

## PROGRESS REPORT No. 15 :

PROJECT : AGRICULTURAL TECHNOLOGY DEVELOPMENT IN PANAMA

CONTRACT : USAID/PANAMA No. 525-0180-C-00-2015

PERIOD : JANUARY 1 TO MARCH 31, 1986

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This report is submitted as part of the requirements of the USAID contract on the project "Agricultural Technology Development in Panama" for the Technical Assistance component and provided by Rutgers University to IDIAP. Activities and accomplishments of the project and the Technical Assistance component for the period covered between January 1 and March 31, 1986, are described here, in detail.

This report is subdivided into five main sections following the reports from each of five (5) specialists components of the Rutgers Technical Assistance Team. This sections are:

- I. Tropical Pastures, Dr. Pedro Argel
- II. General Agronomy, Dr. Mark Gaskell
- III. Soil Fertility and Management, Dr. Alvaro Cordero
- IV. Livestock Production, Dr. José Zorrilla-Ríos
- V. Agricultural Research Administration and Management, Dr. Carlos A. Neyra.

ATD - PANAMA PROJECT  
CONTRACT No. 525-0180-C-00-2015  
REPORT No.15

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I. TROPICAL PASTURES

DR. PEDRO J. ARGEL

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PROGRESS REPORT  
FOR THE PERIOD JANUARY 1-MARCH 31, 1986

Pedro J. Argel  
Pasture Specialist

A. BACKGROUND

Forage species under evaluation during the last three years in Panamá, have had the opportunity of going thru distinct periods of drought and show their potential of adaptation and production under different conditions. Forage legumes of the genus *Centrosema*, such as *C. macrocarpum*, continue to show high tolerance to drought and great capacity for foliage retention during much part of the dry season, this characteristic places definitely the species as highly promising, and merits the continuation within the evaluation process.

Other forages of the genus *Brachiaria*, such as *B. dictyoneura* 6133 and other varieties of *B. humidicola*, have shown and confirmed as well, their high adaptation potential and production the year round. For this reason forage evaluations focus progressively toward specific species in terms of agronomy, seed production and persistence under grazing. Advances observed during the present cycle are given in this report.

B. GERMOPLASM

Period of this report covers the dry season time all over Panama,

that is characterized by absence or little rain occurrence and the presence and constant winds from the north. This is the more critical period for livestock production because scarcity of feed for the animals, since the traditional forage species in use such as Faragua (H. rufa), Ratana (I. ciliaris) and other natives, complete their growth cycle, become dry and offer very little feed or of a low quality to the animals.

Obviously that forage species with a more prolonged growth cycle and better tolerance to drought, have advantages as to offer forage of good quality up to well advanced the dry season. Within the grasses Andropogon gayanus, has shown advantage in this sense over Faragua, mainly in the Central Provinces of Panamá, where the effect of the dry season is more pronounced. Some cattle farms with appreciable quantities of this species in the area of Los Santos continue the milking of cows during a good time of the dry season, meanwhile that neighbors of the same farms have to suspend totally this activity because basic problems of nutrition.

Other grasses under experimentation that have shown good tolerance to dry conditions are Brachiaria humidicola 6369, 6707 and B. dictyoneura 6133. Observations are carried out in experiments established in Gualaca, Finca Chiriqui, Calabacito, Soná, Los Santos, Penoncón and Chepo. These species have been considered for more advanced agronomic evaluations such as response to fertilizers and dry matter yield. During the present dry season experiments were planned to be carried out at Gualaca, Finca Chiriqui and Calabacito, that consist of 5 levels of nitrogen (N), 5 of

phosphorus (P) and 5 of sulphur (S) in a factorial San Cristobal type of experiment. Arrangements are made presently for the establishment of these trials.

