | 12 | 13 | 85 |
| 105-120 | 6.4 | 10 | 10 | 96 |

Cont.

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 17.8 | 3.0 | 0.3 | 0.6 | 1.9 | 21.2 | 23.1 |
| 5.0 | 3.1 | 0.2 | 0.3 | 8.9 | 2.7 | 11.6 |
| 4.3 | 3.4 | 0.2 | 0.2 | 2.2 | 8.4 | 10.6 |
| 3.8 | 2.8 | 0.2 | 2.1 | 1.7 | 6.6 | 8.3 |
| 6.7 | 4.0 | 0.1 | 0.3 | 1.4 | 11.6 | 13.0 |
| 3.0 | 2.0 | 0.1 | 0.2 | 0.3 | 5.8 | 6.1 |

## SISTEMA DE TIERRA 430, Faceta 1

Clasificación: Tropofluvent.

Localización: 16°59'S, 65°23'O. Cantón Palmar, Depto. Cochabamba, Bolivia.

Forma del terreno: Ondulado.

Topografía: Local, suavemente inclinado.

Vegetación: Monte chaqueado. Cultivo de coca y yuca.

Drenaje: Algo excesivamente drenado.

Mat. Originario: Aluvial.

Fuente: Cochrane, T.T. 1973. Sistemas de Tierras de Bolivia,(27), perfil Va 6-1, pág.641/2.

0-20 cm. Café oscuro; arenoso franco; bloque fino débil; ligeramente plástico, ligeramente pegajoso; muchos poros; raíces abundantes; límite neto, plano.

20-50 cm. Rojo amarillento; arenoso franco; bloques medios, débiles; ligeramente plástico, ligeramente pegajoso; muchos poros; muchas raíces; límite difuso, plano.

50-90 cm. Amarillo rojizo; franco arenoso; bloques medios débiles; no pegajoso; no plástico; muchos poros; pocas raíces, límite difuso, plano.

90-? cm. Arenoso; alta proporción de piedras.

| Prof. (cm) | pH | Cond. Eléc. | P ppm | S.B. % |
|---|---|---|---|---|
| 1-15 | 4.7 | 19 | 10 | 17 |
| 25-40 | 5.0 | 9 | - | 16 |
| 70-85 | 5.5 | 8 | 5 | 17 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| - | 0.9 | 0.03 | 0.1 | 4.3 | 0.9 | 5.2 |
| - | - | - | 0.1 | 4.0 | 0.8 | 4.8 |
| 0.4 | 0.6 | 0.1 | 0.1 | 6.0 | 1.3 | 7.3 |

## SISTEMA DE TIERRA 435, Faceta 2

Clasificación: Tropudult.

Localización: 17°03'S, 64°59'O. Cantón V. Tunari, Depto. Cochabamba, Bolivia.

Forma de terreno: Ondulada de pendiente convexa.

Drenaje: Moderadamente bien drenado.

Vegetación: Bosque estacional semisiempre verde.

Mat. Originario: Terraza original plana, aluvial arenoso.

Fuente: Cochrane, T.T. 1973. Sistemas de tierra de Bolivia, (27), perfil Va 1-1, pág.635/6.

3-2 cm. Hojas secas.

2-0 cm. Manto de hojas en descomposición y enmarañado de raíces.

0-3 cm. Café oscuro; franco arenoso; bloques finos, débiles; ligeramente plástico, ligeramente pegajoso; raíces abundantes; mucha materia orgánica; límite neto, plano.

3-11 cm. Café oscuro; franco arenoso; bloques finos débiles; ligeramente plástico, ligeramente pegajoso; muchos poros; raíces abundantes; moderada materia orgánica; límite neto, irregular.

11-85 cm. Café amarillento; franco; bloques medianos, débiles; plástico, pegajoso; muchos poros; muchas raíces; poca materia orgánica; límite difuso, plano.

85-? cm. Amarillo café; franco arenoso; bloques medios débiles; plástico, pegajoso; muchos poros; pocas raíces; pocos moteados.

| Profundid. (cm) | pH | Cond. Eléc. | P ppm | S.B. % |
|---|---|---|---|---|
| 15-30 | 4.7 | 10 | 18 | 17 |
| 45-60 | 4.6 | 9 | 6 | 27 |
| 95-105 | 4.7 | 10 | 7 | 18 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 1.3 | 0.1 | 0.1 | 0.1 | 11.5 | 2.3 | 13.8 |
| 0.8 | 0.3 | | 0.2 | 11.8 | 4.3 | 16.1 |
| 0.9 | 0.3 | | 0.2 | 14.6 | 3.3 | 17.9 |

## SISTEMA DE TIERRA 436, Faceta 1

Clasificación: Tropofluvent.

Localización: 17°10'S, 64°18'O. Cantón Puerto Grether, Depto. Santa Cruz, Bolivia.

Forma del terreno: Terraza fluvial.

Drenaje: Moderadamente bien drenado.

Vegetación: Bosque estacional semisiempre verde cambiando a bosque de galería cerca del río.

Mat. Originario: Aluvial reciente del río Ichilo.

Fuente: Cochrane, T.T. 1973. Sistemas de Tierra de Bolivia, (27), perfil Ve 9-1, pág.675.

3-1 cm. Hojas secas.

1-0 cm. Manto de materia en descomposición.

0-18 cm. Café amarillo oscuro; arcillo limoso; bloques finos moderados; plástico, pegajoso; abundantes raíces, límite gradual, plano.

18-60 cm. Café amarillento; arcillo limoso; bloques medianos débiles; plástico, pegajoso; muchas raíces; límite gradual y plano.

60-? cm. Café amarillento; arcilloso; bloques medianos débiles; plástico, pegajoso; pupas y lombrices hasta 120 cm de profundidad.

| Prof. (cm) | pH | Cond. Eléc. | P ppm | S.B. % |
|---|---|---|---|---|
| 0-10 | 6.4 | 110 | 10 | 71 |
| 12-18 | 6.3 | 56 | 5 | 38 |
| 20-42 | 6.2 | 40 | 3 | 30 |
| 60-75 | 6.1 | 26 | 1 | 38 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 3.5 | 5.2 | 0.2 | 0.3 | 5.2 | 13.0 | 18.2 |
| 2.6 | 1.4 | 0.2 | 0.1 | 9.7 | 6.0 | 15.7 |
| 2.4 | 1.2 | 0.2 | 0.1 | 10.4 | 4.6 | 15.0 |
| 2.5 | 1.2 | 0.2 | 0.1 | 6.5 | 4.0 | 10.5 |

## SISTEMA DE TIERRA 437, Faceta 1

Clasificación: Acrorthox.

Localización: 17°10'S; 64°33'O. Cantón Vandiola, Depto. Cochabamba, Bolivia.

Forma de la tierra: Colinado, ond. a fuerte ondulado.

Topografía: Local, suavemente inclinado.

Drenaje: Bien drenado.

Vegetación: Bosque estacional semisiempre verde.

Mat. Originario: Vieja superficie plana aluvial levantada y erosionada,de aluviones arenosos.

Fuente: Cochrane, T.T. 1973. Sistemas de tierras de Bolivia, (27), perfil Va 2-1, pág.636.

3-1 cm. Hojas secas.

1-0 cm. Manto de plantas en descomposición y enmarañado de raíces.

430

0-1.5 cm. Café; franco; bloques medianos, moderados; plástico, pegajoso; muchas raíces; alto contenido de materia orgánica; límite brusco, plano.

1.5-9 cm. Café amarillo; franco; bloques medianos moderados; plástico, pegajoso; muchos poros muy finos; moderada materia orgánica; límite gradual, plano.

9-45 cm. Café amarillo; franco; bloques medianos moderados; plástico, pegajoso; muchas raíces; poca materia orgánica; límite difuso, plano.

45-? cm. Café fuerte; franco arcillo limoso; bloques medianos moderados; firme; pocas raíces.

| Prof. (cm) | pH | Cond. Eléc. | P ppm | S.B. % |
|---|---|---|---|---|
| 0-1.5 | 4.5 | 95 | 45 | 37 |
| 2-8 | 4.3 | 43 | 7 | 7 |
| 15-30 | 4.6 | 23 | 19 | 14 |
| 50-65 | 4.7 | 11 | 1 | 6 |
| 85-100 | 4.7 | 10 | 4 | 10 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 0.9 | 1.6 | 0.1 | 0.3 | 12.7 | 7.3 | 20.0 |
| | 0.6 | 0.1 | 0.1 | 9.3 | 0.7 | 10.0 |
| | 0.8 | 0.1 | 0.1 | 4.9 | 0.8 | 5.7 |
| | 0.3 | 0.03 | 0.1 | 8.1 | 0.5 | 8.6 |
| | 0.9 | 0.1 | 0.1 | 7.7 | 0.9 | 8.6 |

## SISTEMA DE TIERRA 441, Faceta 1

Clasificación: Tropofluvent.

Localización: 16°42'S; 64°03'O. Cantón Cuatro Ojos, Depto. Santa Cruz, Bolivia.

Forma del terreno: Plano.

Drenaje: Moderada a imperfectamente drenado.

Vegetación: Bosque estacional semisiempre verde.

Mat. Originario: Aluviones del río Yapacaní.

Fuente: Cochrane, T.T. 1973. Sistemas de Tierra de Bolivia, (27), perfil Ve 13-1, pág. 679/80.

0-2.5 cm. Café muy oscuro; franco arcillo limoso; granular media moderada; plástico, pegajoso; abundantes raíces; moderada materia orgánica; límite neto y plano.

2.5-14 cm. Café oscuro; limoso; bloques medios débiles;plástico, pegajoso; muchos poros; abundantes raíces; mucha materia orgánica; límite neto, plano.

14-30 cm. Café amarillo; franco limoso; bloques medianos débiles; plástico, pegajoso; muchos poros; muchas raíces; poca materia orgánica; límite gradual y plano.

30-50 cm. Café amarillo plano; franco limoso; bloques medianos débiles; plástico, pegajoso; poros comúnes; muchas raíces; abundantes moteados; límite difuso, plano.

50-80 cm. Café amarillo claro; franco arcillo limoso; bloques medianos débiles; plástico, pegajoso; muchas raíces; muchos moteados; límite difuso, plano.

80-? cm. Café pálido; limoso; bloques gruesos moderados; plástico, pegajoso; muchas raíces; muchos moteados.

| Prof. (cm) | pH | Cond. Eléc. | P ppm | S.B. % |
|---|---|---|---|---|
| 0-2.5 | 7.0 | 271 | 100 | 54 |
| 3-13 | 6.9 | 13 | 86 | 72 |
| 15-26 | 6.3 | 14 | 8 | 89 |
| 30-43 | 5.9 | 13 | 5 | 65 |
| 60-75 | 5.9 | 37 | 2 | 100 |
| 85-95 | 5.6 | 45 | 7 | 63 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 22.5 | 3.8 | 0.2 | 0.6 | 23.2 | 27.1 | 50.3 |
| 20.0 | 2.2 | 0.2 | 0.6 | 8.7 | 23.8 | 32.5 |
| 5.4 | 2.1 | 0.1 | 0.8 | 1.0 | 8.3 | 9.3 |
| 4.4 | 1.3 | 0.2 | 0.2 | 3.3 | 6.0 | 9.3 |
| 12.9 | 10.1 | 0.2 | 0.1 | 0.5 | 23.2 | 23.7 |
| 5.9 | 2.7 | 0.1 | 0.1 | 5.1 | 8.5 | 13.6 |

## SISTEMA DE TIERRA 442, Faceta 1

Clasificación: Tropofluvent.

Localización: 17°22'S; 63°49'O. Cantón Buena Vista, Depto. Santa Cruz, Bolivia.

Forma de terreno: Plana.

Drenaje: Moderadamente bien drenado.

Vegetación: Bosque estacional siempreverde.

Mat. Originario: Aluvial d río Yapacaní.

Fuente: Cochrane, T.T., 1973. Sistemas de tierras de Bolivia,(27), perfil Ve 12-1, pág.677/7.

0-6 cm. Café amarillo oscuro; franco arcilloso; bloques finos, débiles; plástico, pegajoso; raíces abundantes; límite regular, no definido.

6-20 cm. Café amarillo; franco arcillo arenoso; bloques finos débiles; plástico, pegajoso; muchas raíces; límite regular, no definido.

20-34 cm. Café amarillo; franco arenoso; bloques finos débiles; ligeramente plástico, ligeramente pegajoso; pocas raíces; límite regular, difuso.

34-? cm. Rojo amarillo; arenoso franco; granular fina; ligeramente plástico, ligeramente pegajoso; pocas raíces.

| Prof. (cm) | pH | Cond. Eléc. | P ppm | S.B. % |
|---|---|---|---|---|
| 2-5 | 4.7 | 130 | 38 | 30 |
| 10-15 | 4.9 | 21 | 12 | 29 |
| 25-30 | 5.1 | 18 | - | 47 |
| 40-50 | 5.4 | 8 | - | 58 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 4.1 | 1.3 | 0.2 | 0.3 | 7.8 | 6.3 | 30 |
| 2.4 | 0.1 | 0.2 | 0.1 | 6.7 | 2.8 | 29 |
| 1.9 | 1.2 | 0.2 | 0.1 | 3.7 | 3.4 | 47 |
| 1.1 | 0.6 | 0.2 | 0.04 | 1.7 | 2.3 | 58 |

## SISTEMA DE TIERRA 443, Faceta 1

Clasificación: Tropaquept.

Localización: 16°44'S; 63°55'O. Cantón Cuatro Ojos, Depto. Santa Cruz, Bolivia.

Forma del terreno: Casi plano.

Drenaje: Moderadamente drenado.

Vegetación: Bosque estacional semisiempre verde

Mat. Originario: Aluvial del río Palacios.

Fuente: Cochrane, T.T. 1973. Sistemas de tierras de Bolivia,(27), perfil Ve 14-3, pág. 684/5.

2.5-0.5 cm. Hojas secas.

0.5-0 cm. Manto de hojas en descomposición.

0-3.5 cm. Café gris oscuro; franco limoso; bloques finos moderados; plástico, pegajoso; raíces abundantes; límite neto, plano.

3.5-20 cm. Café; franco limoso; bloques medianos, débiles, plástico, pegajoso; muchas raíces; límite gradual, plano.

20-35 cm. Café oscuro, franco limoso; bloques medianos, débiles; plástico, pegajoso; muchas raíces; límite gradual, plano.

35-? cm. Café; franco limoso; bloques medianos, débiles, plástico, pegajoso; muchas raíces; muchos moteados.

| Prof. (cm) | pH | Cond. Elec. | P ppm | S.B. % |
|---|---|---|---|---|
| 0-3 | 6.5 | 170 | 6 | 78 |
| 5-20 | 5.0 | 11 | 19 | 41 |
| 40-65 | 5.0 | 8 | 17 | 61 |
| 70-85 | 5.0 | 7 | 2 | 84 |

Cont.

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 12.2 | 3.4 | 0.3 | 0.9 | 6.4 | 23.8 | 30.2 |
| 5.4 | 1.2 | 0.1 | 0.4 | 9.8 | 6.8 | 16.6 |
| 5.8 | 3.8 | 0.3 | 0.3 | 8.6 | 13.3 | 21.9 |
| 4.8 | 3.5 | 0.4 | 0.6 | 2.8 | 14.3 | 17.1 |

## SISTEMA DE TIERRA 444, Faceta 1

Clasificación: Eutropept.

Localización: 16°44'S; 63°55'O. Cantón Cuatro Ojos, Depto. Santa Cruz, Bolivia.

Forma del terreno: Casi plano.

Drenaje: Bien drenado.

Vegetación: Bosque estacional semisiempre verde.

Mat. Originario: Aluviones del río Palacios.

Fuente: Cochrane, T.T. 1973. Sistemas de Tierra de Bolivia, (27), perfil Ve-14-3, página 684/5.

2.5-0.5 cm. Hojas secas.

0.5-0 cm. Manto de hojas en descomposición, con algunos fragmentos reconocibles de plantas.

0-3.5 cm. Café gris oscuro; franco limoso; bloques finos moderados; plástico, pegajoso; raíces abundantes; límite neto, plano.

3.5-20 cm. Café a café oscuro; franco limoso; bloques medianos, débiles; plástico, pegajoso; muchas raíces; límite gradual, plano.

35-? cm. Café; franco limoso; bloques medianos, débiles ; plástico, pegajoso; muchas raíces; muchos moteados amarillo café.

| Prof. (cm) | pH | Cond. Eléc. | P ppm | S.B. % |
|---|---|---|---|---|
| 0-3 | 6.5 | 170 | 6 | 78 |
| 5-20 | 5.0 | 11 | 19 | 41 |
| 40-65 | 5.0 | 8 | 17 | 61 |
| 70-85 | 5.0 | 7 | 2 | 84 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 12.2 | 3.4 | 0.3 | 0.9 | 6.4 | 23.8 | 30.2 |
| 5.4 | 1.2 | 0.1 | 0.4 | 9.8 | 6.8 | 16.6 |
| 5.8 | 3.8 | 0.3 | 0.3 | 8.6 | 13.3 | 21.9 |
| 4.8 | 3.5 | 0.4 | 0.6 | 2.8 | 14.3 | 17.1 |

## SISTEMA DE TIERRA 445, Faceta 1

Clasificación: Haplustult.

Localización: 17 00'S; 63 41'O. Cantón Santa Rosa, Depto. Santa Cruz, Bolivia.

Forma del terreno: Fuertemente ondulado.

Topografía: Inclinado.

Drenaje: Bien drenado.

Vegetación: Bosque estacional semisiempre verde a bosque estacional deciduo.

Mat. Originario: Sedimentos derivados de areniscas, posiblemente Terciarias, subandinas, en época Cuaternaria.

Fuente: Cochrane, T.T. 1973. Sistemas de Tierras de Bolivia, (27), perfil Va 4-1, pág.639/40.

2.5-1.5 cm. Hojas secas.

1.5-0 cm. Manto de hojas en descomposición.

0-3 cm. Café muy oscuro; franco arenoso; migajosa, mediana, débil; plástico, pegajoso; muchas raíces; mucha materia orgánica; límite neto, plano.

3-14 cm. Café grisáceo muy oscuro; arenoso franco; bloques finos, débiles; no plástico, no pegajoso; muchos poros; abundantes raíces; ocasionales moteados; límite brusco, irregular.

14-85 cm. Café amarillo claro; arenoso franco; bloques medianos, débiles; plástico, pegajoso; muchos poros; muchas raíces; moteado incipiente; límite difuso, plano.

85-? cm. Gris rosado; arcilloso; bloques medianos, moderados; muy plástico, muy pegajoso; muchos poros; muy pocas raíces; abundantes moteados rojos.

| Prof. (cm) | pH | Cond. Eléc. | P ppm | S.B. % |
|---|---|---|---|---|
| 0-3 | 6.2 | 150 | 30 | 81 |
| 3-13 | 5.6 | 57 | 25 | 60 |
| 18-33 | 5.0 | 14 | 20 | 38 |
| 45-60 | 4.9 | 8 | 6 | 37 |
| 95-110 | 5.6 | 8 | 1 | 17 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 11.9 | 1.9 | 0.1 | 0.4 | 3.2 | 14.4 | 81 |
| 4.0 | 1.5 | 0.1 | 0.2 | 4.0 | 6.0 | 60 |
| 0.5 | 0.5 | 0.03 | 0.1 | 3.2 | 2.0 | 38 |
| 0.1 | 0.4 | - | - | 3.0 | 1.8 | 37 |
| 0.1 | 0.1 | 0.2 | - | 8.3 | 1.8 | 17 |

## SISTEMA DE TIERRA 450, Faceta 2

Clasificación: Haplustalf.

Localización: 17°37'S; 63°17'O. Cantón Colpa, Depto. Santa Cruz, Bolivia.

Forma del terreno: Ondulado a fuerte ondulado, localmente cumbre de una colina.

Drenaje: Bien drenado.

Vegetación: Plantación de caña de azúcar desde hace dos años. Previamente bosque estacional deciduo.

Mat. Originario: Aluviales y coluviales del piedemonte.

Fuente: Cochrane, T.T. 1973. Sistemas de tierras de Bolivia,(27), perfil Vc 1-1, pág.651/2.

0-12 cm. Café gris oscuro; franco arenoso; bloques finos moderados; ligeramente plástico, ligeramente pegajoso; pocos poros; abundantes raíces; mucha materia orgánica; límite gradual, plano.

12-40 cm. Café; franco arenoso; bloques finos, débiles; ligeramente plástico, ligeramente pegajoso; poros comúnes; muchas raíces; pocas materia orgánica; límite difuso, plano.

40-60 cm. Franco arcillo arenoso; bloques medianos débiles; plástico, pegajoso; poros comúnes; pocas raíces; pocos moteados; límite gradual y plano.

60-? cm. Café amarillo; franco arcillo arenoso; bloques medianos, débiles; plástico, pegajoso; poros comúnes; pocas raíces; muchos moteados.

| Prof. (cm) | pH | Cond. Eléc. | P ppm | S.B. % |
|---|---|---|---|---|
| 0-8 | 7.2 | 24 | 8 | 100 |
| 15-25 | 7.4 | 25 | 4 | 38 |
| 44-55 | 7.4 | 10 | 4 | 77 |
| 70-80 | 6.8 | 87 | 4 | 89 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 9.0 | 2.0 | 0.2 | 1.8 | - | 12.9 | 12.3 |
| 2.3 | 0.2 | 0.1 | 0.1 | 4.3 | 2.8 | 7.1 |
| 4.3 | 0.8 | 1.8 | 2.4 | 2.6 | 9.2 | 11.8 |
| 6.1 | 0.6 | 2.6 | 2.0 | 1.6 | 13.0 | 14.6 |

## SISTEMA DE TIERRA 452, Faceta 1

Clasificación: Ustorthent.