The experiment of agronomic evaluation (ERB) established in Rio Hato, was evaluated by cutting every 3, 6, 9 and 12 weeks during the dry season, and that correspond to evaluations of minimum rainfall period. Data are in the process of tabulation but it can be pointed out the good performance of Centrosema macrocarpum 5062, 5065, 5434 and 5478; as well as C. pubescens 438, 5189 and 5126. Other outstanding legumes were Stylosanthes guianensis 136 and 184, as well as Kudzu. Poor performance had S. capitata 10280, S. macrocephala 2133 and 1643, as well as Neonotonia wightii 216. S. hamata 118, 147 and S. sympodialis 1044 were of intermediate yield. The evaluation cuts, carried out at 10-15 cm height, did not affect survival of S. guianensis plants, that contrast with observations carried out elsewhere, however regrowth density was greater in S. guianensis 184.

Outstanding grasses were A. gayanus 621 and 6200 for their ability to regrowth following cuts every 3 weeks. H. rufa, D. swazilandensis, B. humidicola and B. decumbens, reduced significantly their yield under the 3 same cutting regime. Toward the end of the dry season only A. gayanus showed green foliage material, although in low proportion.

### C. SEED PRODUCTION

The larger quantity of seed produced during the present cycle of

dry season corresponded to A. gayanus (Veranero), and reflects the continuous efforts accomplished by IDIAP to offer sufficient quantities of basic seed to commercial producers. Seed volumes and production sites are given as follow:

<u>SITE</u>	<u>AREA (ha)</u>	<u>YIELD (Kg/ha)</u>	<u>TOTAL HARVEST (Kg)</u>
Finca Chiriquí	1.3	190	247
Río Hato	1.0	250	250
Soná	1.0	355	355
Los Santos (Chupaito)	3.0	182	<u>546</u>
		TOTAL	1,390

This seed harvested by the Institute complements the species general seed supply, since numerous commercial farmers are producing moderately amounts of seed, which has increased substantially the supply of seed during the last year. In the near future the responsibility for seed production of this species will be less on IDIAP and continue to growth more with private farmers.

Forty kilograms of clean seed was harvested of Tropical Kudzú at the substation of Calabacito, showing the feasibility of producing seed of this species in the area. Similarly Centrosema macrocarpum increased this year yields to 60 Kg/ha in the third year of harvest in Gualaca, to give a total of 24 Kg of clean seed. However the harvested ecotype (CIAT 5065) will be eliminated and replaced by others more promising and

vigorous such as CIAT 5062 and 5434.

#### D. PASTURE EVALUACION

The more advanced grazing experiment is the one related to pasture persistence (ERC), established jointly with the Faculty of Agriculture in Chiriquí. Grazing with cross-bred Brahman heifers was initiated at the end of 1985 and continued during all the dry season of 1986. Some problems arose regarding animal management and inefficiencies in water supply, but in general the experiment evolved within the proposed objectives. Table 1 summarized the evolution of the animals with relation to liveweight variations. As expected, the grass-legume mixtures increased the animal liveweight during the wet season (130 days grazing). The variation range was 39.5 lb of liveweight gain for the mixture H. rufa + Capica, up to 125.0 for the same grass with C. macrocarpum 5065. It is worth mentioning that H. rufa had a less proportion of total biomass in the first mixture mentioned and that could count in part for the low levels of liveweight gain observed, and in fact toward the end of the dry season, it was necessary to reduce the stocking rate by half in this mixture because of low forage availability.

Liveweight gains observed with A. gayanus were similar in both mixtures, however the proportion of C. macrocarpum was significantly low and had basically pure grass. This is better reflected in a major weight loss experienced by the animals during the dry season in that mixture.

TABLE 1. LIVELWEIGHT VARIATIONS OF CROSSBRED  
HEIFERS GRAZING SEVERAL PASTURE MIXTURES  
(ERC FACULTY OF AGRICULTURE), CHIRIQUÍ 1986

PASTURE (MIXTURE)	LIVELWEIGHT CHANGES (LBS)	
	Wet season(130 days)	Dry season(79 days)
1. <u>A. gayanus</u> 621+S. <u>Capitata</u> 'Capica'	+ 84.0	- 17.0
2. <u>A. gayanus</u> 621+C. <u>macrocarpum</u> 5065	+ 81.5	- 30.0
3. <u>H. rufa</u> + <u>C. macrocarpum</u> 5065	+125.0	- 23.0
4. <u>H. rufa</u> + Capica	+ 39.5	- 58.0
5. <u>B. humidicola</u> + Kudzú	+ 70.5	+ 13.0

The only mixture where animals did not lose weight during the dry season (79 days), was B. humidicola + Tropical Kudzu. In winter (wet season) this mixture gave intermediate liveweight gains, but it continued in good shape during the dry season and animal liveweight averaged 13 lb; this contrasts with other mixtures that gave negative values of liveweight, particularly the mixture H. rufa + Capica.

Grazing was suspended in this trial toward the end of the dry period because an uncontrolled accidental fire burnt three paddocks. Replanting has been made and is expected to continue the evaluations by the middle of the year. It is worth pointing out that treatment effects, mainly relative to stocking rate, were evident as to affect biomass availability and botanical composition of the pasture; a less stocking rate effect was observed in the mixture B. humidicola - Kudzu, and a significant effect in A. gayanus - Capica.

#### E. FUTURE PLANS

Future plans contemplate the following up of old and new experiments programmed for the year 1986. In total there are 36 experimental activities approved in the annual programming of IDIAP (PCA) for 1986 in the localities of Bugaba, Gualaca, Finca Chiriquí, Calabacito, Los Santos, Soná, Penonomé, Chepo, Divisa, Río Hato and Las Pavas. The activities contemplate experimentation and seed production of promising species, agronomic trials and species adaptation, weed control trials and species evaluation under grazing.

Advances continue in the programming of a workshop on management of acid soils and pasture establishment, to be carried out in collaboration with CIAT during the week 6-10 October of this year. This workshop will be divided into sessions on soil fertility, soil pH, soil planting and topic definitions respectively. The coming months will be of activities in this regard.

II. GENERAL AGRONOMY

DR. MARK GASKELL

RE.: PROGRESS REPORT No. 15

## PROGRESS REPORT

for the period January 1, 1986 - March 31, 1986

Dr. Mark Gaskell, General Agronomist

## A. BACKGROUND

Work activities during the reporting period were concentrated in the onion research program in the highlands. The onion research program is a relatively new program, initiated by IDIAP under Dr. Gaskell's direction in the highlands in 1983. Onions in Panama are produced primarily in the highland areas around Cerro Punta and Boquete and in the lowlands areas around Chitre and Los Santos. Production of onions has traditionally been limited to a harvest period during the dry season from February to May. Since the beginning, the research effort in the highlands has concentrated on improving onion production during the rainy season as a means of expanding production opportunities for Panamanian producers and decreasing onion imports.

In August of 1985, IDIAP named a new researcher Ing. Esteban Sanchez, to work in the onion program in the highlands. Since that time, Dr. Gaskell has been working closely with Ing. Sanchez to familiarize him with onion production patterns, with some of the primary limiting factors in onion production, and with the general focus of the research program. Plans are underway for Ing. Sanchez to have primary responsibility for the highlands onion research effort beginning with the 1986 Annual Plan. Dr. Gaskell will continue to collaborate on several onion experiments and to provide advice and guidance in the management of the research program.

## B. ACTIVITIES DURING THE REPORTING PERIOD

## Onion Agronomic Problems

Several of the experiments underway were harvested during January, February and March. Onion varietal trials established on the Martinez Farm in Alto Trivaldo (Cerro Punta) in June, 1985 were harvested in February/ March (Table 1). The accumulated results show a consistent advantage to planting the precocious and more uniform varieties such as Granex 33 and Dessex under highland conditions - both in the rainy season and under traditional planting conditions. Other varieties which consistently stand out also include Yellow Granex, Granex 429 and Henry's Special. The Australian varieties Tropic Brown and Gladalan Brown also appear promising but need further testing. The recently evaluated variety Early Lockyer Brown from Australia also looks promising particularly in light of its extreme earliness and uniform maturity. Ing. Sanchez and Dr. Gaskell have summarized these results in onion varietal recommendations to IDIAP's Crops Research Director and have prepared a draft

Table 1. Results of onion varietal yield trials following planting at several dates throughout the year in the highlands of Panama during the 1983-1985 seasons. In each case the trials were managed by onion growers under on-farm conditions.