Localización: 17°55'S; 63°17'O. Cantón Colpa, Depto. Santa Cruz, Bolivia.

Forma del terreno: Mod. pendiente a pendiente.

Drenaje: Bien drenado.

Vegetación: Bosque estacional semisiempre verde.

Mat. Originario: Viejos depósitos aluviales - coluviales de areniscas subandinas.

Fuente: Cochrane, T.T. 1973. Sistemas de Tierras de Bolivia,(27), perfil IVc-1-1, pág.625/6.

0-8 cm. Café rojizo oscuro; franco; bloques débiles a grano simple; abundantes raíces; poca materia orgánica; límite plano, neto.

8-20 cm. Café rojizo oscuro; franco; bloques débiles a grano simple; plástico, pegajoso; pocos poros; muchas raíces; moderada materia orgánica; límite gradual y plano.

20-50 cm. Café rojizo oscuro; franco arcilloso; bloques débiles a grano simple; plástico, pegajoso; pocos poros; muchas raíces; moderada materia orgánica; límite gradual, ondulado.

50-? cm. Rojo; franco arcilloso; bloques medianos débiles; plástico, pegajoso; pocas raíces; pedregoso; piedras areniscas angulares y redondeadas aumentando con la profundidad.

| Prof. (cm) | pH | Cond. Eléc. | P ppm | S.B. % |
|---|---|---|---|---|
| 0-5 | 7.2 | 131 | 24 | 55 |
| 10-20 | 7.3 | 51 | 75 | 98 |
| 25-35 | 7.5 | 20 | 75 | 100 |
| 60-80 | 6.8 | 9 | 0 | 100 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 23.0 | 5.1 | 0.4 | 3.4 | 25.9 | 31.4 | 57.3 |
| 12.8 | 3.3 | 0.3 | 1.8 | 0.3 | 18.0 | 18.3 |
| 14.4 | 2.8 | 0.4 | 1.2 | 0.0 | 19.1 | 19.1 |
| 15.1 | 2.8 | 0.4 | 1.3 | 0.0 | 20.5 | 20.5 |

## SISTEMA DE TIERRA 456, Faceta 1

Clasificación: Ustipsamment.

Localización: 17°48'S; 63°10'O. Cantón Izutu, Depto. Sta. Cruz, Bolivia.

Forma del terreno: Plano a suavemente inclinado.

Drenaje: Moderadamente bien drenado.

Vegetación: Pampa; son comúnes los pastos empenachados y algo de grama negra.

Mat. Originario: Aluvial reciente del río Piray, alto contenido de cuarzo y arena.

Fuente: Cochrane, T.T. 1973. Sistemas de tierra de Bolivia, (27), perfil Ve 16-1, pág. 687/8.

0-5 Café rojizo; arenoso franco; bloques medianos débiles; raíces comúnes; límite indefinido.

5-20 cm. Rojo amarillo; franco arenoso; grano simple; muy friable; raíces comúnes; límite difuso.

20-40 cm. Rojo amarillo; arenoso; grano simple; muchas raíces; límite difuso.

40-75 cm. Amarillo rojizo; arenoso; grano simple; muchas raíces; límite indefinido.

75-105 cm. Rojo; arenoso franco; grano simple; pocas raíces; moteados; límite indefinido.

105-? cm. Rojo amarillo; arenoso franco; bloques finos, débiles; pocas raíces.

| Prof. (cm) | pH | Cond. Eléc. | P ppm | S.B. % |
|---|---|---|---|---|
| 0-5 | 6.2 | 18 | 15 | 85 |
| 8-18 | 5.8 | 13 | 6 | 65 |
| 25-35 | 5.8 | 17 | 4 | 65 |
| 45-60 | 5.8 | 5 | 6 | 71 |
| 80-95 | 6.1 | 5 | 22 | 75 |
| 115-130 | 6.5 | 7 | 63 | 87 |
| 170-180 | 6.7 | 6 | 81 | 87 |

Cont.

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 1.6 | 0.6 | 0.1 | 0.3 | 0.4 | 2.6 | 3.0 |
| 1.3 | 0.4 | 0.1 | 0.2 | 1.1 | 1.9 | 3.0 |
| 0.8 | 0.5 | 0.1 | 0.1 | 0.7 | 1.4 | 2.1 |
| 0.7 | 0.5 | 0.1 | 0.1 | 0.5 | 1.3 | 1.8 |
| 2.5 | 0.5 | 0.2 | 0.2 | 1.2 | 3.4 | 4.6 |
| 3.5 | 1.1 | 0.1 | 0.3 | 0.8 | 5.0 | 5.8 |
| 3.9 | 1.4 | 0.4 | 0.3 | 0.2 | 8.0 | 8.2 |

## SISTEMA DE TIERRA 457, Faceta 1

Clasificación: Ustipsamment.

Localización: 17°19'S y 63°10'O. Cantón Guabirá, Depto. Sta. Cruz, Bolivia.

Forma del terreno: Plano a suave ondulado.

Drenaje: Moderadamente bien drenado.

Vegetación: Pastizales (Yaraguá), anteriormente caña de azúcar.

Mat. Originario: Aluviones arenosos ricos en cuarzo.

Fuente: Cochrane,T.T. 1973. Sistemas de tierras de Bolivia, (27), perfil Ve 18-1, pág.691/2.

0-12 cm. Café oscuro; arenoso franco; bloques finos débiles; no pegajoso, ligeramente plástico; pocos poros; muchas raíces; moderada materia orgánica; límite gradual y plano.

12-30 cm. Café oscuro; arenoso franco; grano simple; no plástico, no pegajoso; pocos poros; muchas raíces; poca materia orgánica; límite difuso, irregular.

30-60 cm. Café fuerte; franco arenoso; grano simple; no plástico, no pegajoso; pocos poros; muchas raíces; vestigios de moteados; límite difuso, plano.

60-? cm. Café claro; franco arenoso; grano suelto; no plástico, no pegajoso; pocos poros; pocas raíces; abundantes moteados.

| Prof. (cm) | pH | Cond. Eléc. | P ppm | S.B. % |
|---|---|---|---|---|
| 0-6 | 6.8 | 25 | 40 | 98 |
| 15-25 | 6.8 | 13 | 15 | 64 |
| 35-45 | 5.9 | 7 | 2 | 70 |
| 70-85 | 5.9 | 4 | 5 | 45 |
| 100-115 | 6.1 | 5 | 28 | 28 |
| 140-150 | 6.0 | 5 | 27 | 93 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 3.1 | 0.8 | 0.1 | 0.3 | 0.1 | 4.3 | 4.4 |
| 1.9 | 0.5 | 0.1 | 0.2 | 1.4 | 2.4 | 3.8 |
| 0.9 | 0.8 | 0.1 | 0.2 | 0.9 | 1.9 | 2.8 |
| 0.8 | 0.1 | 0.1 | 0.1 | 1.8 | 1.5 | 3.3 |
| 2.0 | 0.4 | 0.1 | 0.2 | 0.2 | 2.6 | 2.8 |
| 2.2 | 0.6 | 0.1 | 0.2 | 0.2 | 2.9 | 3.1 |

## SISTEMA DE TIERRA 459, Faceta 1

Localización: 86 km al sur de Santa Cruz, hacia Río Seco, Bolivia.

Forma del terreno: Planicie, casi plano.

Drenaje: Escasamente drenado.

Vegetación: Bosque deciduo a Xerofítico.

Mat. Originario: Aluvial del río Grande.

Fuente: Cochrane, T.T. 1973. Sistemas de tierras de Bolivia,(27), perfil Xc 11-1, pág.759.

0-4 cm. Café oscuro; franco arcilloso; bloques finos débiles; plástico, pegajoso; muchos poros; abundantes raíces; límite neto, plano.

4-15 cm. Café; franco arcilloso; bloques medianos débiles; plástico, pegajoso; muchos poros; abundantes raíces; límite gradual, plano.

15-85 cm. Café rojizo oscuro; arcilloso; bloques gruesos fuertes, muy plástico, muy pegajoso; pocos poros; raíces comúnes; límite difuso y plano.

85-? Café rojizo; bloques gruesos, moderados; muy plástico, muy pegajoso; pocos poros; muy pocas raíces; frecuentes moteados.

No hay datos analíticos.

## SISTEMA DE TIERRA 460, Faceta 1

Clasificación: Ustifluvent.

Localización: 17°13'S; 62°40'O. Cantón Todos Santos, Depto. Santa Cruz, Bolivia.

Forma del terreno: Casi plano.

Drenaje: Moderadamente bien drenado.

Vegetación: Pastos cultivados de yaraguá, originalmente bosque deciduo.

Mat. Originario: Aluvial limoso del río Grande.

Fuente: Cochrane, T.T., 1973. Sistemas de tierras de Bolivia,(27), perfil Xc 5-1, pág.751/2.

0-12 cm. Café gris oscuro; limoso; bloques medianos moderados; friable; abundantes raíces; límite definido.

12-22 cm. Café amarillo; limoso; bloques medios moderados; friable; abundantes raíces; límite indefinido.

22-37 cm. Café amarillo; franco arenoso fino; bloques débiles a grano simple; friable; muchas raíces; límite uniforme definido.

37-58 cm. Café amarillo; limoso; bloques medianos débiles; friable; muchas raíces; límite definido.

58-72 cm. Café amarillo; arcillo limoso; bloques finos débiles; friable; muchas raíces; límite indefinido.

72-90 cm. Café; franco arenoso fino; bloques débiles; friable; muchas raíces.

| Prof. (cm) | pH | Cond. Eléc. | P ppm | S.B. % |
|---|---|---|---|---|
| 0-12 | 7.1 | 90 | 220 | 79 |
| 12-22 | 7.3 | 43 | 320 | 71 |
| 26-36 | 6.9 | 69 | 245 | 97 |
| 36-57 | 7.2 | 151 | 240 | 85 |
| 58-70 | 8.2 | 42 | 170 | 96 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 8.1 | 3.5 | 0.2 | 1.3 | 3.5 | 13.1 | 16.6 |
| 5.5 | 1.2 | 0.3 | 0.9 | 1.8 | 7.8 | 9.6 |
| 5.2 | 1.2 | 0.3 | 0.5 | 0.2 | 7.2 | 7.4 |
| 14.7 | 3.0 | 0.4 | 0.6 | 1.3 | 7.2 | 8.5 |
| 4.9 | 2.8 | 0.3 | 0.2 | 0.3 | 8.2 | 8.5 |

## SISTEMA DE TIERRA 462, Faceta 1

Clasificación: Ustifluvent.

Localización: La Esperanza, Experimento Fertilizantes caña de azúcar. Cantón La Rochela, Depto. Santa Cruz, Bolivia.

Forma del terreno: Plano.

Drenaje: Bien a moderadamente bien drenado.

Vegetación: Cultivo de caña de azúcar y algodón.

Mat. Originario: Aluvial del río Grande.

Fuente: Cochrane, T.T. Sistemas de tierra de Bolivia, 1973, (27), perfil Xc 6-1, pág.754/1.

0-15 cm. Café rojizo oscuro; franco arcillo limoso; bloques finos débiles; ligeramente plástico, ligeramente pegajoso; muchos poros; abundantes raíces; límite brusco, plano.

15-40 cm. Rojo oscuro; franco arcilloso; bloques medianos débiles; plástico, pegajoso; muchos poros; pocas raíces; límite brusco, plano.

40-89 cm. Café rojizo; franco limoso; bloques finos débiles; ligeramente plástico, ligeramente pegajoso; pocos poros; muy pocas raíces; límite gradual, plano.

89-128 cm. Café amarillo; arcilloso; bloques moderados; plástico, pegajoso; pocos poros; muy pocas raíces; carbonatos en forma de nodulos; límite gradual y ondulado.

128-150 cm. Rojo amarillo; franco arenoso; sin estructura, aglomerado; no pegajoso, ligeramente plástico; muchos poros; muy pocas raíces; límite gradual y ondulado.

150-210 cm. Arena blanca profunda, no hay presencia de raíces.

| Prof. (cm) | pH | Cond. Eléc. | P ppm | S.B. % |
|---|---|---|---|---|
| 0-10 | 7.1 | 160 | 17 | 100 |
| 20-30 | 6.6 | 74 | 1 | 67 |
| 55-65 | 6.7 | 70 | 3 | 73 |
| 100-110 | 8.3 | 165 | 1 | 98 |
| 130-140 | 8.4 | 200 | 1 | 100 |
| 160-170 | 8.3 | 100 | 4 | 100 |
| 200-210 | 8.5 | 60 | 3 | 100 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 12.0 | 3.8 | 0.35 | 0.69 | - | 16.8 | 16.8 |
| 12.4 | 4.4 | 0.35 | 0.28 | 8.4 | 17.4 | 25.8 |
| 11.0 | 4.0 | 0.33 | 0.45 | 5.7 | 15.8 | 21.5 |
| 29.6 | 3.4 | 0.85 | 0.35 | - | 34.2 | 34.8 |
| 28.8 | 4.4 | 0.94 | 0.34 | 0.6 | 34.5 | 34.5 |
| 5.4 | 1.8 | 0.24 | 0.11 | - | 7.6 | 7.6 |
| 3.6 | 0.6 | 0.18 | 0.05 | - | 4.4 | 4.4 |

## SISTEMA DE TIERRA 463, Faceta 1

Clasificación: Ustifluvent.

Localización: 17°13'S; 62°51'O. Cantón Puerto Banegas, Depto. Santa Cruz, Bolivia.

Forma del terreno: Casi plano.

Drenaje: Moderadamente bien drenado.

Vegetación: Originalmente bosque estacional deciduo.

Mat. Originario: Aluviones limosos del río Grande.

Fuente: Cochrane, T.T. 1973. Sistema de tierras de Bolivia, (27), perfil Xc 5-2, pág. 753/4.

1.5-0 cm. Manto de hojas en descomposición.

0-4 cm. Café amarillo oscuro; franco limoso; bloques finos débiles; ligeramente plástico, ligeramente pegajoso; muchas raíces; mucha materia orgánica; límite neto plano.

4-12 cm. Café amarillo oscuro; franco limoso; bloques finos débiles; ligeramente pegajoso, ligeramente plástico; muchas raíces; moderada materia orgánica; límite gradual y plano.

12-55 cm. Café amarillo; franco limoso; bloques finos, débiles; plástico, pegajoso; muchas raíces; poca materia orgánica; límite gradual y plano.

55-75 cm. Café pálido; franco limoso; bloques finos débiles; plástico, pegajoso; muchas raíces; pocos moteados; límite gradual y plano.

75-? cm. Café pálido; limoso; bloques finos débiles; plástico, pegajoso; pocas raíces.

| Prof. (cm) | pH | Cond. Eléc. | P ppm | S.B. % |
|---|---|---|---|---|
| 0-4 | 7.5 | 270 | 200 | 100 |
| 4-12 | 7.0 | 66 | 160 | 95 |
| 15-25 | 6.5 | 30 | 170 | 94 |
| 30-40 | 6.9 | 17 | 116 | 80 |
| 60-70 | 7.2 | 25 | 113 | 99 |
| 85-95 | 7.4 | 50 | 240 | 100 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 21.8 | 4.6 | 0.2 | 0.9 | - | 27.0 | 27.0 |
| 7.2 | 1.2 | 0.1 | 0.7 | 0.5 | 10.5 | 11.0 |
| 4.0 | 2.8 | 0.1 | 0.5 | 0.2 | 7.4 | 7.9 |
| 2.4 | 2.4 | 0.2 | 0.2 | 0.3 | 5.2 | 6.4 |
| 3.6 | 4.0 | 0.1 | 0.3 | 0.2 | 8.8 | 8.8 |
| 4.1 | 2.0 | 0.1 | 0.2 | - | 7.4 | 7.4 |

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## SISTEMA DE TIERRA 464, Faceta 1

Clasificación: Ustifluvent.

Localización: 16°49'S; 63°28'O. Cantón Chané Independencia, Depto. Santa Cruz, Bolivia.

Forma del terreno: Plano.

Drenaje: Moderadamente bien drenado.

Vegetación: Bosque estacional siempre verde.

Mat. Originario: Aluvial del río Grande.

Fuente: Cochrane, T.T. 1973. Sistemas de tierras de Bolivia,(27), perfil Xc 1-1, pág.749/50.

0-3 cm. Café; limoso; migajosa mediana moderada; adherente, plástico; abundantes raíces; mucha materia orgánica; límite neto, plano.

3-8 cm. Café amarillo; arcillo limoso; bloques finos, moderados; muy plástico, muy pegajoso; abundantes raíces; moderada materia orgánica, límite gradual, irregular.

8-22 cm. Café; arcillo limoso; bloques medianos, fuertes; muy plástico, muy pegajoso; muchos poros; muchas raíces; moderada materia orgánica; límite neto, irregular.

22-45 cm. Café amarillo; limoso; bloques medianos, débiles; plástico, pegajoso; moderado, porosidad; muchas raíces; poca materia orgánica; límite gradual y ondulado.

45-65 cm. Café; arcillo limoso; bloques medianos, moderados; muy plástico, muy pegajoso; muchos poros; muchas raíces; límite gradual y ondulado.

85-? cm. Café amarillo claro; arcillo limoso; laminar fina moderada, muy plástico, muy pegajoso, pocas raíces; pocos moteados amarillo café.

| Prof. (cm) | pH | Cond. Eléc. | P ppm | S.B. |
|---|---|---|---|---|
| 1-3 | 7.4 | 320 | 42 | 87 |
| 3-8 | 6.9 | 95 | 42 | 80 |
| 10-20 | 6.7 | 35 | 46 | 87 |
| 25-35 | 6.7 | 11 | - | 78 |
| 55-65 | 6.9 | 14 | - | 65 |
| 70-80 | 6.7 | 18 | - | 64 |
| 105-120 | 7.3 | 72 | - | 94 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 18.7 | 3.4 | 0.2 | 0.6 | 3.5 | 23.8 | 27.3 |
| 10.0 | 4.9 | 0.2 | 0.5 | 18.2 | 1.6 | 19.8 |
| 8.5 | 2.2 | 0.2 | 0.4 | 1.8 | 12.5 | 14.3 |
| 3.8 | 1.1 | 0.1 | 0.2 | 1.3 | 4.6 | 5.9 |
| 6.8 | 1.0 | 0.1 | 0.2 | 4.3 | 8.0 | 12.3 |
| 6.1 | 1.0 | 0.1 | 0.3 | 4.5 | 8.0 | 12.5 |
| 14.1 | 2.3 | 0.2 | 0.4 | 0.4 | 17.0 | 17.4 |

## SISTEMA DE TIERRA 470, Faceta 1

Clasificación: Tropofluvent.

Localización: 16 46'S y 62 3/'O. Santa Cruz, Bolivia.

Forma del terreno: Casi plana a suave ondulada.

Drenaje: Bien drenado.

Vegetación: Bosque deciduo.

Mat. Originario: Aluviones del río San Julián.

Fuente: Cochrane, T.T. 1973. Sistemas de tierra de Bolivia, (27), perfil VII 10-1, pág.720/1.

2.5-0.5 cm. Hojas secas.

0.5-0 cm. Manto de hojas en descomposición.

0-8 cm. Café oscuro; franco limoso; granular mediana moderada; ligeramente plástico, ligeramente pegajoso; pocos poros; muchas raíces; mucha materia orgánica; límite neto, plano.

8-30 cm. Café oscuro a café; franco limoso; bloques finos, moderados; ligeramente plástico, ligeramente pegajoso; muchos poros; muchas raíces; límite gradual y plano.

30-65 cm. Café amarillo oscuro; franco arcillo limoso; bloques medianos débiles; plástico, pegajoso; muchos poros; muchas raíces; límite neto y plano.

65-? cm. Café amarillo; franco arenoso; sin estructura, aglomerado; ligeramente pegajoso, no plástico; pocos poros; pocas raíces.

| Prof. (cm) | pH | Cond. Eléc. | P ppm | S.B. |
|---|---|---|---|---|
| 0-5 | 6.8 | 370 | 111 | 90 |
| 15-25 | 6.6 | 57 | 92 | 84 |
| 40-55 | 6.4 | 16 | 27 | 73 |
| 70-85 | 6.8 | 14 | 56 | 81 |
| 100-110 | 6.0 | 18 | 76 | 80 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 23.7 | 5.4 | 0.3 | 3.5 | 2.4 | 23.0 | 25.4 |
| 5.8 | 2.5 | 0.1 | 0.2 | 1.8 | 8.8 | 10.6 |
| 4.2 | 3.5 | 0.2 | 0.1 | 3.1 | 8.1 | 11.2 |
| 2.5 | 3.1 | 0.1 | 0.1 | 1.3 | 5.9 | 7.2 |
| 3.1 | 2.0 | 0.2 | 0.1 | 1.3 | 5.4 | 6.7 |

## SISTEMA DE TIERRA 471, Faceta 1

Clasificación: Tropaquent.

Localización: 16 32'S; 62 39'O. Canto Sta. Rosa Mina, Depto. Santa Cruz, Bolivia.

Forma del terreno: Casi plano.

Drenaje: Moderadamente bien drenado.

Vegetación: Bosque estacional deciduo.

Mat. Originario: Aluviones del río San Julián.

Fuente: Cochrane, T.T. 1973. Sistemas de tierras de Bolivia,(27), perfil VIIc 8-2, pág.719/20.

1.5-5 cm. Manto de hojas secas.

5-0 cm. Manto de plantas en descomposición.

0-10 cm. Café oscuro; franco arcillo limoso; bloques finos, débiles; ligeramente plástico, ligeramente pegajoso; pocos poros; muchas raíces; poca materia orgánica; límite neto, plano.