VARIETY	HARVEST DATE (month)							
	1984		1985		1986			
	Sept (a)	Mar (b)	Mar (c)	Sept	Nov (f)	Feb (g)	Mar (h)	Mar (i)
				M.T /	Ha.			
Ringer PRR			45.91		X	36.62	50.18	66.19
Yellow Granex PRR	34.55	37.27^	48.50	49.51^(e)	11.24	37.51	42.90	78.82
Granex 33	45.00	77.72^	56.31	52.70^(d)	14.49	38.01		81.75
Golden PRR			40.45		X	X	28.86	X
Supply					X			49.80
Gold Rush					13.43	23.38	45.50	70.53
Henry's Special PRR			53.68		X	37.48	62.99	65.82
Early Supreme PRR					#	27.93	57.18	
Gladalan Brown					22.12			85.5*
Colossal PRR			38.68		X	X	58.82	
Robust White PRR			30.95		X	23.19	34.99	
Rowcliffe Brown					X			58.21
Early Premium PRR	20.95		30.86		X	25.22	X	
Early Harvest PRR			16.00		X	X		
Ely Lockyer Brown					X			62.91
Burgundy PRR			31.80		X	X	X	
Tropicana PRR			19.70		X	X	X	
El Toro PRR			29.20		X	19.49		
Texspan PRR			19.50		X	X		
Regal PRR					X	X	27.41	46.12
Paradise PRR					X	X		39.61
Special 38					X	41.08	48.18	51.72
Ely Cream Gold					X			7.63
Endeavor					X			17.72
N. Mex. Yellow Grano			39.36		X	X		
Dessex PRR		47.09^			18.24	38.02		81.63
Red Granex PRR	35.41							
Tropic Brown	28.28		39.60					
Granex 429	40.64							
TX1015Y			41.50			42.52	84.91	74.53
Texstar		48.04^						
Tx. Ely Grano 502 PRR			35.09					62.83
Red Creole PRR			19.70					
Rio Grano			40.45					
Houston								53.21*
Brownsville								57.11
LSD (.05)	11.40	15.10	12.30		8.10	12.10		14.20

X= plants not uniformly mature at 150 days post-plant  
 #=formed bulbs but decayed in the field  
 \*= without replication  
 ^= commercial field > 0.1 ha.  
 a) Quiel-Boquete. Transplanted in May, 1984.  
 b) El Salto-Boquete. Transplanted in October, 1984.  
 c) El Salto-Boquete. Transplanted in October, 1984.  
 d) Alto Quiel-Boquete. Transplanted in May, 1985.  
 e) Alto Bambito-Cerro Punta. Planted (bulbs) in May, 1985.  
 f) Quiel-Boquete. Transplanted in August, 1985.  
 g) Alto Trivaldo-Cerro Punta. Transplanted in August, 1985.  
 h) Alto Bambito. Transplanted in October, 1985.  
 i) El Salto-Boquete. Transplanted in November, 1985.

bulletin for onion growers.

The white onion varieties Robust White and Early Supreme have shown good adaptation to the dry season harvest and although there is no domestic Panamanian market for these varieties the potential exists for exporting these onions to the US market from late December until early March. According to weekly reports during that period in the produce industry weekly *The Packer*, prices of Mexican white onions at the Nogales, Arizona crossing in 1986 were frequently in excess of \$30.00/ cwt. at a time when Panamanian yellow onion prices were below \$10.00/cwt. A recent report for USAID reports that products arriving in Miami at a cost equal to the product price in Nogales have an advantage due to the shorter distance from Miami to NE US population centers. Samples of white onions from the 1985/865 varietal trials were sent to US brokers who reported them to be of acceptable quality. Discussions are now underway to initiate a commercial white onion production and export effort in the 1986/87 season.