10-55 cm. Café muy oscuro; arcilla; bloques finos, débiles; ligeramente plástico, ligeramente pegajoso; pocos poros; pocas raíces; poca materia orgánica; límite gradual y plano.

55-110 cm. Café oscuro; arcilloso; bloques finos débiles; ligeramente pegajoso, plástico; pocas raíces; límite gradual y plano.

110-130 cm. Café muy oscuro; arcilloso; bloques finos, débiles; ligeramente pegajoso, muy plástico; sin raíces.

| Prof. (cm) | pH | Cond. Eléc. | P ppm | S.B. % |
|---|---|---|---|---|
| 0-5 | 6.8 | 107 | 86 | 78 |
| 15-25 | 6.7 | 10 | 26 | 84 |
| 35-45 | 6.6 | 8 | 5 | 54 |
| 65-75 | 6.2 | 16 | 16 | 67 |
| 85-95 | 6.8 | 16 | 110 | 90 |
| 115-125 | 7.2 | 18 | 71 | 92 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 22.3 | 0.5 | 0.5 | 2.8 | 8.7 | 31.5 | 40.2 |
| 12.7 | 3.8 | 0.4 | 1.8 | 3.5 | 18.7 | 22.2 |
| 9.5 | 0.8 | 0.3 | 0.1 | 9.6 | 11.5 | 21.1 |
| 11.2 | 0.3 | 0.6 | 2.0 | 6.9 | 14.1 | 21.0 |
| 8.3 | 6.3 | 0.5 | 0.8 | 1.7 | 16.2 | 17.9 |
| 9.3 | 6.3 | 0.7 | 2.0 | 1.6 | 18.8 | 20.4 |

## SISTEMA DE TIERRA 472, Faceta 1

Clasificación: Tropogluvent.

Localización: 16 46'S, 62 28'O. Cantón San Ramón, Depto. Santa Cruz, Bolivia.

Forma del terreno: Casi plano. Terraza del río.

Drenaje: Bien drenado.

Vegetación: Bosque estacional deciduo.

Mat. Originario: Aluviones del río San Julián.

Fuente: Cochrane, T.T. 1973. Sistemas de tierra de Bolivia (27), perfil VIIc 8-1, pág.717/8.

3-1 Hojas secas.

1-0 cm. Manto de hojas en descomposición.

0-5 cm. Café oscuro; franco limoso; granular fina moderada; ligeramente pegajoso, no plástico; poros frecuentes; muchas raíces; límite neto.

5-18 cm. Café amarillo ; franco limoso; bloques medianos débiles; ligeramente pegajoso, no plástico; poros frecuentes; pocas raíces; poca materia orgánica; límite gradual.

18-45 cm. Café oscuro; franco limoso; bloques moderados; ligeramente pegajoso, ligeramente plástico; poros frecuentes; pocas raíces; límite neto.

45-? cm. Café oscuro; franco limoso; bloques medios débiles; pocos poros; pocas raíces; límite brusco.

| Prof. (cm) | pH | Cond. Eléc. | P ppm | S.B. % |
|---|---|---|---|---|
| 0-5 | 5.7 | 40 | 76 | 97 |
| 6-16 | 5.2 | 41 | 51 | 51 |
| 23-35 | 5.4 | 18 | 3 | 80 |
| 50-60 | 7.1 | 19 | 21 | 97 |
| 70-80 | 7.4 | 76 | 16 | 98 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 15.6 | 4.5 | 0.4 | 1.8 | 0.7 | 22.3 | 23.0 |
| 3.2 | 2.2 | 0.2 | 0.3 | 5.5 | 6.0 | 11.5 |
| 4.7 | 3.8 | 0.3 | 0.6 | 2.4 | 9.8 | 12.2 |
| 4.5 | 3.4 | 0.3 | 0.7 | 0.2 | 9.0 | 9.2 |
| 5.3 | 4.3 | 0.3 | 1.1 | 0.2 | 11.0 | 11.2 |

## SISTEMA DE TIERRA 484, Faceta 1

Clasificación: Haploxeralf.

Localización: A 2.5 km al N. de San José Chiquitos, Depto. Sta. Cruz, Bolivia.

Forma del terreno: Fondo de valle, ondulado.

Drenaje: Bien drenado.

Vegetación: Bosque de hoja caduca, espinoso.

Mat. Originario: Areniscas.

Fuente: Cochrane, T.T. 1973. Sistemas de tierras de Bolivia (27), perfil IXa 1-1, pág.731/2.

0-12 cm. Pardo gris muy oscuro; franco arenoso; bloques finos débiles; no plástico, no pegajoso; poros frecuentes; raíces abundantes; límite plano y gradual.

12-22 cm. Pardo amarillo oscuro; franco arenoso; bloques finos, moderados; no pegajoso, no plástico; poros frecuentes; pocas raíces; límite gradual y plano.

22-44 cm. Pardo amarillo; franco arcillo arenoso; bloques finos, fuertes; no plástico, no pegajoso; poros frecuentes; pocas raíces; límite gradual y plano.

42-52 cm. Pardo amarillo; franco arcillo arenoso; prismas medios fuertes; plástico, pegajoso; poros frecuentes; muy pocas raíces; fuerte, cementado; límite neto, plano.

52-92 cm. Pardo oscuro; arcillo arenoso; prismas medios fuertes; plástico, pegajoso; poros frecuentes; muy pocas raíces; fuerte cementación; límite neto, plano.

92-150 cm. Pardo amarillo; arcillo arenoso; prismas medios fuertes; plástico, pegajoso; poros frecuentes; muy pocas raíces; fuerte cementación; límite neto, plano.

150-? cm. Roca original, arenisca.

| Prof. (cm) | pH | Cond. Eléc. | P ppm | S.B. % |
|---|---|---|---|---|
| 4-10 | 6.0 | 114 | 14 | 44 |
| 15-21 | 6.5 | 60 | 1 | 51 |
| 25-35 | 5.6 | 40 | 2 | 53 |
| 44-50 | 5.8 | 200 | 0.3 | 61 |
| 60-75 | 7.4 | 290 | 3 | 70 |
| 110-130 | 7.8 | 220 | 0.3 | 70 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 3.4 | 1.0 | 0.56 | 0.20 | 6.6 | 5.2 | 11.8 |
| 1.7 | 0.9 | 0.20 | 0.15 | 2.8 | 3.0 | 5.8 |
| 1.6 | 1.2 | 0.16 | 0.11 | 2.7 | 3.1 | 5.8 |
| 2.4 | 2.2 | 1.08 | 0.14 | 3.7 | 5.8 | 9.5 |
| 6.8 | 4.4 | 2.40 | 0.28 | 10.1 | 9.9 | 20.0 |
| 5.6 | 4.4 | 2.08 | 0.24 | 5.2 | 12.3 | 17.5 |

## SISTEMA DE TIERRA 602, Faceta 1 (dominante)

Clasificación: Oxic Paleustalf, franco fino, mezclado, isohipertérmico.

Localización: 5.5 km. del aeropuerto de Barinas, Edo. Barinas, Venezuela.

Relieve: Posición más alta del plano aluvial Pleistoceno, pendiente < 0.5%.

Drenaje: Bien drenado.

Vegetación: Sabana con árboles y arbustos aislados.

Mat. Originario: Aluviones pleistocénicos derivados de rocas metamórficas, ígneas y sedimentarias.

Fuente: Schargel, R. 1948. Ph.D. Thesis, North Carolina, S.U. U.S.A.(28).

$A_1$ 0-8 cm, 5YR 2/2; franco arenoso; bloques finos, débiles; duro, muy friable; raíces comúnes; límite claro y suave.

$A_3$ 8-26 cm. 5YR 3/3; franco arcillo arenoso; bloques finos, débiles; duro, muy friable; pocas raíces, límite claro y suave.

$B_1$ 26-47 cm. 2.5YR 3/4; franco arcillo arenoso; bloques finos, débiles; duro, muy friable; pocas raíces; límite suave y difuso.

$B_{21}t$ 47-100 cm. 2.5YR 3/6; arcillo arenoso; bloques finos, moderados; duro, muy friable; clay skins comúnes; muy pocas raíces; límite difuso y suave.

$B_{22}t$ 100-160 cm. 2.5YR 3/6; arcilloso; bloques finos, moderados; duro, friable; clay skins comúnes; muy pocas raíces; límite suave y difuso.

$B_{23}t$ 160-180 cm. 5YR 4/6; arcillo arenoso; bloques finos, moderados; duro, friable; clay skins comúnes; muy pocas raíces.

$B_3$ 180-240 cm. 5YR 4/4; arcillo arenoso; bloques gruesos, débiles, ligeramente plástico y ligeramente pegajoso.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 5.7 | 4.8 | 1.01 | 0.08 | 2.1 | 78 | - |
| $A_3$ | 5.4 | 4.5 | 0.74 | 0.05 | 1.0 | 53 | - |
| $B_1$ | 5.2 | 4.3 | 0.55 | 0.05 | 1.0 | 30 | 10 |
| $B_{21}t$ | 5.4 | 4.6 | 0.23 | 0.03 | 0.4 | 29 | - |
| $B_{22}t$ | 5.6 | 5.0 | 0.08 | 0.03 | 1.0 | 49 | - |
| $B_{23}t$ | 5.6 | 4.9 | 0.04 | - | 0.4 | 58 | - |
| $B_3$ | 5.7 | 5.0 | t | - | 0.4 | 57 | - |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 2.1 | 1.4 | 0.4 | 0.1 | 0.3 | t | 4.0 | 4.3 |
| 1.4 | 0.9 | 0.2 | 0.1 | 0.4 | t | 2.6 | 3.0 |
| 0.9 | 0.6 | 0.1 | 0.1 | 0.4 | 0.2 | 1.7 | 2.3 |
| 1.0 | 0.7 | 0.2 | 0.1 | 0.4 | t | 2.0 | 2.4 |
| 1.6 | 1.4 | 0.3 | 0.1 | 0.2 | t | 3.4 | 3.6 |
| 1.9 | 1.8 | 0.3 | 0.1 | 0.3 | t | 4.1 | 4.4 |
| 2.0 | 1.8 | 0.3 | 0.2 | 0.3 | t | 4.3 | 4.6 |

## SISTEMA DE TIERRA 602, Faceta 1 (inclusión)

Clasificación: Oxic Paleustult, arcilloso, mezclado, isohipertérmico.

Localización: 3 km. SW de Socopó, Distrito Pedraza, Edo. Barinas, Venezuela.

Relieve: Areas más altas, planas a suave onduladas, de terrazas aluviales. Pendiente local 2%.

Drenaje: Bien drenado.

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Vegetación: Originalmente bosque semi-deciduo.

Mat. Originario: Aluviones pleistocenos derivados de varios tipos de roca.

Fuente: Schargel, R. 1978. Ph.D. Thesis, North Carolina, S. U., U.S.A.(28).

$A_p$ 0-9 cm. 7.5YR 4/3; franco arcilloso; bloques medios, moderados; friable; muchas raíces muy finas a medias; pocos nódulos de Fe-Mn; límite claro y suave.

$A_3$ 9-21 cm. 7.5YR 4.5/4; arcillo limoso; bloques medios moderados; friable; muchas raíces; pocos nódulos de Fe-Mn; límite plano y gradual.

$B_{1}t$ 21-32 cm. 5YR 4.5/6; arcilloso; bloques finos fuertes; friable; pocos clay skins; raíces comúnes; nódulos pocos de Fe-Mn; límite plano y gradual.

$B_{21}t$ 32-60 cm. 5YR 4/8; arcilloso; bloques finos, fuertes; friable; clay skins comúnes; muy pocas raíces; límite claro y ondulado.

$B_{22}t$ 60-82 cm. 5YR 5/6; arcilloso; bloques finos, fuertes; friable, clay skins comúnes; muy pocas raíces; 2% fragmentos de rocas; límite claro y plano.

$IIB_{23}t$ 82-120 cm. 5YR 5/6; arcilloso; bloques medios moderados; friable; clay skins comúnes; muy pocas raíces; 12% fragmentos de roca; nódulos; límite claro y plano.

$IIB_{24}t$ 120-155 cm. 10YR 5/6, arcilloso; moteados 2.5YR 3/6; 5% nódulos de plintita; bloques medios moderados; muy pocas raíces, pocos nódulos; 24% fragmentos de roca; límite plano y abrupto.

$IIIB_{3}t$ 155-300 cm. 10YR 5/6; arcilloso; moteados 2.5YR 3/6; arcilloso; 5-10% nódulos de plintita; bloques débiles; friable; 4% fragmentos de roca.

$IIIC_1$ 300-350 cm. 7.5YR 5/8; franco arcilloso; moteados 2.5 YR 5/6 y 10YR 7/8.

Nota: Los fragmentos de roca son principalmente fragmentos barrosos, guijarros de granito y gneiss. Todos ellos están meteorizados.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_p$ | 5.6 | 4.8 | 1.91 | 0.17 | 0.4 | 76 | - |
| $A_3$ | 4.9 | 3.8 | 0.98 | 0.09 | 1.0 | 38 | 27 |
| $B_1t$ | 4.6 | 3.6 | 0.66 | 0.07 | 0.4 | 20 | 54 |
| $B_{21}t$ | 4.9 | 3.8 | 0.39 | 0.04 | t | 9 | 56 |
| $B_{22}t$ | 5.1 | 4.1 | 0.23 | 0.05 | t | 8 | 58 |
| $B_{23}t$ | 5.1 | 4.1 | 0.16 | 0.04 | t | 8 | 60 |
| $B_{24}t$ | 5.2 | 4.0 | 0.08 | 0.06 | t | 13 | 55 |
| $B_{3}t$ | 5.1 | 4.0 | 0.04 | - | t | 7 | 75 |
| $C_1$ | 5.1 | 3.9 | 0.04 | - | t | 21 | 52 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 6.6 | 0.9 | 0.5 | 0.1 | 0.3 | t | 8.1 | 10.6 |
| 2.5 | 0.5 | 0.2 | 0.1 | 0.4 | 1.2 | 3.3 | 8.8 |
| 1.3 | 0.3 | 0.2 | 0.1 | 0.5 | 2.2 | 1.9 | 9.3 |
| 0.4 | 0.2 | 0.2 | 0.1 | 0.5 | 1.4 | 0.9 | 9.8 |
| 0.2 | 0.1 | 0.1 | 0.1 | 0.4 | 0.7 | 0.5 | 6.0 |
| 0.2 | 0.1 | 0.2 | 0.1 | 0.5 | 0.9 | 0.6 | 7.6 |
| 0.3 | 0.1 | 0.2 | 0.2 | 0.4 | 1.0 | 0.8 | 6.4 |
| 0.1 | 0.1 | 0.1 | 0.1 | 0.4 | 1.2 | 0.4 | 5.4 |
| 0.3 | 0.6 | 0.1 | 0.1 | 0.4 | 1.2 | 1.1 | 5.2 |

## SISTEMA DE TIERRA 607, Faceta 1

Clasificación: Aquultic Haplustalf

Localización: Sistema Riego Río Boconó, coordenadas MOP $S_1$, $W_5$, Edo. Barinas, Venezuela.

Fisiografía: Sup. de terreno de mayor edad de la llanura aluvial del río Boconó.

Drenaje: Imperfectamente drenado.

Vegetación: Terreno recientemente deforestado.

Mat. Originario: Aluviones.

Fuente: Schargel, R. 1972. En: Agr. Tropical No.4, Vol. XXII, pág.345/371 (29).

$A_1$ 0-24 cm. 10YR 5.5/2; franco limoso; bloques medios, débiles; friable; pocas raíces; límite claro y plano.

$B_{21}$ 24-52 cm. 10YR 6/6; moteados 10YR 5/1; arcillo limoso; prismática media débil; pocas raíces; límite gradual y plano.

$B_{22}$ 52-79 cm. Franco arcilloso; color, moteado, estructura, consistencia y raíces igual que el anterior; límite gradual y plano.

$C_1$ 79-100 cm. Color similar al anterior; moteados 10YR 5/1; franco arenoso fino; bloques medios, moderados; duro, friable; muy pocas raíces; límite gradual y plano.

$C_2$ 100-138 cm. Franco, el resto de características igual al anterior.

OBS.: El suelo se agrieta fuertemente cuando seco. En los horizontes B se observan abundantes películas de arcilla.

| HTE | pH | | C | N | S.B. |
|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | % |
| $B_{22}$ | 5.5 | 4.6 | 0.44 | 0.05 | 71 |
| $C_1$ | 5.7 | 4.7 | 0.27 | 0.04 | 72 |
| $C_2$ | 5.7 | 4.7 | 0.26 | 0.04 | 73 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | Acidez | TBI | CIC |
| 6.55 | 3.03 | 0.19 | 0.88 | 0.14 | 10.65 | 14.9 |
| 4.68 | 2.40 | 0.16 | 0.92 | 0.11 | 8.16 | 11.3 |
| 5.46 | 3.00 | 0.19 | 0.92 | 0.13 | 9.55 | 12.9 |

## SISTEMA DE TIERRA 607, Faceta 2

Clasificación: Aquic Haplustoll.

Localización: Coordenadas MOP E18 + 500, 59, Edo. Barinas, Venezuela.

Fisiografía: Superficie de edad intermedia de la llanura aluvial del río Boconó

Drenaje: Moderadamente bien drenado.

Vegetación: Bosque

Fuente: Schargel, R. 1972. En: Agr. Trop., No.4, Vol.XXII, pág.345/371; (29).

$A_{11}$ 0-15 cm. 10YR 3/1.5; franco; bloques medios débiles; duro, friable; límite gradual y plano; muchas raíces.

$A_{12}$ 15-41 cm. 10YR 3/2; franco; bloques medios débiles; duro, friable; muchas raíces; límite claro y plano.

$IIB_{21}$ 41-74 cm. 10YR 4.5/4; franco limoso; bloques moderados, medios; duro, friable; límite claro y plano; frecuentes raíces.

$IIB_{22}$ 74-87 cm. 10YR 4.5/4; muchos moteados gris oscuro; bloques moderados, medios; duro, friable; frecuentes raíces; límite abrupto y plano.

$IIIC_1$ 87-120 cm. 10YR 3.5/3; franco arenoso grueso; grano simple; suelto; pocas raíces.

$IIIC_2$ 120-150 cm. 10YR 4/4; arenoso grueso; grano simple; suelto; muy pocas raíces.

OBS.: A través de todo el perfil se observa nódulos de óxidos de Fe - Mn, blandos y relativamente escasos.

| HTE | pH | | C | N | S.B. |
|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | % |
| $A_{11}$ | 6.9 | 6.4 | 2.3 | 0.15 | 82 |
| $A_{12}$ | 6.5 | 5.6 | 1.1 | 0.08 | 75 |
| $IIB_{21}$ | 6.5 | 5.2 | 0.4 | 0.06 | 68 |
| $IIB_{22}$ | 6.1 | 5.0 | 0.4 | 0.06 | 70 |
| $IIIC_1$ | 6.5 | 5.1 | 0.2 | 0.02 | 67 |
| $IIIC_2$ | 6.4 | 4.9 | 0.1 | 0.01 | 71 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 9.20 | 1.47 | 0.72 | 0.56 | 2.62 | 11.95 | 14.57 |
| 7.49 | 1.12 | 0.68 | 0.36 | 3.18 | 9.75 | 12.83 |
| 4.99 | 2.18 | 0.72 | 0.19 | 3.74 | 6.08 | 11.82 |
| 7.17 | 3.59 | 0.72 | 0.18 | 4.86 | 11.66 | 16.52 |
| 2.11 | 0.92 | 0.37 | 0.07 | 1.68 | 3.47 | 5.15 |
| 1.64 | 0.71 | 0.17 | 0.06 | 1.02 | 2.58 | 3.60 |

## SISTEMA DE TIERRA 607, Faceta 3

**Clasificación:** Typic Ustifluvent.

**Localización:** Coordenadas MOP N7, W7+200, Edo. Barinas, Venezuela.

**Fisiografía:** Superficie más reciente de la llanura aluvial del río Boconó.

**Drenaje:** Moderadamente bien drenado.

**Vegetación:** Deforestado y con dos años bajo cultivo.

**Fuente:** Schargel, R. 1972. En: Agr. Tropical No.4, Vol. XXII, pag.345/371.(29).

$A_p$ 0-25 cm. 10YR 3.5/3; franco arcillo limoso; bloques medios, débiles; duro, friable; límite claro y plano, pocas raíces.

$C_1$ 25-45 cm. 10YR 3.5/3; franco limoso; bloques medios, débiles; duro, friable; límite claro y plano; pocas raíces.

$A_1b$ 45-88 cm. 10YR 3.5/2; moteados 10YR 4/1; franco arcillo limoso; bloques medios moderados; duro, friable; límite claro y plano, pocas raíces.

$IIC_2$ 88-145 cm. 10YR 3.5/2.5; franco arenoso; grano simple; suelto; muy pocas raíces.

$IIIC_3$ + 145 cm. Granzon y guijarros (antos rodados).

| HTE | pH | | C | N | S.B. |
|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | - |
| Ap | 6.3 | 5.5 | 1.80 | 0.14 | 72 |
| $C_1$ | 6.2 | 5.1 | 0.63 | 0.08 | 73 |
| $A_1b$ | 6.4 | 5.2 | 0.82 | 0.09 | 72 |
| $IIC_2$ | 6.4 | 5.3 | 0.26 | 0.03 | 82 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Acidez | TBI | CIC |
| 9.36 | 1.62 | 0.69 | 0.19 | 4.58 | 11.86 | 16.44 |
| 8.42 | 1.34 | 0.69 | 0.12 | 3.93 | 10.57 | 14.50 |
| 10.76 | 1.72 | 0.76 | 0.15 | 4.30 | 13.39 | 17.69 |
| 3.98 | 0.81 | 0.35 | 0.10 | 1.12 | 5.24 | 6.36 |

## SISTEMA DE TIERRA 609, Faceta 1

**Clasificación:** Oxic Paleustult.

**Localización:** 4 km NE de Hato Nuevo, Distrito El Pao, Edo. Cojedes, Venezuela.

**Relieve:** Remanentes ondulados de acumulaciones aluviales pleistocenas. Pendiente 2%.

**Drenaje:** Bien drenado.

**Vegetación:** Sabanas de árboles.

**Fuente:** Schargel, R. 1978. Ph.D. Thesis, North Carolina, S.U., USA. (28).

$A_1$ 0-12 cm. 10YR 3.5/3; franco arenoso fino; bloques finos, débiles; muy friable; raíces comúnes; límite claro y ondulado.

$B_1$ 12-36 cm. 10YR 5/6 y 10YR 4/3; arcilloso; bloques medios débiles; friable; raíces comúnes; límite claro, ondulado.

$B_{21}t$ 36-73 cm. 7.5YR 5/6; franco arcilloso; bloques medios, débiles; friable; raíces comúnes; pocos clay skins; límite suave y difuso.

$B_{22}t$ 73-106 cm. 7.5YR 5/8; arcilloso; bloques medios débiles; friable; pocas raíces; pocos clay skins; muchos poros ; límite plano y gradual.

$B_{23}t$ 106-152 cm. 5YR 5/8; arcilloso; bloques medios débiles; comúnes clay skins; límite plano y abrupto.

$B_{24}tcn$ 152-200 cm. 10YR 6/4; arcilloso; moteados 7.5YR 5/8 y 10YR 7/2; bloques medios moderados; muy firme; clay skins comúnes; 43% de nódulos duros de plintita.

$B_3cn$ 200-300 cm. 2.5YR 3.5/6 y 10YR 6/4; arcillo arenoso; moteados 10YR 7/2 y 7.5YR 5/8; muchos nódulos endurecidos de plintita.

**Nota:** La mayoría de las zonas rojo oscuras de los horizontes $B_3cn$ y $B_{24}tcn$ son nódulos de plintita. Los 5 primeros horizontes tienen nódulos de óxido de hierro.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.4 | 3.6 | 0.82 | 0.05 | 5.7 | 41 | 54 |
| $B_1$ | 4.2 | 3.4 | 0.62 | 0.05 | 10.0 | 20 | 76 |
| $B_{21}t$ | 4.3 | 3.5 | 0.35 | 0.02 | 1.7 | 21 | 75 |
| $B_{22}t$ | 4.6 | 3.7 | 0.23 | - | 0.8 | 20 | 77 |
| $B_{23}t$ | 4.7 | 3.6 | 0.20 | - | 0.8 | 26 | 70 |
| $B_{24}$ | 4.9 | 3.6 | 0.12 | - | 0.4 | 14 | 84 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | H | Al | TBI | CIC |
| 0.4 | 0.4 | 0.1 | 0.2 | 0.3 | 1.3 | 1.1 | 2.7 |
| 0.3 | 0.3 | 0.1 | 0.2 | 0.8 | 2.8 | 0.9 | 4.5 |
| 0.2 | 0.1 | 0.2 | 0.2 | 0.5 | 2.1 | 0.7 | 3.3 |
| 0.1 | 0.1 | 0.2 | 0.2 | 0.4 | 2.0 | 0.6 | 3.0 |
| 0.1 | t | 0.3 | 0.6 | 0.5 | 2.4 | 1.0 | 3.9 |
| 0.2 | 0.1 | 0.1 | 0.1 | 0.5 | 2.7 | 0.5 | 3.7 |

## SISTEMA DE TIERRA 617, Faceta 1

**Clasificación:** Haplustalf ?

**Localización:** Hato El Encuentro, Municipio Las Mercedes, Distrito Infante, Edo. Guarico, Venezuela.

**Fisiografía:** Banco de Sabana.

**Pendiente:** Plana.

**Vegetación:** Cují, guásimo, roble y caruto.

**Fuente:** Brito, P y C.R. 1975. "Calicatas" No.250-300, MOP, Venezuela, pág.120/1. (30). Perfil 295-VEN-63-GU-30.

$A_1$ 0-14 cm. 10YR 5/4; arenoso; estructura débil pequeña; friable; límite abrupto y plano.

$A_3$ 14-32 cm. 2.5YR 5/6; franco arenoso; bloques finos débiles; friable; límite claro y plano.

$B_{11}$ 32-60 cm. 2.5YR 4/6; franco arcillo arenoso; bloques medios moderados; límite difuso y plano.

$B_{12}$ 60-95 cm. 2.5YR 4/6; franco arcillo arenoso; bloques medios moderados; límite difuso y plano.

$B_{21}$ 95-125 cm. 2.5YR 4/8; arcilloso; bloques finos moderados; duro, friable; límite abrupto y plano.

$B_{22}$ + 195 cm. 5YR 5/6, moteado de rojo; bloques medios moderados; duro, friable.

**Nota:** El último horizonte es plintita. Apareció agua a 1.40 m.

| HTE | pH | | C | N | P | C/N | S.B. |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | | % |
| $A_1$ | 6.0 | 5.0 | 0.29 | 0.03 | 12 | 10.0 | 41 |
| $A_3$ | 5.6 | 4.5 | 0.15 | 0.02 | 6 | 6.5 | 52 |
| $B_{11}$ | 5.0 | 4.0 | 0.11 | 0.03 | 6 | 3.2 | 29 |
| $B_{12}$ | 5.4 | 4.1 | 0.12 | 0.04 | 6 | 2.8 | 35 |
| $B_{21}$ | 5.3 | 4.0 | 0.17 | - | 1 | - | 21 |
| $B_{22}$ | 5.2 | 4.0 | 0.13 | - | 3 | - | 21 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | H | TBI | CIC |
| 0.80 | 0.10 | 0.36 | 0.20 | 2.40 | 1.46 | 3.54 |
| 1.40 | 0.10 | 0.44 | 0.20 | 2.40 | 2.14 | 4.12 |
| 0.80 | 0.10 | 0.34 | 0.18 | 3.68 | 1.42 | 4.83 |
| 1.30 | 0.10 | 0.38 | 0.08 | 3.68 | 1.98 | 5.73 |
| 1.10 | 0.10 | 0.28 | 0.08 | 5.12 | 1.56 | 7.38 |
| 1.10 | 0.10 | 0.36 | 0.06 | 5.28 | 1.62 | 7.60 |

## SISTEMA DE TIERRA 619, Faceta 2

**Clasificación:** Tropofluvent.

**Localización:** Asentamiento IAN - Campo Alegra, Depto. San Carlos, Edo. Cojedes, Venezuela.

**Fisiografía:** Plano aluvial.

**Drenaje:** Imperfecto a bueno.

**Vegetación:** Selva decidua - Samán, guásimo.

**Fuente:** Descripción de calicatas, MOP, Venezuela 1975. Perfil 273 - VEN - 63 - CO, pág.60/3.(30).

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$A_1$ 0-13 cm. 5Y 4/1; franco arcilloso; bloques medios débiles; muy duro, friable; límite abrupto y plano.

$C_1$ 13-38 cm. 5Y 6/2; arcillo limoso; bloques grandes débiles; muy duro, firme; límite abrupto y plano.

$A_1b$ 38-50 cm. 5Y 4/1; franco arcillo limoso; bloques grandes débiles; extremadamente duro, friable; límite gradual y plano.

$C_1b_1$ 50-93 cm. 5Y 5/3; arcillo limoso; moteado de gris; bloques grandes débiles; muy duro, friable, límite gradual y plano.

$C_2b_1$ 93-130 cm. 5Y 5/3; arcillo limoso; moteado de gris y de amarillo rojizo; bloques grandes, débiles; muy duro, friable; límite gradual y plano.

$C_3b_1$ 130 cm+. 5Y 5/3; arcillo limoso; moteados grises; bloques grandes, débiles.

| HTE | pH | | C | N | C/N | S.B. |
|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | | % |
| $A_1$ | 6.5 | 5.5 | 2.58 | 0.19 | 13.48 | 72 |
| $C_1$ | 6.9 | 5.6 | 1.12 | 0.13 | 8.17 | 91 |
| $A_1b_1$ | 7.0 | 5.7 | 1.10 | 0.12 | 8.76 | 86 |
| $C_1b_1$ | 8.1 | 6.8 | 0.40 | 0.11 | 3.49 | 99 |
| $C_2b_1$ | 8.1 | 6.9 | 0.46 | 0.12 | 3.90 | 99 |
| $C_3b_1$ | 7.8 | 6.7 | 0.28 | 0.12 | 2.28 | 99 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | H | TBI | CIC |
| 14.1 | 2.05 | 0.31 | 0.14 | 7.00 | 16.63 | 23.0 |
| 18.0 | 0.99 | 0.34 | 0.06 | 3.70 | 19.39 | 21.2 |
| 16.7 | 0.74 | 0.35 | 0.06 | 3.70 | 17.85 | 20.8 |
| 14.0 | 0.55 | 0.33 | 0.05 | 1.30 | 14.93 | 15.0 |
| 17.5 | 0.67 | 0.39 | 0.05 | 1.50 | 18.61 | 19.0 |
| 19.0 | 0.73 | 0.46 | 0.06 | 1.25 | 20.25 | 20.9 |

## SISTEMA DE TiERRA 620, Faceta 2

Clasificación: Haplustalf.

Localización: El Rosario, Municipio Santa Teresa, Distrito Paz Castillo, Edo. Miranda, Venezuela.

Fisiografía: Terraza alta ondulada.

Drenaje: Bien drenado.

Mat. Originario: Coluvial.

Fuente: Descripción y análisis de calicatas, MOP, Venezuela, 1975. Perfil 287 - VEN - 63 - MI - 36, pág.100/2, (30).

$A_{11}$ 7.5YR 4/4; franco arcilloso; bloques medios, fuertes; ligeremante duro, muy friable; límite claro y plano.

$A_{12}$ 15-45 cm. 5YR 4/8; franco; bloques pequeños, fuertes; ligeramente duro, muy friable; límite difuso y plano.

$B_{11}$ 45-75 cm. 5YR 4/8; franco; bloques pequeños fuertes; ligeramente duro, muy friable; límite difuso y plano.

$B_{12}$ 75-118 cm. 5YR 4/8; franco arcilloso; bloques medios, fuertes; límite difuso y plano.

$B_{21}$ 118-170 cm. 5YR 4/8; franco arcilloso; bloques medios, fuertes; ligeramente duro, muy friable; límite abrupto y plano.

| HTE | pH | | C | N | C/N | S.B. |
|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | | % |
| $A_{11}$ | 6.4 | 6.4 | 0.78 | 0.13 | 5.95 | 52 |
| $A_{12}$ | 5.0 | 5.1 | 0.46 | 0.08 | 5.29 | - |
| $B_{11}$ | 5.0 | 5.3 | 0.33 | 0.05 | 5.89 | - |
| $B_{12}$ | 5.0 | 5.1 | 0.19 | 0.05 | 3.39 | - |
| $B_{21}$ | 5.0 | 5.1 | 0.20 | - | - | - |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | H | TBI | CIC |
| 4.00 | 0.21 | 0.20 | 0.46 | 3.68 | 4.87 | 9.37 |
| 1.50 | - | 0.26 | 0.26 | 6.40 | - | 8.46 |
| 1.60 | - | 0.28 | 0.18 | 4.96 | - | 6.94 |
| 1.60 | - | 0.34 | 0.12 | 4.48 | - | 7.16 |
| 1.70 | - | 0.40 | 0.10 | 4.96 | - | 7.38 |

## SISTEMA DE TIERRA 620, Faceta 3

Clasificación: Eutropept intergrado Tropofluvent.

Localización: Carretera Charallave, Depto. Urdaneta, Edo. Miranda, Venezuela.

Fisiografía: Primera terraza de un valle.

Vegetación: Jobo, jabillo, orore, y ceiba.

Mat. Originario: Aluviones de la quebrada Charallave.

Fuente: Descripción y análisis de calicatas, MOP, Venezuela, 1975. Perfil 291 - VEN - 63 - MI - 40, pág. 110/2 (30).

$A_{11}$ 0-12 cm. 10YR 4/3; franco limoso; bloques grandes, débiles; límite claro y plano; fuertem. calcáreo.

$A_{12}$ 12-28 cm. 10YR 4/3; franco limoso; bloques grandes moderados, fuertemente calcáreo; límite abrupto y plano.

$C_1$ 28-50 cm. 10YR 4/3; franco limoso; bloques grandes moderados; fuertemente calcáreo, límite abrupto y plano.

$C_{2s}a$ 50-68 cm. 10YR 5/3; franco limoso; bloques grandes moderados; fuertemente calcáreo; límite abrupto y plano.

$C_{3s}a$ 68-97 cm. 10YR 5/3; franco limoso; bloques grandes moderados; fuertemente calcáreo; límite abrupto y claro.

$C_4$ 97-107 cm. 10YR 4/3; arenoso; sin estructura, suelto.

$A_1b_1$ 107-125 cm. 10YR 5/3; franco; bloques grandes, débiles; fuertemente calcáreo, límite claro y plano.

$C_1b_1$ 125-150 cm. 10YR 4/3; franco limoso; bloques medios, moderados; fuertemente calcáreo; límite claro y plano.

$C_2b_1$ 150-176 cm. 10YR 4/3; franco; bloques grandes, débiles; fuertemente calcáreo; límite claro y plano.

$C_3b_1$ + 176 cm. 10YR 4/3; arenoso; sin estructura, fuertemente calcáreo.

| HTE | pH | | C | N | C/N |
|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | |
| $A_{11}$ | 7.9 | 7.0 | 0.46 | 0.10 | 4.22 |
| $A_{12}$ | 8.0 | 7.0 | 0.54 | 0.12 | 4.35 |
| $C_1$ | 7.9 | 7.2 | 0.51 | 0.12 | 4.11 |
| $C_2$ | 7.8 | 7.3 | 0.45 | 0.11 | 3.95 |
| $C_3$ | 7.7 | 7.3 | 0.47 | - | - |
| $C_4$ | 7.7 | 7.3 | 0.15 | - | - |
| $A_1b$ | 7.7 | 7.2 | 0.41 | - | - |
| $C_1b$ | 8.0 | 7.0 | 0.62 | - | - |
| $C_2b$ | 8.3 | 7.2 | 0.38 | - | - |
| $C_3b$ | 7.7 | 7.7 | 0.11 | - | - |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | |
|---|---|---|---|---|---|
| Ca | Mg | Na | K | TBI | CIC |
| 12.5 | - | 0.30 | 0.10 | 12.9 | 12.3 |
| 13.4 | 0.21 | 0.36 | 0.12 | 14.0 | 14.3 |
| 13.1 | 0.21 | 0.88 | 0.08 | 14.2 | 14.1 |
| 10.7 | - | 1.24 | 0.08 | - | 11.9 |
| 12.5 | 0.21 | 1.32 | 0.08 | 14.1 | 12.7 |
| 6.5 | - | 0.66 | 0.18 | - | 7.1 |
| 10.5 | 0.63 | 0.98 | 0.16 | 12.2 | 11.4 |
| 16.3 | 1.88 | 1.04 | 0.14 | 19.3 | 17.7 |
| 12.0 | 0.63 | 0.64 | 0.14 | 13.4 | 12.3 |
| 7.7 | 0.21 | 0.50 | 0.18 | 8.5 | 8.0 |

## SISTEMA DE TIERRA 621, Faceta 1

Clasificación: Fluventic Haplustoll.

Localización: Centro Nacional de Investigaciones Agropecuarias, Maracay, Edo. Aragua, Venezuela.

Elevación: 400-500 m. snm.

Drenaje: Bien drenado.

Vegetación: Bosque seco premontano.

Fuente: Avilán R., L. y M. Figueroa. En: Agr. Tropical, No.5, Vol.XXVII, pág.491/4. 1977. (31).

$A_p$ 0-30 cm. 10YR 3/1; franco arcilloso; bloques moderados, medios; friable, ligeramente pegajoso, ligeramente plástico.

C 30-60 cm. 10YR 3/1; moteados 10YR 3/3; bloques finos moderados; friable, plástico, pegajoso; franco.

$A_1b_1$ 60-100 cm. 10YR 3/2; franco; bloques finos moderados; friable, pegajoso, plástico.

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C 100-130 cm. 10YR 3/2; franco; bloques finos moderados; friable, plástico, pegajoso.

$A_1b_2$ 130+cm. 10YR 3/2; franco; bloques pequeños moderados; friable, plástico, pegajoso.

| HTE | pH | ppm | | | | M.O. |
|---|---|---|---|---|---|---|
| | | P | K | Ca | $NO_3$ | % |
| $A_p$ | 7.7 | 28 | 72 | 1000 | 14 | 3.40 |
| C | 7.7 | 26 | 60 | 98 | 10 | 2.63 |
| $A_1b$ | 7.7 | 24 | 48 | 1000 | 14 | 2.80 |

## SISTEMA DE TIERRA 626 (inclusión)

Clasificación: Tropofibrist.

Localización: Depresión de Buena Vista, Bajo Casanay, zona déltica del Golfo, Venezuela.

Drenaje: Mal drenado.

Vegetación: Enea (Typha sp.), cortadora (Sclena sp.) y juncos (Cyperus sp.).

Mat. Originario: Turba sobre arcilla.

Fuente: Jahn, R.E. 1970. En: Agronomía Tropical, No.5, Vol. XX, pág.299 a 309. (32).

0-270 cm. Depósito orgánico fibroso. Gris N 5/1 (seco) y N 2/2 (húmedo); muy liviano o "foto" (seco) y más pesado (húmedo). Poroso. Raicillas (fibras) abundantes y rojizas. No calcáreo.

270-400 cm. Arcilloso; 10YR 4/3 a N 2/1; duro, firme, muy plástico; no calcáreo. NOTA: Por ser tomado con barreno se destruyó la estructura natural.

| HTE | pH | | C | N | P | S.B. |
|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % |
| 0-40 | 7.05 | 6.45 | 29.04 | 1.95 | 872 | 100 |
| 270-400 | 7.45 | 7.25 | 4.22 | 0.32 | 639 | 100 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | |
|---|---|---|---|---|---|
| Ca | Mg | K | Na | TBI | CIC |
| 89.4 | 15.6 | 1.1 | 6.4 | 112.51 | 112.51 |
| 33.5 | 3.1 | 0.8 | 2.1 | 39.53 | 39.53 |

## SISTEMA DE TIERRA 628, Faceta 1

Clasificación: Typic Paleustult, franco fino, siliceo, isohipertérmico.

Localización: Distrito Maturín, Edo. Monagas, Venezuela. Cabaña Víboral, Las Piedritas.

Relieve: Casi plano a suavemente ondulado; terrazas aluviales de la Formación Mesa.

Drenaje: Bien drenado.

Vegetación: Sabana con pocos árboles dispersos.

Mat. Originario: Aluviones Pleistocenos derivados de rocas sedimentarias.

Fuente: Schargel, R. 1978. Ph.D. Thesis, North Carolina, S. U., USA. (28).

$A_{11}$ 0-11 cm. 10YR 3/1; bloques medios muy débiles; blando, muy friable; no plástico, no pegajoso; pocos nódulos de Fe y granos angulares de cuarzo concentrados en la base del horizonte; límite plano y gradual.

$A_{12}$ 11-51 cm. 10YR 3/1; franco arenoso; bloques medios débiles; duro, muy friable; ligeramente plástico y ligeramente pegajoso; raíces finas comúnes; límite gradual y ondulado.

$B_1$ 51-78 cm. 5YR 4.5/8; franco arcillo arenoso; bloques medios moderados; duro, friable, plástico y pegajoso; muchos clay skins; muy pocas raíces finas; muy pocos fragmentos de roca; límite plano y gradual.

$B_{21}t$ 78-147 cm. 2.5YR 4.5/8; franco arcillo arenoso; bloques medios moderados; duro, friable, plástico y pegajoso; muchos clay skins; muy pocas raíces finas; muy pocos fragmentos de roca; límite plano y gradual.

$B_{22}t$ 147-200 cm. 2.5YR 4/8; arcillo arenoso; bloques medios, moderados; duro, friable, plástico y pegajoso; muchos clay skins; muy pocos fragmentos de roca.

$B_{23}t$ 200-305 cm. 10R 4/8; franco arenoso; muy friable, plástico y pegajoso; muy pocos fragmentos de roca.

$B_3$ 305-350 cm. 2.5YR 4/8; franco arenoso; muy friable; ligeramente plástico y ligeramente pegajoso; muy pocos fragmentos de roca.

IIC 350-370 cm. 2.5YR 5.5/8; franco arenoso; 50% de fragmentos de roca.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_{11}$ | 4.8 | 3.7 | 1.09 | 0.05 | 2.8 | 44 | 50 |
| $A_{12}$ | 4.5 | 3.7 | 0.70 | 0.02 | 1.7 | 29 | 65 |
| $B_1$ | 4.6 | 3.6 | 0.27 | - | 1.0 | 27 | 68 |
| $B_{21}$ | 4.9 | 3.6 | 0.12 | - | 0.4 | 32 | 64 |
| $B_{22}$ | 4.9 | 3.5 | 0.08 | - | 0.4 | 26 | 70 |
| $B_{23}$ | 4.7 | 3.4 | 0.08 | - | t | 25 | 72 |
| $B_3$ | 4.8 | 3.5 | t | - | 0.4 | 27 | 66 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | CIC | TBI |
| 0.6 | 0.4 | 0.1 | 0.1 | 0.3 | 1.2 | 2.7 | 1.2 |
| 0.4 | 0.2 | 0.1 | 0.1 | 0.5 | 1.5 | 2.8 | 0.8 |
| 0.5 | 0.2 | 0.1 | 0.1 | 0.5 | 1.9 | 3.3 | 0.9 |
| 0.6 | 0.7 | 0.1 | 0.1 | 0.5 | 2.7 | 4.7 | 1.5 |
| 0.5 | 0.7 | 0.1 | 0.1 | 0.5 | 3.4 | 5.3 | 1.4 |
| 0.8 | 0.7 | 0.1 | 0.1 | 0.7 | 4.3 | 6.7 | 1.7 |
| 0.3 | 0.3 | 0.1 | 0.1 | 0.6 | 1.6 | 3.0 | 0.8 |

## SISTEMA DE TIERRA 629, Faceta 1 (dominante)

Clasificación: Grossarenic Psammentic Haplustox.