The varietal trials as a group also serve to illustrate some important negative aspects. There is seed of several yellow onion varieties being sold in the area which are poorly adapted. All of the red onion varieties tested have problems with uniformity of maturity and although some yield well when harvested early, their characteristics would not permit them to be stored for any length of time. It may be that the red onions as a group are better produced in the lowlands. There are much better yielding yellow onion varieties at all times of the year and thus, we cannot recommend the production of red onions to growers in the premium.

In addition to the relative performance of the varieties, the results also show a problem associated with an alternative production pattern proposed at the outset of the onion research program in the highlands. It was felt at the beginning that by earlier planting (May/June instead of July/August), the harvest period could begin earlier (December/January instead of February/March). These trials and other observations during the 1985/86 growing season indicate that this alternative is not feasible in the highlands.

It appears that maturity date in the traditional growing period (January-May) is more a function of the time period (and heat unit accumulation) after the heavy rainfall period of September/October than of total time elapsed in the field. The cloudy and rainy months of September/October do not contribute to onion maturity to the same extent that the high radiation, warmer months of January /February. Thus, development and maturation is slower during those months and maturity takes longer if planted earlier during the rainy season. This limits the harvest period for onion growers in the highlands who do not have irrigation to the period between late January and late September if seedbed irrigation is available.

The yield results of the covered seedbed experiment initiated in June, 1985 on the Cheva Farm in El Asalto (Boquete) was harvested in January. Those results are shown in Figures 1 and 2 along with results of similar previous trials on other farms. The transplant production efficiency results are very similar to previous trials (Fig. 1) and collectively show a striking advantage to the covered seedbed for rainy season transplant production. As expected, the yield results (Figure 2) closely correspond to the number of plants transplanted which follows a similar pattern to the previous trials (Figure 1). The number of transplants produced per gram of seed planted is always higher under cover than in the open and the overall results suggest that the quantity of seed required to transplant a hectare of onions can be cut by one-half and the area required to grow those transplants could also be cut by one-half when the seedbed is covered.

Plans are now underway for the onion research program to collaborate with SENEAGRO specialists in Volcan to evaluate the covered seedbed design in validation experiments on several farms during the 1986 growing season. This will provide the opportunity to continue to evaluate the covered seedbed planting system under a wider range of semi-commercial conditions. It will also be one of the first concrete examples of an IDIAP generated technology being passed to SENEAGRO extensionists for on-farm validation.

Other experiments investigating fertilization efficiency were harvested from two farms during the reporting period. Although the data is still being analyzed, the results indicate the potential for dramatically reducing fertilization rates in onions by applying the fertilizer more efficiently. These initial trials also serve as a basis for designing experiments planned for transplanting in May to investigate the role of nitrogen and phosphorus fertilization on the quality of rainy season onions.

### C. TRAINING

Dr. Gaskell and Ing. Sanchez were invited by the HORTICOLA and AGRICOLA Cooperatives in Boquete to a Field Day on Sunday, March 23 to review the progress of on-farm onion trials for coop members. A group of 12-15 growers attended and expressed interest and satisfaction in the themes discussed. The cooperatives are planning to hold similar events on a more regular basis so that coop member have the opportunity to review and take advantage of the results of the research program.

Dr. Gaskell has organized training sessions to familiarize Ing. Sanchez with the use of a microcomputer to analyze data from the research trials and prepare that data for presentation. One session was held in late March and others are planned as time is available.

III. SOIL FERTILITY AND MANAGEMENT

DR. ALVARO CORDERO

RE.: PROGRESS REPORT No. 15

PROGRESS REPORT N° 3  
ALVARO CORDERO (Ph. D.)  
SOILS SPECIALIST

AGRICULTURAL TECHNOLOGY DEVELOPMENT PROYECT IN PANAMA  
AGREEMENT IDIAP - UNIVERSITY OF RUTGERS - AID

PERIOD: JANUARY, 1 - MARCH, 31, 1986.