Localización: Mesa de Guanipa, Edo. Anzoategui, Venezuela.

Fisiografía: Glacis de erosión, posición intermedia de la toposecuencia.

Drenaje: Bien drenado.

Vegetación: Graminiforme, con baja densidad de arbustos.

Mat. Originario: Sedimentos provenientes del Macizo Guayanés, depositados por un paleo-Orinoco.

Fuente: Luque M., O. 1977. En: Suelos Ecuatoriales, V Congreso Lat. Ciencia Suelo - Medellín, Colombia. Pág. 423/7.(33).

$A_{11}$ 0-14 cm. 10YR 3/3; arenoso; masivo; límite gradual y plano.

$A_{21}$ 14-46 cm. 10YR 5/8; arenoso; masivo; límite difuso y plano.

$A_{22}$ 46-70 cm. 7.5YR 5/8; arenoso; masivo; límite gradual y plano.

$B_1$ 70-92 cm. 5YR 5/8; arenoso; bloques pequeños débiles; límite plano y difuso.

$B_{21}$ 92-126 cm. 5YR 5/8; arenoso; bloques muy pequeños débiles; límite difuso y plano.

$B_{22}$ 126-160 cm. 5YR 5/8; franco arenoso; bloques muy pequeños débiles; límite difuso y plano.

$B_{23}$ 160-190 cm. 5YR 5/6; franco arenoso; bloques muy pequeños débiles.

| HTE | Prof. (cm) | pH | | C | N | C/N | CIC | S.B. | $P_2O_5$ |
|---|---|---|---|---|---|---|---|---|---|
| | | $H_2O$ | KCl | % | % | | | % | |
| $A_{11}$ | 0-14 | 5.2 | 4.1 | 0.53 | 0.02 | 27 | 2.0 | 48 | 17 |
| $A_{21}$ | 14-46 | 5.1 | 4.1 | 0.27 | 0.01 | 27 | 1.6 | 70 | 7 |
| $A_{22}$ | 46-70 | 4.9 | 3.9 | 0.28 | 0.02 | 14 | 1.8 | 50 | 11 |
| $B_1$ | 70-92 | 5.1 | 3.9 | 0.25 | 0.02 | 12 | 1.8 | 65 | 10 |
| $B_{21}$ | 92-126 | 5.2 | 4.1 | 0.13 | | | 1.3 | 68 | 10 |
| $B_{22}$ | 126-160 | 5.3 | 4.1 | 0.15 | | | 1.3 | 52 | 11 |
| $B_{23}$ | 160-190 | 5.5 | 4.0 | 0.13 | | | 1.4 | 47 | 11 |

## SISTEMA DE TIERRA 629, Faceta 1 (inclusión)

Clasificación: Typic Paleustult.

Localización: Mesa de Guanipa, Edo. Anzoategui, Venezuela.

Fisiografía: Glacis de erosión; posición más alta de la toposecuencia.

Drenaje: Bien drenado.

Vegetación: Graminiforme, con baja densidad de arbustos.

Mat. Originario: Sedimentos provenientes del Macizo Guayanés, depositados por un paleo-Orinoco

Fuente: Luque, M.O., 1977. En: Suelos Ecuatoriales, V Congreso Latin. Ciencia Suelo, Medellín, Colombia. Pág. 423/7.(33)

$A_{11}$ 0-12 cm. 10YR 3/2; arenoso; bloques muy finos débiles; límite claro y plano.

$A_{21}$ 12-40 cm. 10YR 5/0; arenoso; bloques muy finos débiles; límite plano y abrupto.

$B_{11}t$ 40-74 cm. 5YR 5/0; franco arenoso; bloques finos débiles; límite claro y plano.

$B_{21}t$ 74-100 cm. 5YR 5/8; moteados 7.5YR 5/6; franco arenoso; bloques finos moderados; límite claro y plano.

$B_{22}t$ 100-140 cm. 2.5YR 4/6; moteados 7.5YR 7/6; franco arenoso; bloques medios moderados; límite difuso y plano.

$B_{23}t$ 140-200 cm. 2.5YR 4/6; moteados 7.5YR 5/6; franco arenoso; bloques medios moderados.

| HTE | Prof. (cm) | pH | | C % | N % | C/N | CIC | S.B. % | $P_2O_5$ |
|---|---|---|---|---|---|---|---|---|---|
| | | $H_2O$ | KCl | | | | | | |
| $A_{11}$ | 0-12 | 5.1 | 4.0 | 0.57 | 0.03 | 19 | 2.6 | 49 | 13 |
| $A_{21}$ | 12-40 | 5.1 | 4.0 | 0.47 | 0.02 | 24 | 2.0 | 40 | 13 |
| $B_{11}$ | 40-74 | 5.3 | 4.0 | 0.31 | 0.02 | 16 | 2.8 | 22 | 7 |
| $B_{21}$ | 74-100 | 5.5 | 4.0 | 0.26 | 0.02 | 13 | 2.0 | 35 | 10 |
| $B_{22}$ | 100-140 | 5.5 | 4.0 | 0.17 | | | 1.8 | 23 | 10 |
| $B_{23}$ | 140-200 | 5.6 | 3.9 | 0.14 | | | 3.2 | 20 | 7 |

## SISTEMA DE TIERRA 629, Faceta 3

Clasificación: Ustoxic Quartzipsamment.

Localización: Mesa de Guanipa, Edo. Anzoategui, Venezuela.

Fisiografía: Pequeño valle coluvio-aluvial.

Drenaje: Bien drenado.

Vegetación: Graminiforme, con baja densidad de arbustos.

Mat. Originario: Coluvio aluvial redepositados.

Fuente: Luque, M.O., 1977. En: Suelos Ecuatoriales V Congreso Latin. Ciencia del Suelo, Medellín, Colombia. Pág.423/7. (33).

$A_{11}$ 0-15 cm. 10YR 3/2; masivo; límite claro y ondulado arenoso.

$A_{12}$ 15-42 cm. 5YR 3/4; masivo; límite claro y plano.

$A_{21}$ 42-90 cm. 5YR 3/4; masivo; límite claro y plano.

$A_{22}$ 90-150 cm. 5YR 4/6; masivo; arenoso; límite claro y plano.

$A_{23}$ 150-190 cm. 2.5YR 5/6; masivo; arenoso; límite claro y plano.

$B_1$ 190-240 cm. Arenoso.

| HTE | Prof. (cm) | pH | | C % | N % | C/N | CIC | S.B. % | $P_2O_5$ |
|---|---|---|---|---|---|---|---|---|---|
| | | $H_2O$ | KCl | | | | | | |
| $A_{11}$ | 0-15 | 5.5 | 4.3 | 0.29 | 0.04 | 7.25 | 0.9 | 17 | 11 |
| $A_{12}$ | 15-42 | 5.4 | 4.4 | 0.25 | 0.01 | 14.7 | 1.0 | 19 | 14 |
| $A_{21}$ | 42-90 | 5.4 | 4.5 | 0.17 | | | 0.9 | 6 | 11 |
| $A_{22}$ | 90-150 | 5.3 | 4.3 | 0.09 | | | 0.9 | 20 | 11 |
| $A_{23}$ | 150-190 | 5.4 | 4.4 | 0.07 | | | 0.2 | 30 | 14 |
| $B_1$ | 190-240 | 5.2 | 4.2 | 0.09 | | | 0.8 | 30 | 14 |

## SISTEMA DE TIERRA 630, Faceta 1 (dominante)

Clasificación: Psammentic Haplustox

Localización: Guanipa, región El Tigre, porción central de las Mesas, Venezuela.

Fisiografía: Zona plana a ligeramente convexa.

Drenaje: Bien drenado.

Vegetación: Pastos (Axonopus y Trachipogon) y escasos árboles de chaparro y alcornoque.

Mat. Originario: Aluviones pre-meteorizados pleistocénicos. (Formación Mesa).

Fuente: Comerma, J. y A. Chirinos, 1976. En: Agronomía Tropical, No.2, Vol.XXVII, pág.181/206. (34).

$A_1$ 0-10 cm. 10YR 3/3; muy friable; masivo a grano simple; límite claro y plano.

$B_{11}$ 10-30 cm. 10YR 5/8; muy friable; masivo a grano simple; límite gradual y plano.

$B_{12}$ 30-50 cm. 7.5YR 5/8; masivo a grano simple; límite gradual y plano.

$B_{13}$ 50-80 cm. 5YR 5/8; 5YR 5/8; friable; masivo a bloques finos débiles; límite plano y difuso.

$B_{21}$ 80-110 cm. 5YR 5/8; friable; masivo a bloques finos débiles; límite plano y difuso.

$B_{22}$ 110-170 cm. 5YR 5/8; friable; masivo a bloques finos, débiles; límite difuso y plano.

$B_{23}$ 170-250 cm. 2.5YR 4/6; friable; bloques medios moderados.

| HTE | pH | | C % | $Fe_2O_3$ % | S.B. % | S.Al % |
|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | | | | |
| $A_1$ | 5.6 | 4.7 | 0.33 | - | 35 | 14 |
| $B_{11}$ | 5.5 | 4.4 | 0.28 | - | 30 | 42 |
| $B_{12}$ | 5.3 | 4.2 | 0.20 | 1.0 | 36 | 35 |
| $B_{13}$ | 5.3 | 4.1 | 0.20 | - | 17 | 56 |
| $B_{21}$ | 5.3 | 4.1 | 0.17 | 1.0 | 35 | 32 |
| $B_{22}$ | 5.3 | 4.1 | 0.11 | - | 43 | 28 |
| $B_{23}$ | 5.4 | 4.2 | 0.10 | 1.0 | 16 | 0 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | Ac. | Al | TBI | CIC |
| 0.4 | 0.2 | 0.04 | 0.02 | 1.6 | 0.11 | 0.66 | 1.2 |
| 0.2 | 0.1 | 0.03 | 0.02 | 0.8 | 0.26 | 0.35 | 1.1 |
| 0.3 | 0.2 | 0.03 | 0.02 | 1.0 | 0.30 | 0 35 | 1.8 |
| 0.1 | 0.1 | 0.03 | 0.02 | 1.2 | 0.32 | 0.25 | 1.5 |
| 0.5 | 0.1 | 0.03 | 0.02 | 1.2 | 0.31 | 0.65 | 2.0 |
| 0.7 | 0.2 | 0.03 | 0.02 | 1.2 | 0.38 | 0.95 | 1.8 |
| 0.3 | 0.2 | 0.03 | 0.02 | 2.8 | 0.00 | 0.55 | 1.6 |

## SISTEMA DE TIERRA 630, Faceta 1 (asociado)

Clasificación: Oxic Paleustult, arcilloso, caolinítico, isohipertérmico.

Localización: Guanipa, región El Tigre, porción central de Las Mesas, Venezuela.

Fisiografía: Zona ligeramente depresional o cóncava.

Drenaje: Bien drenado.

Vegetación: Pastos (Axonopus y Trachipogon) y escasos árboles de chaparro y alcornoque.

Mat. Originario: Aluviones pre-meteorizados pleistocénicos (Formación Mesa).

Fuente: Comerma, J. y A. Chirinos, 1976. En: Agronomía Tropical, No.2, Vol.XXVII, pág.181/206. (34).

$A_1$ 0-25 cm. 10YR 2/3; muy friable; bloques muy finos, débiles; límite claro y plano.

$A_{21}$ 25-55 cm. 10YR 5/8; friable; bloques finos débiles; límite claro y plano.

$A_{22}$ 55-70 cm. 5YR 5/8; friable; bloques finos, débiles; límite claro y plano.

$B_1$ 70-90 cm. 5YR 5/8; bloques medios débiles; friable; moderados clay skins; límite claro irregular.

$B_{21}t$ 90-120 cm. 2.5YR 4/6; firme; bloques medios moderados; moderados clay skins, límite claro e irregular.

$B_{22}t$ 120-160 cm. 2.5YR 4/6; firme; bloques medios moderados; moderados clay skins; límite claro e irregular.

$B_{23}t$ 160-200 cm. 2.5YR 4/6; firme, bloques medios moderados; moderados clay skins; límite difuso y plano.

| HTE | pH | | C % | $Fe_2O_3$ % | S.B. % | S.Al % |
|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | | | | |
| $A_1$ | 6.4 | 5.6 | 0.62 | - | 83 | 8 |
| $B_{21}$ | 4.8 | 3.9 | 0.42 | - | 24 | 22 |
| $A_{22}$ | 4.7 | 4.1 | 0.19 | 1.4 | 49 | 14 |
| $B_1$ | 5.1 | 4.1 | 0.17 | 1.6 | 51 | 21 |
| $B_{21}t$ | 5.4 | 4.1 | 0.17 | - | 31 | 14 |
| $B_{22}t$ | 5.8 | 4.0 | 0.13 | 3.2 | 23 | 16 |
| $B_{23}t$ | 5.7 | 4.0 | 0.13 | 2.4 | 18 | 17 |

Cont.

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Ac. | Al | TBI | CIC |
| 1.4 | 0.4 | 0.05 | 0.05 | 0.4 | 0.17 | 1.90 | 2.0 |
| 0.6 | 0.1 | 0.07 | 0.05 | 2.6 | 0.23 | 0.82 | 3.1 |
| 0.9 | 0.2 | 0.12 | 0.05 | 1.2 | 0.21 | 1.27 | 3.0 |
| 0.5 | 0.2 | 0.10 | 0.05 | 0.8 | 0.23 | 0.85 | 2.6 |
| 0.6 | 0.4 | 0.05 | 0.05 | 2.4 | 0.18 | 1.10 | 5.0 |
| 0.3 | 0.3 | 0.05 | 0.05 | 3.0 | 0.14 | 0.70 | 4.9 |
| 0.3 | 0.2 | 0.03 | 0.05 | 2.6 | 0.12 | 0.68 | 4.9 |

## SISTEMA DE TIERRA 631, Faceta 1 (dominante)

Clasificación: Psammentic Haplustox, arenoso, silícico, isohipertérmico.

Localización: Area Charaguamas, Llanos Orientales de Venezuela.

Fisiografía: En la mitad de una pendiente, alrededor de 1.5% de pendiente, porción sur de las Mesas.

Drenaje: Bien drenado.

Vegetación: Pastos (Axonopus y Trachypogon) y escasos árboles de chaparro y alcornoque.

Mat. Originario: Aluviones premeteorizados Pleistocénicos (Formación Mesa).

Fuente: Comerma, J. y A. Chirinos, 1976. En: Agronomía Tropical, No.2, Vol.XXVII, Pág.181/206. (34).

$A_1$ 0-10 cm. 7.5YR 4/4; muy friable; grano simple; límite claro y plano.

$B_{11}$ 10-40 cm. 5YR 5/6; muy friable; masivo a bloques débiles; límite claro y plano.

$B_{12}$ 40-60 cm. 5YR 4/8; muy friable; masivo a bloques débiles; límite gradual y plano.

$B_{13}$ 60-85 cm. 5YR 4.5/8; muy friable; masivo a bloques débiles; límite difuso y plano.

$B_{21}$ 85-110 cm. 5YR 5/8; friable; masivo a bloques débiles; límite gradual y plano.

$B_{22}$ 110-150 cm. 5YR 5.5/8; muy friable; masivo a bloques débiles; límite difuso y plano.

$B_{23}$ 150-180 cm. 5YR 5.5/8; muy friable; masivo a bloques débiles; límite difuso y plano.

$B_{24}$ 180-200 cm. 5YR 5.5/8; muy friable; masivo a bloques débiles; límite claro y plano.

$B_{25}$ 200-280 cm. 2.5YR 5/8; friable.

$B_{26}$ 280-300 cm. 2.5YR 5/8; friable.

| HTE | pH | | C | $Fe_2O_3$ | S.B. | S.Al |
|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | % | % |
| $A_1$ | 5.1 | 4.1 | 0.38 | - | 45 | 3 |
| $B_{11}$ | 4.9 | 4.0 | 0.30 | - | 43 | 47 |
| $B_{12}$ | 5.0 | 4.0 | 0.28 | 0.8 | 33 | 32 |
| $B_{13}$ | 5.1 | 4.1 | 0.26 | - | 23 | 41 |
| $B_{21}$ | 5.4 | 4.2 | 0.24 | 1.4 | 36 | 33 |
| $B_{22}$ | 5.4 | 4.2 | 0.16 | - | 49 | 30 |
| $B_{23}$ | 5.5 | 4.3 | 0.10 | 1.2 | 40 | 38 |
| $B_{24}$ | 5.5 | 4.3 | 0.10 | - | 39 | 8 |
| $B_{25}$ | 5.4 | 4.2 | 0.17 | 3.3 | 34 | 23 |
| $B_{26}$ | 5.5 | 4.2 | 0.17 | - | 27 | 39 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Ac. | Al | TBI | CIC |
| 0.5 | 0.3 | 0.16 | 0.06 | 1.2 | 0.04 | 1.02 | 1.9 |
| 0.5 | 0.3 | 0.10 | 0.03 | 1.2 | 0.19 | 0.93 | 1.5 |
| 0.3 | 0.2 | 0.07 | 0.02 | 1.2 | 0.23 | 0.59 | 1.6 |
| 0.2 | 0.2 | 0.07 | 0.02 | 1.6 | 0.34 | 0.49 | 1.8 |
| 0.4 | 0.2 | 0.06 | 0.02 | 1.2 | 0.34 | 0.68 | 2.0 |
| 0.4 | 0.3 | 0.05 | 0.02 | 0.8 | 0.33 | 0.79 | 1.8 |
| 0.3 | 0.3 | 0.05 | 0.02 | 1.0 | 0.41 | 0.67 | 1.6 |
| 0.4 | 0.3 | 0.07 | 0.02 | 1.2 | 0.47 | 0.79 | 1.8 |
| 1.0 | 0.6 | 0.01 | 0.04 | 3.2 | 0.51 | 1.65 | 4.9 |
| 0.7 | 0.5 | 0.01 | 0.04 | 3.4 | 0.82 | 1.25 | 4.6 |

## SISTEMA DE TIERRA 631, Faceta 1 (asociado)

Clasificación: Oxic Paleustult, franco, caolinítico, isohipertérmico.

Localización: Area Charaguamas, Llanos Orientales de Venezuela.

Fisiografía: Sitio plano a lig. convexo en la porción sur de Las Mesas.

Drenaje: Bien drenado.

Vegetación: Pastos (Axonopus y Trachypogon) y escasos árboles de chaparro y alcornoque.

Mat. Originario: Aluviones premeteorizados Pleistocénicos (Formación Mesa).

Fuente: Comerma, J. y A. Chirinos. 1976. En: Agronomía Tropical No.2, Vol.XXVII, pág.181/206. (34).

$A_1$ 0-20 cm. 10YR 5/6; friable; masivo a grano simple; límite claro y plano.

$A_2$ 20-52 cm. 7.5YR 6/8; friable; masivo a grano simple; límite gradual y plano.

$B_{21}t$ 52-94 cm. 7.5YR 5/8; friable; masivo a bloques débiles; pocos clay skins; límite gradual y plano.

$B_{22}t$ 94-134 cm. 7.5YR 5/8; friable; masivo a bloques débiles; pocos clay skins; límite gradual y plano.

$B_{23}t$ 134-190 cm. 5YR 5/8; friable; bloques medios débiles; moderados clay skins; límite gradual y plano.

$B_{24}t$ 190-210 cm. 5YR 5/8; bloques medios débiles; moderados clay skins; límite gradual y plano.

$B_3$ 210-240 cm. 5YR 4/6; friable; límite abrupto y plano.

| HTE | pH | | C | $Fe_2O_3$ | S.B. | S.Al |
|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | % | % |
| $A_1$ | 4.9 | 4.1 | 0.44 | - | 24 | 46 |
| $A_2$ | 5.2 | 4.2 | 0.29 | 1.5 | 25 | 33 |
| $B_{21}$ | 5.5 | 4.3 | 0.16 | 2.1 | 29 | 44 |
| $B_{22}$ | 5.6 | 4.3 | 0.20 | 2.3 | 30 | 50 |
| $B_{23}$ | 5.5 | 4.2 | 0.19 | 3.4 | 30 | 50 |
| $B_{24}$ | 5.3 | 4.2 | 0.17 | - | 40 | 37 |
| $B_3$ | 5.4 | 4.7 | 0.17 | 4.8 | 34 | 0.7 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | Na | K | Ac. | Al | TBI | CIC |
| 0.3 | 0.2 | 0.08 | 0.04 | 2.0 | 0.54 | 0.62 | 1.9 |
| 0.3 | 0.2 | 0.07 | 0.02 | 1.8 | 0.30 | 0.59 | 2.1 |
| 0.4 | 0.2 | 0.06 | 0.02 | 1.6 | 0.54 | 0.68 | 3.0 |
| 0.4 | 0.3 | 0.15 | 0.05 | 2.0 | 0.89 | 0.90 | 3.5 |
| 0.4 | 0.5 | 0.06 | 0.02 | 2.2 | 0.98 | 0.98 | 4.3 |
| 0.9 | 0.8 | 0.02 | 0.05 | 2.6 | 1.05 | 1.77 | 4.0 |
| 0.9 | 0.5 | 0.02 | 0.05 | 2.8 | 0.01 | 1.47 | 2.7 |

## SISTEMA DE TIERRA 635, Faceta 1

Clasificación: Fluventic Ustropept - Serie Biruaca.

Localización: Centro Recría, Municipio Biruaca, Edo. Apure, Venezuela.

Fisiografía: Napas de limos de desbordamiento, perfil localizado entre bajíos y bancos arenosos.

Drenaje: Imperfectamente drenado.

Mat. Originario: Aluvial.

Fuente: Luque, O. 1971. Estudio Centro Recría Biruaca, Edo. Apure. MAC, Venezuela, 36 pág. (37).

$A_{11}$ 0-30 cm. 10YR 4/1; moteados 10YR 6/4; franco arcillo limoso; bloques pequeños moderados; muy duro, firme; límite gradual y plano.

$A_{12}$? 30-50 cm. 10YR 5/4; moteados 10YR 6/1; arcillo limoso; prismas moderados; muy duro, firme; límite claro y plano.

$B_1$? 50-70 cm. 10YR 4/3, 10YR 5/6, 10YR 5/8; arcillo limoso; prismas fuertes; muy duro, firme; límite claro y plano.

$B_{21}$ 70-100 cm. 10YR 7/6; moteados 7.5YR 5/6; arcillo limoso; prismas fuertes; muy duro, firme; límite claro y plano.

$C_1$ 100-140 cm. 10YR 6/6; moteados 10YR 5/2; franco; bloques pequeños débiles; duro, friable; límite gradual y plano.

$C_2$ 140-160 cm. 10YR 4/4; moteados 10YR 5/2; franco limoso; bloques pequeños débiles; muy duro, firme; límite gradual y plano.

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$C_3$ 160 cm+. 10YR 6/6; moteados 10YR 5/2; franco arenoso; sin estructura; cementado; lig. duro, muy friable.

NOTA: Horizonte de 140 a 160 cm presenta nódulos blandos de Fe y Al.

| HTE | pH | | C | N | P | S.B. |
|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % |
| $A_{11}$ | 5.6 | 4.7 | 1.85 | 0.19 | 112 | 83 |
| $A_{12}$ ? | 5.7 | 4.4 | 0.52 | 0.10 | 33 | 60 |
| $B_1$ ? | 5.7 | 4.4 | 0.39 | 0.06 | 50 | 67 |
| $B_{21}$ | 4.6 | 3.7 | 0.47 | 0.08 | 24 | 61 |
| $C_1$ | 5.4 | 4.3 | 0.23 | - | 50 | 74 |
| $C_2$ | 5.4 | 4.3 | 0.33 | - | 36 | 82 |
| $C_3$ | 5.9 | 4.4 | 0.14 | - | 76 | 82 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | TBI | CIC |
| 12.0 | 3.2 | 0.32 | 0.36 | 8.2 | 15.88 | 19.2 |
| 7.9 | 3.5 | 0.26 | 0.44 | 5.0 | 12.1 | 15.6 |
| 7.1 | 4.0 | 0.30 | 0.50 | 8.7 | 11.9 | 17.8 |
| 4.8 | 3.2 | 0.24 | 0.40 | 7.0 | 8.64 | 14.2 |
| 2.9 | 1.8 | 0.14 | 0.30 | 3.2 | 5.14 | 6.9 |
| 3.6 | 2.8 | 0.18 | 0.52 | 3.6 | 7.10 | 8.7 |
| 1.5 | 1.2 | 0.12 | 0.30 | 2.0 | 3.12 | 3.6 |

## SISTEMA DE TIERRA 635, Faceta 2

Clasificación: Typic Ustropept., Serie Recría.

Localización: Centro Recría, Municipio Biruaca, Edo. Apure, Venezuela.

Fisiografía: Diques y napas.

Drenaje: Moderadamente bien drenado.

Mat. Originario: Aluvial.

Fuente: Luque, O. 1971. Estudio Centro Recría Biruaca, Edo. Apure, MAC, Venezuela, 36 pág. (37).

$A_1$ 0-30 cm. 10YR 4/1; franco limoso; bloques finos débiles; friable; límite difuso.

AB 30-60 cm. 10YR 5/4; franco limoso; bloques finos moderados; duro, friable; límite plano y gradual.

$B_{21}$ 60-85 cm. 10YR 5/4; franco limoso; duro, friable; límite gradual y plano; prismas grandes, fuertes.

$B_{22}$ 85-140 cm. 10YR 5/3; moteados 5YR 5/6; franco arcillo limoso; duro, friable; prismas grandes fuertes; límite abrupto y plano.

$A_1b$ 140-160 cm. 10YR 5/2; moteados 10YR 4/1; arcilloso; prismas grandes moderados; muy duro, firme; límite abrupto y plano.

C 160-200 cm. 10YR 5/8; moteados 10YR 5/3; franco arcillo limoso; prismas grandes, fuertes, muy duro, firme.

| HTE | pH | | C | N | P | S.B. |
|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % |
| $A_1$ | 6.3 | 5.4 | 2.14 | 0.25 | 443 | 92 |
| AB | 5.7 | 4.7 | 0.58 | 0.08 | 47 | 73 |
| $B_{21}$ | 5.3 | 4.3 | 0.38 | 0.07 | 43 | 70 |
| $B_{22}$ | 5.3 | 4.1 | 0.36 | 0.06 | 44 | 78 |
| $A_1b$ | 5.1 | 4.0 | 0.91 | | 39 | 83 |
| C | 5.5 | 4.5 | 0.41 | | 29 | 79 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | TBI | CIC |
| 13.6 | 2.8 | 0.78 | 0.16 | 4.4 | 17.34 | 18.9 |
| 5.2 | 2.4 | 0.44 | 0.60 | 4.8 | 8.64 | 11.9 |
| 4.1 | 3.0 | 0.28 | 0.56 | 5.2 | 7.10 | 11.4 |
| 4.1 | 4.4 | 0.26 | 0.54 | 5.4 | 9.3 | 11.9 |
| 8.8 | 8.2 | 0.30 | 0.36 | 6.4 | 17.66 | 21.4 |
| 4.3 | 4.0 | 0.20 | 0.50 | 5.0 | 9.00 | 11.4 |

## SISTEMA DE TIERRA 635, Faceta 3

Clasificación: Chromoustert (Tropaquept?)

Localización: Centro de Recría, Municipio Biruaca, Edo. Apure, Venezuela.

Fisiografía: Basines, cubetas de decantación.

Drenaje: Imperfectamente drenado.

Vegetación: Pastos forrajeros como Lambedora (Leersia hexandra) y paja de agua (Echinocla sp.).

Mat. Originario: Aluvial.

Fuente: Luque, O., 1971. Estudio Centro Recría Birvaca, Edo. Apure, MAC, Venezuela, 36 pág. (37).

Serie Pericoco:

$A_1$ 0-20 cm. 10YR 3/2; moteados 7.5YR 5/6; arcilloso; bloques moderados grandes; límite claro y plano.

AB 20-40 cm. 10YR 4/2; moteados 7.5YR 5/8; arcilloso; bloques medios moderados; límite gradual y plano.

B 40-80 cm. 10YR 5/3; moteados 7.5YR 5/8; franco arcillo limoso; bloques medianos moderados; límite claro y plano.

Cg 80-95 cm. 10YR 5/9; moteado 7.5YR 5/8; arcilloso; bloques moderados grandes; límite abrupto y plano.

IIAb 95-120 cm. 10YR 4/1; moteados 7.5YR 4/4; franco arenoso; sin estructura; límite abrupto y plano.

C 120 cm+. 10YR 7/2; arenoso; sin estructura; grano simple; suelto.

| HTE | pH | | C | N | P | S.B. |
|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % |
| A | 4.8 | 3.8 | 1.02 | 0.13 | 47 | 65 |
| AB | 4.7 | 3.6 | 0.70 | 0.12 | 33 | 59 |
| B | 5.1 | 4.0 | 0.41 | 0.08 | 37 | 80 |
| Cg | 5.3 | 4.1 | 0.36 | 0.09 | 34 | 93 |
| Ab | 4.5 | 3.6 | 0.33 | - | 41 | 53 |
| C | 4.3 | 3.9 | 0.04 | - | 11 | - |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | TBI | CIC |
| 8.5 | 4.2 | 0.86 | 0.34 | 12.4 | 13.8 | 21.4 |
| 5.5 | 3.8 | 0.74 | 0.26 | 10.6 | 10.3 | 17.4 |
| 5.2 | 4.4 | 0.52 | 0.46 | 6.0 | 10.6 | 13.2 |
| 6.7 | 6.0 | 0.44 | 0.40 | 1.4 | 13.5 | 14.6 |
| 1.3 | 1.2 | 0.16 | 0.26 | 3.2 | 2.92 | 5.5 |
| - | - | - | - | - | - | - |

## SISTEMA DE TIERRA 637, Faceta 1

Clasificación: Hapludoll

Localización: 1.2 km de Lagunita, Depto. Ricaurte, Edo. Cojedes, Venezuela.

Fisiografía: Planicie aluvial.

Drenaje: Bueno a moderado.

Vegetación: Rastrojo - Samanes, guásimos.

Mat. Originario: Aluviones del río Cojedes.

Fuente: Descripción y análisis de calicatas - 1975. MOP, Venezuela, perfil 274 - VEN - 63 - Co, pág.63/5.

$A_{11}$ 0-15 cm. 2.5YR 4/2; franco arcillo limoso; bloques medios moderados; límite claro y plano.

$A_{12}$ 15-32 cm. 5Y 5/2; arcillo limoso; bloques medios moderados; límite claro y plano.

$A_{13}$ 32-52 cm. 5Y 5/4; arcillo limoso; bloques medios débiles; moderadamente calcáreo; límite gradual e irregular.

$C_1$ 52-75 cm. 2.5Y 6/4; arcillo limoso; bloques medios, débiles; fuertemente calcáreo; límite gradual y plano.

$C_2$ 75-115 cm. 5Y 6/6; arcillo limoso; bloques medios débiles; violentamente calcáreo; límite difuso y plano.

$C_3$ 115-140 cm. 5Y 6/4; arcilloso; violentamente calcáreo, límite claro y plano, pocos moteados.

$C_4$ 140-165 cm. 2.5Y 6/6; arcillo limoso; bloques medios débiles; violentamente calcáreo; límite abrupto y plano.

$A_1b$ 165-175 cm. 5Y 6/4; arcilloso; bloques medios débiles; fuertemente calcáreo; límite abrupto y plano.

$C_1b$ 175 cm+. 2.5Y 6/8; franco arcilloso; bloques medios débiles; no calcáreo.

| HTE | pH | | C | N | C/N | $CaCO_3$ | S.B. |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | | % | % |
| $A_{11}$ | 7.4 | 6.6 | 3.57 | 0.22 | 15.7 | 2.7 | 81 |
| $A_{12}$ | 6.8 | 5.6 | 1.31 | 0.12 | 10.7 | 2.2 | 74 |
| $A_{13}$ | 6.7 | 5.5 | 0.65 | 0.11 | 5.8 | 1.6 | 75 |
| $C_1$ | 8.0 | 7.0 | 0.34 | 0.10 | 3.3 | 6.4 | 96 |
| $C_2$ | 7.7 | 7.1 | 0.31 | 0.09 | 3.2 | 13.3 | 100 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | TBI | CIC |
| 24.3 | 1.38 | 0.11 | 0.26 | 5.25 | 26.05 | 32.1 |
| 15.8 | 1.03 | 0.05 | 0.29 | 5.75 | 17.17 | 23.1 |
| 14.1 | 0.64 | 0.04 | 0.25 | 4.75 | 15.03 | 20.6 |
| 13.0 | - | 0.04 | 0.36 | - | 13.40 | 13.9 |
| 17.0 | 0.64 | 0.03 | 0.25 | - | 17.92 | 17.9 |

## SISTEMA DE TIERRA 642, Faceta 1

Clasificación: Haplic Acrustox, arcilloso, caolinítico, isohipertérmico.

Localización: 6 km al sur de Caicara de Orinoco, Distrito Cedeño, Edo. Bolívar, Venezuela.

Relieve: Casi plano, 1% pendiente local.

Drenaje: Bien drenado.

Vegetación: Sabana con pocos árboles y arbustos aislados.

Mat. Originario: Aluviones locales derivados de granito.

Fuente: Schargel, R. 1978. Ph.D. Thesis, North Carolina, S.U., USA. (28).

$A_1$ 0-6 cm. 10YR 3/1; franco arcillo arenoso; bloques medios débiles; muchas raíces finas; límite plano y abrupto.

$A_3$ 6-20 cm. 7.5YR 4/4; franco arcillo arenoso; bloques medios débiles; raíces finas comúnes; 1% gravas finas; límite plano y gradual.

$B_1$ 20-42 cm. 5YR 4/6; franco arcillo arenoso; bloques finos débiles; raíces finas comúnes; 5% gravas finas; límite plano y difuso.

$B_{21}$ 42-97 cm. 5YR 4/8; arcillo arenoso; bloques medios débiles; pocas raíces finas; 11% gravas finas; límite plano y difuso.

$B_{22}$ 97-250 cm. 5YR 4/8; arcilloso; bloques medios débiles; 8% gravas finas, límite plano y difuso.

$B_3$ 250-335 cm. 5YR 5/6; franco arcillo arenoso; 7% gravas finas.

$C_1$ 335-360 cm. 7.5YR 6/8; franco arenoso; moteados 2.5YR 4/8; 2% gravas finas.

NOTA: La grava fina está compuesta por guijarro de cuarzo angulosos, nódulos negros de Fe - Mn, y granos de cuarzo partidos impregnados con óxidos de Fe.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.7 | 3.8 | 0.59 | 0.04 | 2.8 | 56 | 15 |
| $A_3$ | 4.4 | 3.7 | 0.39 | 0.02 | 1.0 | 29 | 55 |
| $B_1$ | 4.4 | 3.9 | 0.23 | 0.02 | 0.4 | 36 | 43 |
| $B_{21}$ | 4.8 | 4.0 | 0.12 | 0.02 | 0.4 | 38 | 44 |
| $B_{22}$ | 5.0 | 4.0 | 0.16 | - | 0.4 | 20 | 66 |
| $B_3$ | 5.3 | 4.2 | 0.12 | - | 1.0 | 33 | 60 |
| $C_1$ | 5.5 | - | - | - | - | - | - |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.4 | 0.3 | 0.1 | 0.1 | 0.4 | 0.3 | 0.9 | 1.6 |
| 0.1 | 0.1 | 0.1 | 0.1 | 0.5 | 0.5 | 0.4 | 1.4 |
| 0.2 | 0.1 | t | 0.1 | 0.4 | 0.3 | 0.4 | 1.1 |
| 0.2 | 0.1 | 0.1 | 0.1 | 0.4 | 0.4 | 0.5 | 1.3 |
| 0.1 | t | t | 0.1 | 0.4 | 0.4 | 0.2 | 1.0 |
| 0.1 | t | 0.1 | - | 0.3 | 0.3 | 0.2 | 0.9 |
| - | - | - | - | - | - | - | - |

## SISTEMA DE TIERRA 649, Faceta 2

Clasificación: Typic Acrorthox, arcilloso, mezclado, isohipertérmico.

Localización: 8 km al oeste de cabaña Santa Bárbara, Depto. Atabapo, Territorio Amazonas, Venezuela.

Relieve: Casi plano, ondulaciones suaves a lo largo de las vías de drenaje. 0.5% pendiente local.

Vegetación: Bosque húmedo siempre verde.

Drenaje: Bien drenado.

Mat. Originario: Aluviones pleistocenos derivados de rocas ígneas, metamórficas y sedimentarias.

Fuente: Schargel, R. 1978. Ph.D. Thesis, North Carolina S.U. USA. (28).

$A_{11}$ 0-9 cm. 10YR 5/3; arcillo arenoso; granular media débil; raíces formando una densa mata; límite plano y claro.

$A_{12}$ 9-28 cm. 10YR 5/3; arcillo arenoso; bloques finos débiles; muchas raíces finas y medias; límite claro y plano.

$A_3$ 28-53 cm. 10YR 5/4; arcilloso; bloques finos débiles; raíces finas comúnes; límite claro y ondulado.

$B_1$ 53-72 cm. 10YR 5.5/6; arcilloso; bloques finos débiles; pocas raíces finas; límite plano y gradual.

$B_{21}$ 72-132 cm. 10YR 6/6; arcilloso; bloques finos muy débiles; pocas raíces finas; límite plano y difuso.

$B_{22}$ 132-250 cm. 10YR 6/6; arcilloso; masivo; pocas raíces muy finas; límite difuso y plano.

$B_{23}$ 250-350 cm. 7.5YR 5/7; arcilloso; masivo.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_{11}$ | 4.0 | 3.6 | 2.77 | 0.19 | 7.4 | 18 | 76 |
| $A_{12}$ | 4.4 | 3.9 | 1.68 | 0.10 | 4.2 | 22 | 73 |
| $A_3$ | 4.4 | 4.2 | 1.05 | 0.06 | 0.4 | 31 | 55 |
| $B_1$ | 4.5 | 4.4 | 0.62 | 0.03 | 1.4 | 43 | 40 |
| $B_{21}$ | 5.2 | 5.0 | 0.35 | - | 1.4 | 50 | - |
| $B_{22}$ | 5.2 | 5.3 | 0.27 | - | t | 67 | - |
| $B_{22}$ | 5.3 | 5.4 | 0.23 | - | t | 60 | - |
| $B_{23}$ | 5.6 | 5.6 | 0.16 | - | t | 50 | - |
| $B_{23}$ | 5.6 | 5.6 | 0.12 | - | t | 60 | - |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.2 | 0.1 | 0.2 | 0.1 | 0.8 | 1.9 | 0.6 | 3.3 |
| 0.2 | t | 0.1 | 0.1 | 0.3 | 1.1 | 0.4 | 1.8 |
| 0.2 | t | 0.1 | 0.1 | 0.4 | 0.5 | 0.4 | 1.3 |
| 0.2 | t | t | 0.1 | 0.2 | 0.2 | 0.3 | 0.7 |
| 0.2 | t | 0.1 | 0.1 | 0.4 | t | 0.3 | 0.8 |
| 0.2 | t | 0.1 | 0.1 | 0.2 | t | 0.3 | 0.6 |
| 0.2 | t | t | 0.1 | 0.2 | t | 0.3 | 0.5 |
| 0.1 | t | t | 0.1 | 0.2 | t | 0.2 | 0.4 |
| 0.2 | t | t | 0.1 | 0.2 | t | 0.3 | 0.5 |

## SISTEMA DE TIERRA 651, Faceta 1 (50%)

Clasificación: Typic Ustipsamment.

Localización: Fundo El Porvenir, Sector Pto. Ayacucho, T. Amazonas, Venezuela.

Geomorfología: Llanura residual de depósitos antiguos del río Orinoco, mezclado con productos alterados graníticos.

Drenaje: Bien a algo excesivamente drenado.

Relieve: Casi plano, pendiente inferior a 2%

Vegetación: Bosque pluvial tropical, húmedo, siempreverde, con sotobosque denso.

Fuente: Blancaneaux, P. et al. 1977. MARNR, Venezuela. Estudio Sector Puerto Ayacucho. Perfil 117, 120 pág. (38).

$A_{11}$ 0-15 cm. Arenoso franco; 10YR 5/6; grano simple; abundantes raíces finas y grandes; límite abrupto.

$A_{12}$ 15-45 cm. Arenoso franco; 10YR 5/6; grano simple; abundantes raíces; límite gradual.

$C_1$ 45-205 cm. Arenoso franco a franco arenoso; 10YR 5/8; bloques débiles a grano simple; abundantes raíces a más de 1 m, límite abrupto.

Cr 205-260 cm. Nivel de elementos gruesos formados por concreciones de óxidos de Fe de dimensiones variables, en un material franco arenoso 7.5YR 5/8; sin raíces.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| 0-10 | 4.3 | 4.6 | 0.25 | 0.01 | 3 | 14 | 55 |
| 30-40 | 4.5 | 4.7 | 0.16 | 0.007 | 1 | 13 | 55 |
| 80-100 | 4.4 | 4.7 | 0.18 | | 1 | 17 | 52 |
| 180-200 | 4.8 | 5.0 | 0.12 | | 1 | 7 | 52 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | Ac. | Al | TBI | CIC |
| 0.1 | 0.1 | 0.04 | 0.03 | 1.6 | 0.31 | 0.27 | 1.8 |
| 0.1 | 0.1 | 0.03 | 0.02 | 1.6 | 0.31 | 0.25 | 1.2 |
| 0.1 | 0.1 | 0.03 | 0.02 | 1.2 | 0.27 | 0.25 | 1.4 |
| 0.1 | 0.1 | 0.03 | 0.02 | 3.2 | 0.27 | 0.25 | 2.8 |

## SISTEMA DE TIERRA 651, Faceta 1 (50%)

Clasificación: Tropeptic Haplustox, arcilloso, caolinítico, isohipertérmico.

Localización: 7 km al SE del aeropuerto Puerto Ayacucho, T. Amazonas, Venezuela.

Relieve: Suave ondulado, 3% pendiente local.

Drenaje: Bien drenado.

Vegetación: Bosque semideciduo húmedo. Rebrote de 5 años.

Fuente: Schargel, R. 1978. Ph.D. Thesis, North Carolina S. U., USA. (28).