A. INTRODUCTION.

The Soils Specialist continued the activities initiated, included in Progress Report Nos. 1 and 2, in which is covered the period from July to December, 1985. During the first quarter, 1986, on the months of January, February and March, the edaphologist of the Project concentrated on the aspects: Training and Technical Assessment (including the Advisory Service - brought to the Soils Laboratory) and to the Research Plan. In the last aspect we collaborated with Eng. Benjamín Name on the harvest of most of the field trials to observe fertility of acid soils that we are carrying out on the Experimental Station of Calabacito, on the province of Veraguas.

During this period, the vehicle of the project marked out to the Soils Specialist was indisposed; we continued the field work, by different means, we arranged a vehicle of IDIAP, Central Region or we had to make use of my proper vehicle to assist for support to the experiments.

## B. TRAINING AND ASSESSORSHIP:

In relation to training activities, we continued with the method of training in service to all the technical personnel who requested advise, in the meantime, they were carrying out their routine research activities. At times these training activities, became transformed in a really Advisory Service when attended the technicals in planning, procedures and discussion of the results of the agricultural experiments focused to soils fertility and fertilization of field crops and pastures. On the following list are technical personnel of IDIAP who are working directly or indirectly in collaboration with the Soils Specialist of the University of Rutgers:

Eng. José A. Aguilar  
Eng. Esteban Arosemena  
Eng. Araiz Cajar  
Eng. Lineth Carranza  
Lic. Ciro de La Victoria  
Lic. Pedro González  
Eng. Jorge González  
Eng. Santander Jaramillo  
Eng. Luisa Martínez  
Eng. Benjamín Name

Eng. Rolando Sánchez Díez

Eng. Alfonso Sing

Eng. Gregorio Quintero

Eng. Lucas Tazón

During the quarter, we revised four documents, two of them were revised previous to be published.

The revised documents are:

- a. We revised the working paper wrote by IDIAP entitled "Proyect of rural development integrated of the Guaymies communities, element of research. Annual Working Plan 1986 (design of Research Program)".

We explaine to Eng. Jorge González and subsequently to his replacement Eng. Gregorio Quintero the suggestions, to improve the contents of the proposal, mainly in relation with the objectives and justification of the problem.

- b. Revision of the rough draft of 2 paper to be published about manioc.
  1. Native drying of manioc, authors José A. Aguilar, Miguel Ríos and Jacinto López.
  2. Manioc agronomic practices for production in Ocu. In the technical revision of this worked Eng. Miguel Ríos and the suscriber, for this reason we made more than three rough drafts.

- c. Eng. Benjamin Name wrote a document entitled "Guide sheet to fertilize field crops based on soils analysis". Due to the importance of this document and to be the first approximation wrote by a technician of IDIAP, the suscriber, on request by the author, prepared an exhaustive revision of the document, with the objective that IDIAP in a near future will present a second approximation more proper and currently to the needs of the farmers (actually). The principal objective is that the producers could fertilize their crop, more reasonable, by making previous soils analysis. In the document we explained with an example a "Guide sheet" to fertilize upland rice, following (nine) different types of recommendations, on basis to the soils analysis and given recommendations which appears on the guide sheet prepared by Eng. Name.
- Considering that the Soils Specialist of the University of Rutgers had included on his working plan to collaborate with IDIAP in advising this document "Guide sheet of Fertilization" we will continue giving assessorship full time on this subject.
- d. Eng. Alexis Miranda A., M.Sc. Head of the Coffee and Cacao Program of MIDA (Ministry of Agricultural Development of the Republic of Panamá) presented to

the Soils Adviser of IDIAP a document to be published entitled "Considerations to the normalization the results of a chemical analysis of soils". The purpose of IDIAP with his Soils Laboratory is a great responsibility with the recommendations on soils aspects; considering that document directly looks upon the soils analysis and the assessorship of the Soils Specialist of the Agreement IDIAP-University of Rutgers included Soils Laboratory we revised the document totally, we suggested corrections by writing                      envoyed to the partner on march 21, of the current year. Subsequently the given suggestions and made the adjoined considerations and the subscriber revised again the document, who thereafter gave the recommendations and the recommendations and the technical article can be published.