$A_1$cn 0-6 cm. 10YR 4/3; arcilloso; bloques finos moderados; muchas raíces; límite plano y abrupto.

$A_3$cn 6-24 cm. 10YR 5/4; arcillo arenoso; moteados 5YR 4/4; bloques medios moderados; límite claro y plano.

$B_1$cn 24-45 cm. 10YR 5/5; arcilloso; bloques finos débiles; pocas raíces; límite gradual y ondulado.

$B_2$cn 45-80 cm. 10YR 5/6; arcillo arenoso; bloques finos débiles; pocas raíces; muy pocos cutanes; límite claro e irregular.

$IIB_1$ 80-165 cm. 5YR 5/6; franco arcillo arenoso; bloques gruesos muy débiles; pocos cutanes; límite claro y ondulado.

$IIC_1$ 165-250 cm. 5YR 5/6; franco arcillo arenoso; masivo; pocas raíces, muy pocos cutanes.

$IIC_2$ 250-330 cm. 7.5YR 4/4; franco arenoso grueso, pocos nódulos arcillosos.

NOTA: Todo el perfil tiene pedregosidad en distintos porcentajes constituída por concreciones de Fe y óxidos de Fe cementando fragmentos de rocas de distintos tamaños.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 4.4 | 3.9 | 1.25 | 0.10 | 1.0 | 35 | 55 |
| $A_3$ | 4.3 | 4.0 | 0.82 | 0.10 | 0.4 | 19 | 78 |
| $B_1$ | 4.3 | 4.0 | 0.74 | 0.08 | 0.4 | 18 | 78 |
| $B_2$ | 4.6 | 4.1 | 0.31 | 0.03 | t | 33 | 55 |
| $B_3$ | 4.9 | 4.3 | t | - | t | 38 | 40 |
| $C_1$ | 4.9 | 4.4 | t | - | t | 33 | 50 |
| $C_2$ | 4.9 | 4.3 | t | - | t | 40 | 33 |

## SISTEMA DE TIERRA 651, Faceta 3

Clasificación: Ustic Dystropept.

Localización: Orilla caño Pavón, al norte de Puerto Ayacucho, T. Amazonas, Venezuela.

Geomorfología: Napa de desborde del caño.

Relieve: Casi plano con microrelieve ondulado.

Drenaje: Algo imperfectamente drenado.

Vegetación: Bosque de galería con arbustos espinosos.

Fuente: Blancaneaux, P. et al. 1977. MARNR, Venezuela. Estudio Sector Puerto Ayacucho, perfil 107-120, pág. (38).

$A_{11}$ 0-20 cm. 10YR 3/1; franco arenoso; bloques débiles; abundantes raíces; límite gradual.

$A_3$ 20-65 cm. 10YR 5/2; grano simple; pocas raíces; arenoso franco; límite difuso.

$C_g$ 65-120 cm. Arenoso franco; 10YR 4/2; moteados; muy pocas raíces.

| HTE | pH | C | COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | S.B. |
|---|---|---|---|---|---|---|---|---|---|---|
| | $H_2O$ | % | Ca | Mg | K | Na | H + Al | TBI | CIC | % |
| 0-10 | 3.5 | 1.72 | 0.1 | t | 0.1 | 0.1 | 10.5 | 0.3 | 10.8 | 2.70 |
| 30-40 | 3.6 | 4.64 | 0.1 | t | t | 0.1 | 1.9 | 0.2 | 2.1 | 9.50 |
| 100-110 | 3.9 | 0.60 | | | | | | | | |

## SISTEMA DE TIERRA 802, Faceta 1

Clasificación: Tropofluvent, Serie Yahuahua.

Localización : Zona Ceneapa - Alto Marañon.

Fisiografía: Terrazas bajas de topografía plana e islas inundables.

Relieve: Plano (0-2%).

Drenaje: Moderado.

Mat. Originario: Aluviones del río Marañon.

Vegetación: Bosque bajo de tipo ribereno.

Fuente: ONERN, 1976. Inventario Recurso zona Ceneapa - Alto Marañon, Serie Yahuahua, pág. 26/8. (39).

$A_1$ 0-15 cm. 10YR 3/3; franco limoso; granular fina débil; abundantes raíces finas; límite claro.

AC 15-30 cm. 10YR 4/3; franco limoso; masivo; raíces frecuentes; límite claro.

$C_1$ 30-120 cm. 10YR 4/4; franco arenoso; sin estructura; escasas raíces; moteados; capa de agua a 100 cm.

$C_2$ + 120 cm. Estrato de arena fina con abundantes moteados.

| HTE | pH | C | N | $P_2O_5$ | S.B. | $CO_3Ca$ |
|---|---|---|---|---|---|---|
| | $H_2O$ | % | % | ppm | % | % |
| $A_1$ | 7.2 | 7.17 | 0.306 | 4.7 | 100 | 0.12 |
| AC | 7.2 | 1.93 | 0.090 | 1.2 | 100 | 0.12 |
| $C_1$ | 7.6 | 1.17 | 0.052 | 2.2 | 100 | 0.76 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | |
|---|---|---|---|---|---|
| Ca | Mg | K | Na | TBI | CIC |
| 20.1 | 0.98 | 0.28 | 0.16 | 21.5 | 21.5 |
| 10.2 | 0.82 | 0.04 | 0.10 | 11.2 | 11.2 |
| 5.3 | 0.62 | 0.04 | 0.06 | 6.0 | 6.0 |

## SISTEMA DE TIERRA 804, Faceta 1

Clasificación: Dystropept Típico.

Localización: Serie Uchichiangos, entre los ríos Guinguiza y Achuaga, Ceneapa - Alto Marañón, Perú.

Fisiografía: Paisaje colinado.

Relieve: Pendientes entre 15 y 70%.

Drenaje: Excesivo.

Mat. Originario: Lutitas y limolitas rojas del Terciario.

Fuente: ONERN, 1976, Inventario Recursos zona Ceneapa - Alto Marañón, pág. 35/6. (39).

$A_1$ 0-10 cm. 5YR 3/4; franco; granular; fina, débil; frecuentes raíces; límite claro.

B 10-40 cm. 5YR 4/6; franco arcilloso; masivo; escasas raíces; límite gradual.

C 40-90 cm. 2.5YR 5/4; franco arcilloso; masivo; límite claro.

CR + 90 cm. Lutitas en estado de descomposición.

| HTE | pH | C | N | $P_2O_5$ | S.B. | S.Al |
|---|---|---|---|---|---|---|
| | $H_2O$ | % | % | ppm | % | % |
| $A_1$ | 5.9 | 8.27 | 0.38 | 6.0 | 98 | - |
| B | 4.9 | 0.76 | 0.03 | 7.0 | 34 | 55 |
| C | 4.9 | 0.41 | 0.01 | 7.0 | 42 | 45 |

Cont.

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Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | Al | TBI | CIC |
| 34.0 | 1.34 | 0.22 | 0.40 | 0 | 31.16 | 35.9 |
| 6.8 | 0.93 | 0.11 | 0.28 | 10.0 | 8.12 | 18.1 |
| 8.4 | 1.29 | 0.13 | 0.28 | 8.0 | 10.1 | 18.1 |

## SISTEMA DE TIERRA 808, Faceta 1

Clasificación: Humoxic Tropohumult

Localización: Lat.3°45'S y Long.73°11'W, Iquitos, Perú.

Fisiografía: Terrazas no inundables; topografía convexa.

Drenaje: Bien drenado.

Vegetación: Bosque mixto perennifolio tipo común.

Mat. Originario: Sedimentos no consolidados del terciario - cuaternario.

Fuente: Flores, P. et al., 1978. En: Turrialba, Vol.28, No.2, pág.99/103.(40).

$A_1$ 0-10 cm; arenoso, densidad aparente 1.96.

$A_2$ 10-20 cm; arenoso franco; densidad aparente 1.58.

$A_3$ 20-70 cm; arenoso franco; densidad aparente 1.48.

$B_1$ 70-135 cm; arenoso franco; densidad aparente 2.20.

$B_2$ 135-150 cm; arenoso franco; densidad aparente 2.39.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 3.7 | 3.2 | 1.63 | 0.10 | 8 | 21 | 78 |
| $A_2$ | 3.9 | 3.5 | 2.26 | 0.13 | 4 | 16 | 89 |
| $A_3$ | 4.3 | 3.9 | 1.79 | 0.12 | 4 | 23 | 77 |
| $B_1$ | 4.3 | 3.9 | 0.20 | 0.05 | 1 | 25 | 74 |
| $B_2$ | 4.5 | 3.7 | 0.04 | 0.03 | 1 | 17 | 86 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.23 | 0.05 | 0.10 | 0.05 | 0.85 | 0.80 | 0.22 | 2.8 |
| 0.27 | 0.07 | 0.09 | 0.04 | 1.15 | 1.35 | 0.16 | 4.6 |
| 0.15 | 0.06 | 0.07 | 0.05 | 0.54 | 0.56 | 0.16 | 4.6 |
| 0.17 | 0.06 | 0.08 | 0.04 | 0.55 | 0.50 | 0.17 | 2.3 |
| 0.17 | 0.05 | 0.07 | 0.04 | 0.57 | 1.05 | 0.17 | 2.3 |

## SISTEMA DE TIERRA 808, Faceta 2

Clasificación: Utic Tropaquod.

Localización: Lat.3°45'S, Long.73°11'W; Iquitos, Perú.

Fisiografía: Terrazas aluviales, topografía cóncava.

Drenaje: Mal drenado.

Vegetación: Bosque mixto perennifolio tipo "varillal".

Mat. Originario: Sedimentos no consolidados del terciario - cuaternario.

Fuente: Flores, P. et al., 1978. En: Turrialba, Vol.28, No.2, pág.99/103. (40).

$A_2$ 0-40 cm; arenoso franco; densidad part. 2.63.

$A_3$ 40-55 cm; franco arenoso; densidad part. 2.55.

$B_1$ 55-80 cm; franco arenoso; densidad part. 2.52.

$B_2$mh 80-110 cm; franco arenoso; densidad part. 2.48.

$B_{21}$ 110-150 cm; franco arcillo arenoso; d. part. 2.56.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_2$ | 5.2 | 4.4 | - | - | 1 | 64 | - |
| $A_3$ | 4.0 | 3.2 | 2.61 | 0.07 | 1 | 11 | 89 |
| $B_1$ | 4.0 | 3.4 | 2.69 | 0.07 | 1 | 9 | 91 |
| $B_2$h | 4.2 | 3.6 | 3.27 | 0.07 | 11 | 5 | 95 |
| $B_{21}$ | 4.4 | 4.0 | 1.75 | 0.03 | 3 | 15 | 83 |

Cont.

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 0.17 | 0.04 | 0.07 | 0.04 | 0.18 | - | 0.16 | 0.15 |
| 0.31 | 0.05 | 0.08 | 0.05 | 2.10 | 2.10 | 0.26 | 5.9 |
| 0.15 | 0.03 | 0.26 | 0.06 | 2.84 | 2.34 | 0.26 | 10.9 |
| 0.11 | 0.05 | 0.07 | 0.06 | 3.15 | 3.15 | 0.15 | 14.3 |
| 0.13 | 0.08 | 0.07 | 0.05 | 0.88 | 0.88 | 0.17 | 3.2 |

## SISTEMA DE TIERRA 822, Faceta 1

Clasificación: Tropofluvent típico.

Localización: Zona Exito, región Pucallpa - Abujao, Perú.

Fisiografía: Complejo de orillares recientes.

Pendiente: 0-2%.

Mat. Originario: Aluviones recientes del Ucayali.

Vegetación: Capirona, tamamuri, renaco y lupuna.

Fuente: ONERN, 1978. Inventario Recursos zona Pucallpa - Abujao, pág. 77/8. (41).

$A_1$ 0-20 cm. 10YR 4/2; franco limoso; bloques finos débiles; 10% moteados 10YR 5/6; límite claro.

$C_1$ 20-50 cm. 10YR 4/2; franco limoso; 10% moteados 5YR 3/3; límite gradual; masivo.

$C_2$ 50-80 cm. 10YR 4/3; franco limoso; masivo; 20% moteados 10YR 5/8; límite gradual.

$C_3$ 80-120 cm. 10YR 4/3; masivo; friable.

| HTE | pH $H_2O$ | C % | N % | P ppm | S.B. % |
|---|---|---|---|---|---|
| $A_1$ | 7.0 | 0.7 | 0.06 | 9 | 100 |
| $C_1$ | 7.2 | 0.4 | 0.03 | 5 | 100 |
| $C_2$ | 7.2 | 0.4 | 0.02 | 5 | 100 |
| $C_3$ | 7.3 | 0.3 | 0.02 | 2 | 100 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | |
|---|---|---|---|---|---|
| Ca | Mg | K | Na | TBI | CIC |
| 9.51 | 1.75 | 0.48 | 0.10 | 11.84 | 11.84 |
| 8.22 | 1.73 | 0.29 | 0.08 | 10.32 | 10.32 |
| 5.20 | 1.48 | 0.20 | 0.08 | 6.96 | 6.96 |
| 5.02 | 1.46 | 0.16 | 0.08 | 6.72 | 6.72 |

## SISTEMA DE TIERRA 824, Faceta 1

Clasificación: Podzólico Vermelho Amarelo Alico - Allic Dystropeptic Orthoxic Tropudult.

Localización: 5°43'S y 72°18'O, Municipio Atalaia do Norte, Edo. Amazonas, Brasil.

Fisiografía: Tercio superior de ladera.

Relieve: 20% de pendiente, ondulado a fuerte ondulado.

Drenaje: Moderadamente drenado.

Vegetación: Floresta abierta.

Mat. Originario: Sedimentos arcillosos de la Formación Solimoes, Plio-Pleistoceno.

Fuente: Projeto Radambrasil, Vol.13, Javari-Contamana, 1977. Perfil 12, pág.204/5.(14).

$A_1$ 0-10 cm. 5YR 4/4; franco; granular pequeña débil; friable, plástico y pegajoso; límite gradual.

$A_3$ 10-20 cm. 5YR 4/6; franco; granular pequeña débil;friable; límite claro.

$B_1$ 20-35 cm. 2.5YR 4/6; franco arcilloso; bloques pequeños débiles; límite gradual.

$B_2$ 35-50 cm. 2.5YR 4/8; arcilloso; bloques pequeños moderados; límite gradual.

$B_3$ 50-65 cm+; 2.5YR 4/8; moteados 7.5YR 5/8; arcilloso; bloques pequeños moderados; firme.

| HTE | pH | | C | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_1$ | 3.7 | 3.5 | 1.73 | 0.25 | 2 | 9 | 85 |
| $A_3$ | 4.2 | 3.6 | 0.83 | 0.16 | 1 | 8 | 89 |
| $B_1$ | 4.6 | 3.6 | 0.62 | 0.12 | 1 | 7 | 91 |
| $B_2$ | 4.6 | 3.5 | 0.55 | 0.13 | 1 | 4 | 95 |
| $B_3$ | 4.9 | 3.4 | 0.41 | 0.11 | 1 | 4 | 96 |

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Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca + Mg | K | Na | H | Al | TBI | CIC |
| 0.9 | 0.10 | 0.01 | 4.4 | 5.8 | 1.0 | 11.2 |
| 0.6 | 0.05 | 0.01 | 2.5 | 5.4 | 0.7 | 8.6 |
| 0.5 | 0.04 | 0.01 | 1.3 | 6.4 | 0.6 | 8.3 |
| 0.4 | 0.04 | 0.01 | 1.9 | 10.1 | 0.5 | 12.5 |
| 0.4 | 0.08 | 0.01 | 2.1 | 11.1 | 0.5 | 13.7 |

## SISTEMA DE TIERRA 825, Faceta 1

Clasificación: Paleudult típico, franco fino, siliceo, isohipertérmico.

Localización: Perfil YU-13, Estación Experimental Yurimaguas, Perú.

Fuente: Tyler, E.J. 1975. Ph.D. Thesis, North Caroline S.U. USA. (42).

| Prof. HTE (cm) | pH $H_2O$ | Arcilla | Arena | C % | COMPLEJO DE CAMBIO | | | | | S.Al |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Ca | Mg | K | Al | CIC | % |
| 0-5 | 3.8 | 6 | 80 | 1.3 | 0.84 | 0.37 | 0.20 | 2.0 | 3.4 | 59 |
| 5-13 | 3.7 | 10 | 70 | 0.8 | 0.05 | 0.03 | 0.04 | 2.6 | 2.7 | 96 |
| 13-43 | 3.9 | 15 | 61 | 0.4 | 0.05 | 0.03 | 0.03 | 3.1 | 3.2 | 96 |
| 43-77 | 4.0 | 17 | 57 | 0.3 | 0.03 | 0.02 | 0.02 | 3.1 | 3.2 | 97 |
| 77-140 | 4.1 | 25 | 51 | 0.2 | 0.03 | 0.01 | 0.03 | 4.5 | 4.6 | 98 |
| 140-200 | 4.4 | 24 | 54 | 0.2 | 0.06 | 0.03 | - | 3.8 | 3.9 | 96 |

## SISTEMA DE TIERRA 826, Faceta 1

Clasificación: Paleudult ácuico, arcilloso, caolinítico, isohipertérmico.

Localización: Perfil P-2, Serie Pucallpa, IVITA, Pucallpa, Perú.

Fuente: Sánchez, P. et al. 1975. En: Investigaciones Agropecuarias, Vol.V, pág.77. (43).

| Prof. HTE (cm) | pH $H_2O$ | Arcilla | Arena | M.O. % | S.B. % | P ppm |
|---|---|---|---|---|---|---|
| 0-3 | 5.2 | 27 | 35 | 6.3 | 97 | 2 |
| 3-21 | 4.3 | 45 | 17 | 1.9 | 49 | 1 |
| 21-62 | 4.2 | 59 | 15 | 1.0 | 19 | 1 |
| 62-+ | 4.1 | 57 | 21 | 0.5 | 11 | 1 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | |
|---|---|---|---|---|
| Ca | Mg | K | Al | CIC |
| 4.2 | 2.1 | 0.52 | 0.2 | 7.1 |
| 2.2 | 1.2 | 0.40 | 4.0 | 7.9 |
| 0.8 | 0.9 | 0.32 | 8.7 | 10.8 |
| 0.4 | 0.7 | 0.24 | 11.6 | 13.1 |

## SISTEMA DE TIERRA 826, Faceta 2

Clasificación: Tropaquept aérico.

Localización: Río Abujao, (parte baja), región de Pucallpa, Perú.

Fisiografía: Terraza plana inundable

Drenaje: Imperfecto.

Vegetación: Purma.

Mat. Originario: Aluvial reciente del río Abujao.

Fuente: ONERN, 1978. Inventario Recursos zona Pucallpa-Abujao, Lima, Perú. Pág. 85/6. (4).

$A_1$ 0-15 cm. 10YR 5/6; franco arcilloso; bloques finos débiles; límite claro.

$A_3$ 15-40 cm. 7.5YR 5/6; franco arcilloso; bloques medios moderados; moteados 2.5YR 3/6 (5%); límite claro.

($B_{21}g$) 40-65. 5Y 6/1; arcilloso; bloques medios moderados; moteados 5YR 4/6 (20%); límite claro.

($B_{22}g$) 65-100 cm+. 5Y 6/1; gris claro; masivo; arcilloso; 60% moteados 2.5YR 3/6.

| HTE | pH $H_2O$ | C % | N % | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|
| $A_1$ | 4.7 | 1.0 | 0.08 | 2.0 | 44 | 46 |
| $A_3$ | 4.6 | 0.8 | 0.06 | 0.5 | 38 | 57 |
| $B_{21}g$ | 4.6 | 0.6 | 0.05 | 0.5 | 36 | 62 |
| $B_{22}g$ | 4.5 | 0.5 | 0.03 | 0.5 | 35 | 38 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | Al | TBI | CIC |
| 3.20 | 0.47 | 0.13 | 0.07 | 3.2 | 3.87 | 8.80 |
| 2.60 | 0.89 | 0.22 | 0.06 | 5.0 | 3.77 | 9.92 |
| 4.00 | 0.96 | 0.32 | 0.10 | 8.6 | 5.38 | 14.80 |
| 6.20 | 0.62 | 0.32 | 0.12 | 4.4 | 7.26 | 20.64 |

## SISTEMA DE TIERRA 828, Faceta 2

Clasificación: Tropofluvent.

Localización: Al sur de Puerto Bermúdez, margen derecha del río Yanizu, Perú.

Fisiografía: Terraza no inundable.

Topografía: Plana, pendiente 0-5%.

Vegetación: Monte virgen y pocos cultivos.

Mat. Originario: Aluviones (limos, arcillas).

Fuente: ONERN, 1970. Inventario de Recursos zona Villa Rica-Puerto Pachitea, Serie Honoria, pág.6 y 22 (44).

$A_1$ 0-15 cm. 7.5YR 3/2; franco arcilloso; bloques medios débiles; abundantes raíces; límite difuso.

AC 15-55 cm. 5YR 3/4; franco arcillo limoso; masivo; comúnes raíces; límite difuso.

C 55-110 cm. 5YR 3/4; arcillo limoso; masivo, friable a firme.

| HTE | pH | C % | M.O. % | N % | C/N | $P_2O_5$ kg/Ha |
|---|---|---|---|---|---|---|
| $A_1$ | 6.5 | 3.77 | 6.5 | 0.30 | 13 | 20 |
| AC | 6.9 | 1.39 | 2.4 | 0.11 | 12 | 20 |
| C | 6.8 | 0.98 | 1.7 | 0.06 | 16 | 34 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | |
|---|---|---|---|---|
| Ca | Mg | K | Na | CIC |
| 10.2 | 1.0 | 0.18 | 0.24 | 18.10 |
| 7.2 | 0.4 | 0.12 | 0.20 | 12.50 |
| 6.4 | 1.4 | 0.09 | 0.16 | 11.20 |

## SISTEMA DE TIERRA 832, Faceta 2

Clasificación: Tropofluvent éutrico.

Localización: Margen derecha parte media río De Las Piedras, Perú.

Fisiografía: Terraza baja.

Topografía: Plana 0-2% pendiente.

Mat. Originario: Aluvial.

Vegetación: Monte alto y palmeras de huicungo, shapajana y palmeras.

Fuente: ONERN, 1972. Inventario Recursos zona Inambari-Madre de Dios, Lima, Perú. Serie de Las Piedras, pág. 28/9. (45).

$A_1$ 0-20 cm. 7.5YR 3/2; franco; masivo; comúnes raíces, límite difuso.

AC 20-50 cm. 7.5YR 4/4; franco arenoso; masivo; comúnes raíces; límite claro.

C 50-200 cm. 7.5YR 6/2; arenoso; grano simple; pocas raíces.

| HTE | pH | M.O. % | N % | $P_2O_5$ kg/ha | Arena | Limo | Arcilla |
|---|---|---|---|---|---|---|---|
| $A_1$ | 5.6 | 5.51 | 0.27 | 52.1 | 36 | 37 | 27 |
| AC | 5.8 | 0.89 | 0.04 | 7.7 | 64 | 19 | 17 |
| C | 6.0 | 0.69 | 0.03 | 12.5 | 92 | 3 | 5 |

Cont.

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | |
|---|---|---|---|---|
| Ca | Mg | K | Na | CIC |
| 16.20 | 1.39 | 0.54 | 0.24 | 18.37 |
| 7.10 | 1.34 | 0.10 | 0.12 | 8.66 |
| 2.20 | 0.72 | 0.04 | 0.07 | 3.03 |

## SISTEMA DE TIERRA 833, Faceta 1 (distrófica)

Clasificación: Rhodudult típico.

Localización: Zona Pacarán, Depto. Madre de Dios, Perú.

Fisiografía: Lomada.

Pendiente: 15%.

Vegetación: Palo Bastón, azúcar huayo, shiringa y paca.

Mat. Originario: Residual de areniscas rojas, siliceas y lutitas plásticas.

Fuente: ONERN, 1977. Inventarios Recursos zona Iberia - Iñapari, pág.111 (46).

$A_1$ 0-15 cm. 5YR 3.5/4; franco; granular media débil; límite gradual.

$A_3$ 15-30 cm. 5YR 5/6; franco; bloques medios débiles; límite gradual.

$B_{21}t$ 30-45 cm. 2.5YR 3.5/6; franco arcilloso; bloques medios moderados; límite difuso.

$B_{22}t$ 45-70 cm. 2.5YR 3/6; arcilloso; bloques medios fuertes; límite difuso.

C 70-100 cm. 2.5YR 3/6, moteados 2.5YR 5/2; arcilloso, masivo; muy firme.

| HTE | pH | C % | N | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|
| $A_1$ | 4.2 | 1.91 | 0.144 | 4.8 | 85 | 15 |
| $A_3$ | 4.7 | 1.28 | 0.106 | 1.8 | 49 | 54 |
| $B_{21}$ | 4.8 | 0.59 | 0.045 | 0.9 | 31 | 63 |
| $B_{22}$ | 4.8 | 0.55 | 0.040 | 1.8 | 35 | 54 |
| C | 5.0 | 0.23 | 0.017 | 1.9 | 28 | 75 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | H | Al | TBI | CIC |
| 2.80 | 0.30 | 0.18 | 0.02 | 0.25 | 0.35 | 3.55 | 3.90 |
| 0.80 | 0.30 | 0.09 | 0.02 | 0.05 | 1.20 | 1.26 | 2.46 |
| 0.60 | 0.38 | 0.13 | 0.02 | 0.20 | 2.30 | 1.13 | 3.63 |
| 2.00 | 0.57 | 0.16 | 0.04 | 0.30 | 4.30 | 2.77 | 7.97 |
| 1.80 | 0.67 | 0.18 | 0.07 | 0.25 | 6.75 | 2.72 | 9.69 |

## SISTEMA DE TIERRA 833, Faceta 1 (eutrópica)

Clasificación: Tropudalf típico.

Localización: Zona Alerta, Edo. Madre de Dios, Perú.

Fisiografía: Terraza ondulada alta.

Pendiente: 3-6%.

Vegeración: Area rozada, yausaquiro, paca, topa.

Mat. Originario: Aluvial antiguo.

Fuente: ONERN, 1977. Inventario Recursos zona Iberia - Iñapari, pág.102. (46).

$A_1$ 0-10 cm. 7.5YR 4/4; franco; granular fina débil; límite difuso.

$A_3$ 10-30 cm. 7.5YR 4/4; bloques finos débiles; franco; límite claro.

$B_2t$ 30-60 cm. 5YR 5/6; franco a franco arcilloso; bloques medios moderados; límite claro.

C 60-140 cm +. 6YR 4/6; franco arcilloso; masivo; firme.

| HTE | pH | C % | N % | C/N | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 6.2 | 0.75 | 0.06 | 12 | 4.0 | 65 | 14 |
| $A_3$ | 6.3 | 0.48 | 0.03 | 13 | 2.3 | 70 | 7 |
| $B_2t$ | 5.7 | 0.44 | 0.03 | 13 | 1.3 | 65 | 24 |
| C | 4.9 | 0.27 | 0.02 | 13 | 2.0 | 62 | 28 |

Cont.

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | |
|---|---|---|---|---|
| Ca | Mg | K | Na | Al |
| 2.0 | 0.35 | 0.08 | 0.08 | 0.4 |
| 2.0 | 0.38 | 0.10 | 0.05 | 0.2 |
| 2.4 | 0.66 | 0.14 | 0.05 | 1.0 |
| 4.4 | 0.65 | 0.18 | 0.07 | 2.0 |

## SISTEMA DE TIERRA 834, Faceta 1

Clasificación: Tropoudult

Localización: Localidad Atalaya, margen derecha río Tambo, Depto. Loreto, Perú.

Fisiografía: Tierras intermedias de las áreas colinadas.

Relieve: Quebrado a montañoso; 20-50% pendiente .

Vegetación: Monte alto.

Mat. Originario: Arcillas rojo-amarillentas.

Fuente: ONERN, 1968. Inventario Recursos zona Río Tambo - Gran Pajonal. Serie Corrult, pág. 118. (47).

$Ao/A_1$ 0-5 cm. Colchón orgánico muy descompuesto y mezclado con materia mineral.

$A_2$ 5-15 cm. 10YR 3/3; franco; granular, friable; límite claro.

$A_3$ 15-30 cm. 10YR 4/4; franco arcillo arenoso; granular, friable; límite claro.

$B_1$ 30-55 cm. 7.5YR 4/4; franco arcilloso; bloques finos, friables; límite difuso.

$B_{21}$ 55-80 cm. 5YR 4/8; arcilloso; bloques medianos; firme; abundantes clay skins; límite difuso.

$B_{22}$ 80-100 cm. 5YR 5/6; arcilloso; bloques medianos, firmes; abundantes clay skins.

| HTE | pH | C % | N % | C/N | M.O. % | $P_2O_5$ kg/ha | S.B. % |
|---|---|---|---|---|---|---|---|
| $Ao/A_1$ | 4.6 | - | - | - | - | - | - |
| $A_2$ | 4.7 | 1.71 | 0.134 | 12.7 | 2.96 | 45 | 25 |
| $A_3$ | 4.6 | 0.78 | 0.045 | 17.3 | 1.36 | 52 | 26 |
| $B_1$ | 4.6 | 0.64 | 0.040 | 16.0 | 1.10 | 80 | 22 |
| $B_{21}$ | 4.6 | 0.30 | 0.017 | 17.6 | 0.52 | 90 | 15 |
| $B_{22}$ | 4.6 | 0.24 | 0.015 | 16.0 | 0.50 | 95 | 14 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | |
|---|---|---|---|---|
| Ca | Mg | K | Na | CIC |
| - | - | - | - | - |
| 1.20 | 0.46 | 0.40 | 0.10 | 8.48 |
| 1.20 | 0.50 | 0.28 | 0.10 | 8.00 |
| 1.20 | 0.29 | 0.30 | 0.12 | 9.12 |
| 1.80 | 0.46 | 0.26 | 0.30 | 18.64 |
| 1.80 | 0.40 | 0.20 | 0.25 | 18.60 |

## SISTEMA DE TIERRA 835, Faceta 1

Clasificación: Tropodult típico.

Localización: Parte alta del río Dorbigni, Depto. Madre de Dios, Perú.

Fisiografía: Colinas bajas.

Topografía: Quebrada, 40% pendiente.

Vegetación: Anoniya, cetico, ubilla, misa, remocapsi, helechos.

Mat. Originario: Sedimentarios.

Fuente: ONERN, 1972. Inventario Recursos Inambari, Madre de Dios, Serie Astillero, pág.38. (45).

$A_1$ 0-20 cm. 5YR 4/6; franco arenoso; granular, friable; abundantes raíces; límite difuso.

$B_1$ 20-50 cm. 5YR 4/4; franco arcilloso; masivo, friable; comúnes raíces; límite difuso.

$B_2$ 50-130 cm. 5YR 4/6; franco arcilloso; masivo, firme; límite difuso.

$B_3$ 130-180 cm. 2.5YR 4/6; franco arcillo arenoso; masivo, firme; límite claro.

C + 180 cm. Esquelético, arcilloso; 70% gravas de 4-6 de longitud.

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| HTE | pH | M.O. % | N % | $P_2O_5$ kg/ha | $K_2O$ kg/ha | S.Al % |
|---|---|---|---|---|---|---|
| $A_1$ | 3.9 | 3.24 | 0.156 | 2.29 | 408 | 73 |
| $B_1$ | 4.4 | 1.10 | 0.048 | 1.14 | 370 | 73 |
| $B_2$ | 5.3 | 0.41 | 0.017 | 1.14 | 310 | 71 |
| $B_3$ | 4.3 | 0.41 | 0.015 | 0.70 | 370 | 75 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | |
|---|---|---|---|---|---|
| Ca | Mg | K | Na | Al | CIC |
| 0.80 | 0.17 | 0.04 | 0.06 | 3.00 | 4.07 |
| 0.80 | 0.17 | 0.10 | 0.04 | 3.35 | 4.46 |
| 1.20 | 0.16 | 0.04 | 0.08 | 3.80 | 5.28 |
| 0.60 | 0.09 | 0.03 | 0.03 | 2.25 | 3.00 |

## SISTEMA DE TIERRA 836, Faceta 2

Clasificación: Tropofluvent típico.

Localización: Margen izquierda del alto río Molimowsky, Depto. Madre de Dios, Perú.

Fisiografía: Terraza baja inundable.

Vegetación: Monte virgen arboreo y palmeras (pona).

Mat. Originario: Aluvial.

Fuente: ONERN, 1972. Inventario Recursos zona Inambari - Madre de Dios. Serie Malimowsky, pág.29. (45).

$A_1$ 0-10 cm. 7.5YR 4/4; franco arenoso; sin estructura; comúnes raíces; límite difuso.

$C_1$ 10-80 cm. 7.5YR 4/4; franco arenoso, sin estructura, friable; comúnes raíces; límite claro.

$C_2$ 80-140 cm. 10YR 5.5/6; arenoso; sin estructura; friable.

| HTE | pH | M.O. % | N % | $P_2O_5$ kg/ha | $K_2O$ kg/ha | S.Al % |
|---|---|---|---|---|---|---|
| $A_1$ | 5.0 | 5.65 | 0.242 | 19.69 | 408 | - |
| $C_1$ | 4.4 | 0.55 | 0.027 | 1.60 | 370 | 51 |
| $C_2$ | 4.9 | 0.28 | 0.008 | 32.06 | 272 | - |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | |
|---|---|---|---|---|---|
| Ca | Mg | K | Na | Al | CIC |
| 3.60 | 1.08 | 0.13 | 0.10 | 0.20 | 5.11 |
| 0.80 | 0.27 | 0.06 | 0.04 | 1.20 | 2.37 |
| 0.60 | 0.09 | 0.04 | 0.02 | 0.55 | 1.30 |

## SISTEMA DE TIERRA 836, Faceta 1

Clasificación: Tropofluvent.

Localización: Quebrada Capitiari, entre el codo del río Tambo y Atalaya, Depto. Loreto, Perú.

Fisiografía: Terrazas intermedias no inundables.

Topografía: Suave, pendiente 0-2%.

Vegetación: Monte alto.

Mat. Originario: Aluvial moderno.

Drenaje: Bien drenado.

Fuente: ONERN, 1968. Inventario Recursos zona río Tambo - Gran Pajonal, Serie Teresita, pág.169. (47).

$A_1$ 0-5 cm. 10YR 3/2; franco; límite claro.

$C_1$ 5-20 cm. 10YR 4/2; franco arenoso; granular; muy friable; límite claro.

$C_2$ 20-70 cm. 7.5YR 4/4; franco limoso; friable; límite difuso.

$C_3$ 70-100 cm. 7.5YR 5/4; arenoso franco; muy friable.

| HTE | pH | C % | M.O. % | N % | C/N % | $P_2O_5$ kg/ha | S.B. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 7.0 | 2.40 | 4.14 | 0.135 | 17.7 | 80 | 80 |
| $C_1$ | 6.2 | 0.10 | 0.17 | 0.006 | 16.7 | 40 | 89 |
| $C_2$ | 6.7 | 0.66 | 1.14 | 0.074 | 8.9 | 35 | 92 |
| $C_3$ | 6.5 | 0.09 | 0.16 | 0.005 | 18.0 | 60 | 99 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | |
|---|---|---|---|---|
| Ca | Mg | K | Na | CIC |
| 9.00 | 1.20 | 0.80 | 0.28 | 14.0 |
| 3.80 | 0.52 | 0.48 | 0.08 | 5.4 |
| 11.20 | 1.25 | 0.42 | 0.18 | 14.1 |
| 9.80 | 1.25 | 0.36 | 0.14 | 11.6 |

## SISTEMA DE TIERRA 839, Faceta 1

Clasificación: Eutropept líticos.

Localización: Serie Peca (símbolo PA en el mapa), Depto. Loreto, Perú. (Zona Río Tambo - Gran Pajonal).

Fisiografía: Ladera y cima de cerros.

Pendiente: Muy empinada 50-70%.

Mat. Originario: Calizas.

Vegetación: Bosque subtropical.

| HTE | pH | M.O. % | C % | N % | C/N | $P_2O_5$ kg/ha | S.B. % |
|---|---|---|---|---|---|---|---|
| $A_1$ | 6.3 | 5.90 | 3.42 | 0.333 | 10.36 | 30 | 61 |
| AC | 6.2 | 0.80 | 0.46 | 0.039 | 11.79 | 26 | 54 |
| Cca | 8.2 | - | - | - | - | - | - |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | |
|---|---|---|---|---|
| Ca | Mg | K | Na | CIC |
| 12.00 | 1.30 | 0.60 | 0.35 | 23.3 |
| 9.80 | 1.40 | 1.00 | 0.45 | 23.3 |
| 20.00 | 4.00 | 0.20 | 0.50 | - |

## SISTEMA DE TIERRA 847, Faceta 1

Clasificación: Eutropept.

Localización: Serie Ebrón, zona Ceneapa - Alto Marañón, Depto. Amazonas, Perú.

Fisiografía: Colinas.

Topografía: Moderado a muy empinado, pendiente 15-70%.

Mat. Originario: Residual (lutitas y areniscas de grano fino).

Fuente: ONERN, 1976. Inventario Recursos zona Ceneapa - Alto Marañón. (39).

$O_1$ 2-0 cm. Restos orgánicos parcilamente descompuestos.

$A_1$ 0-10 cm. 10YR 3.5/3; franco; granular, medio, moderada; friable; abundantes raíces; límite gradual.

$A_3$ 10-20 cm. 10YR 4/4; franco arcilloso; masivo, firme; comúnes raíces; límite gradual.

B 20-45 cm. 10YR 5/6; franco arcilloso; bloques medios, débiles; escasas raíces; límite gradual.

C 45-70 cm. 10YR 6/4; franco arcilloso; masivo, límite claro.

CR 70-110 cm. Lutitas en estado de descomposición, color gris claro (10YR 7/2).

| HTE | pH | C % | N % | $P_2O_5$ ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|
| $A_1$ | 5.1 | 4.0 | 0.315 | 4.7 | 77 | 2 |
| $A_3$ | 5.4 | 2.2 | 0.169 | 0.6 | 71 | 15 |
| B | 5.6 | 0.7 | 0.053 | 0.3 | 49 | 41 |
| C | 5.5 | 0.6 | 0.051 | 0.3 | 47 | 50 |
| CR | 6.4 | 0.6 | 0.048 | 0.4 | 97 | 0 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | Al | TBI | CIC |
| 17.20 | 1.08 | 0.48 | 0.22 | 0.4 | 18.98 | 20.39 |
| 12.80 | 0.98 | 0.88 | 0.18 | 2.6 | 14.84 | 17.44 |
| 7.40 | 0.98 | 0.62 | 0.14 | 6.8 | 9.14 | 15.86 |
| 8.40 | 1.18 | 0.39 | 0.20 | 10.0 | 10.16 | 20.16 |
| 8.20 | 0.72 | 0.50 | 0.08 | 0.0 | 9.50 | 9.50 |

## SISTEMA DE TIERRA 850, Faceta 1

Clasificación: Tropaquept.

Localización: Km 7 de la carretera Marginal de la Selva, Parcela CF-3-4, a 98 km de Tingo María, Depto. Huanuco, Perú.

Fisiografía: Terraza plana pobremente drenada, no inundable.

Mat. Originario: Aluviones recientes.

Drenaje: Imperfecto a pobre.

Vegetación: Bosque primario de aguaje, ojé, huimba.

Fuente: Gobert Paredes Arce, Agosto 16, 1974 (mecanografía).

$A_{11}$ 0-5 cm. 7.5YR 3/2; granular, medio, débil; franco; friable; abundantes raíces; límite claro.

$A_{12}$ 5-15 cm. 5YR 4/2; franco; granular medio moderado; regulares raíces; límite gradual.

AC 15-25 cm. 7.5YR 5/4; franco; masivo; escasas raíces; moteados 7.5YR 6/8 y 2.5YR 4/8; límite gradual.

$C_1g$ 25-50 cm. 10YR 5/4; franco arcilloso; masivo, firme; sin raíces, abundantes moteados.

| HTE | pH | | M.O | N | P | S.B. | S.Al |
|---|---|---|---|---|---|---|---|
| | $H_2O$ | KCl | % | % | ppm | % | % |
| $A_{11}$ | 4.4 | 3.8 | 8.16 | 0.33 | 17.6 | 42 | 58 |
| $A_{12}$ | 4.3 | 3.6 | 7.72 | 0.32 | 15.4 | 30 | 69 |
| AC | 5.2 | 4.3 | 2.89 | 0.13 | 12.0 | 20 | 79 |
| $C_1g$ | 5.3 | 4.2 | 0.69 | 0.03 | 10.7 | 18 | 81 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | | |
|---|---|---|---|---|---|---|
| Ca | Mg | K | Na | Al | TBI | CIC |
| 2.40 | 0.17 | 0.04 | 0.03 | 3.6 | 2.64 | 11.52 |
| 1.80 | 0.11 | 0.02 | 0.02 | 4.4 | 1.95 | 13.12 |
| 1.20 | 0.05 | 0.02 | 0.02 | 5.0 | 1.29 | 8.32 |
| 1.20 | 0.05 | 0.02 | 0.04 | 5.6 | 1.31 | 8.16 |

## SISTEMA DE TIERRA 854, Faceta 1

Clasificación: Tropudalf típico.

Localización: Iberia, Depto. Madre de Dios, Perú.

Fisiografía: Colina ligeramente disectada.

Pendiente: 20%.

Mat. Originario: Areniscas, lutitas, limolitas.

Vegetación: Plátano, yuca y shapaja.

Fuente: ONERN, 1977. Inventario Recurso zona Iberia - Iñapari, pág. 103. (46).

$A_1$ 0-20 cm. 10YR 4/4; franco arcillo limoso; bloques finos débiles; límite claro.

$B_2t$ 20-60 cm. 5YR 4/6; arcilloso; bloques medios moderados; límite claro.

$B_3$ 60-85 cm' 7.5YR 4/4; moteados 5YR 4/6; arcilloso; bloques medios débiles; límite gradual.

C 85-140 cm. 2.5Y 5/4; arcilloso; masivo; reacción ligera al HCl.

| HTE | pH | C % | N % | P ppm | S.B. % | S.Al % |
|---|---|---|---|---|---|---|
| $A_1$ | 5.2 | 1.87 | 0.144 | 3.6 | 88 | 0 |
| $B_2t$ | 5.1 | 0.44 | 0.035 | 1.3 | 40 | 40 |
| $B_3$ | 5.4 | 0.19 | 0.016 | 0.6 | 62 | 5 |
| C | 7.5 | 0.12 | 0.008 | 1.3 | 100 | 0 |

Cont.

| COMPLEJO DE CAMBIO (meq/100 g) | | | | | |
|---|---|---|---|---|---|
| Ca | Mg | K | Na | Al | CIC |
| 9.20 | 0.62 | 0.14 | 0.06 | 0 | 11.36 |
| 9.40 | 0.70 | 0.04 | 0.12 | 6.8 | 25.84 |
| 13.60 | 0.76 | 0.26 | 0.16 | 0.8 | 23.68 |
| 20.20 | 0.64 | 0.16 | 0.19 | 0 | 21.12 |