- e. Included on the activities of training and technical advisory we revised different profiles of research or documents.
  1. We advised Eng. José A. Aguilar, on the two profiles of research he made; one about liming manioc cultivation and other about fertilization on the same cultivation pointed out on nutriments dose to be employed on the treatments.

2. We advised Eng. Lourdes Charles on profiles of research of irrigated rice with fertilization making use of ammonia sulphate.
3. With partnership of Eng. Benjamin Name, we made a profile of research on soils analysis.
4. Eng. Benjamin Name and the subscriber gave advise to Eng. Rolando Sánchez Díez, Director of the IDIAP, Central Region on the technical redaction of documents about the technical aspects related to a return of contaminated fertilizers that IDIAP bought to COAGRO and by the considerable grade of contamination we can't use it on IDIAP's research work .  
It was the second advisory on this matter, since COAGRO argued they can't receive the fertilizers returned to them. It was requisited entreaty placed before technical aspects to convince them.
5. Lic. Ciro de La Victoria, Director of the Central Region a.i., was advised on the writing of share of the documents, related with soils aspects, and about the of IDIAP concerning the agronomic aspects of the problems on the cultivation of onions in Garicin zone, province of Coclé.

6. Other advisory services we gave to different persons who requested by IDIAP in any form our consultation are the following:
- Technicians of Moore Agricola de Panamá S.A. representatives of the foliage fertilizer Reviva. They offered a collaboration to IDIAP shape the fertilizer could be tried on different cultivations.
  - An student of the University of Panamá, Miss Irene Gallego requested by advisory to write a thesis of grade on basis to research made about testing sorghum on acid soils.
7. Special attention we gave to the Soils Laboratory.

We visited Soils Laboratory in different opportunities with our partner Eng. Benjamín

mist of the Soils Laboratory by means of conversations, we ended that the fault of a spare part to atomic absorption equipment contribute to risk the analytical routine of the service that offer the Laboratory to producers and agricultural technicians. We asked to different members of the IDIAP Staff and explained

the requisit to count the replacement rapidly, but regrettable the Company who is representative of the trademark of atomic absorption had not envoyed the replacement to Panamá. Actually the atomic absorption is working with the capillary in bad conditions, and this damage results in an increasing of the expenditure on full (acetylene) the lamps are more wasted and we observated an expendite of the gasburner on the atomic absorption equipment. Considering the above conditions, we reported to the IDIAP authorities about an eventual suspension of the atomic absorption equipment to avoid anothers damages more dangerous. Since this decision will be take by IDIAP, at least we can't get the replacement replacement rapidly because we considering the consequences it will carry to the analytical resolutions of the soils patterns of the producers.

C. FIELD DAYS, SEMINARIES, CONFERENCES, WORKING REUNIONS AND FIELD TOURS.

January-March, 1986 we went 27 occasions to visit experimental fields; two of them corresponds to Field Days. We dictated a conference and we partii

ticipated on 15 working reunions. The following are the most surpassing:

a. Field Days.

- On february 17, 1986 on the Occident. Region of the IDIAP, in David, they prepared a Field Day on the Experimental Station of Gualaca and on the Experimental Field of Chiriquí to demonstrate to the agricultural representatives of USAID in Panama and the Agricultural Team of Rutgers, the advances of research (principally on livestock aspects) that IDIAP is carrying out in collaboration of the University of Rutgers and under the auspice of USAID funds.
- The Central Region of IDIAP programed on february 25, 1986 a Field Day on Ocú, to demonstrate a manioc cultivation. On that Field Day the Soils Adviser participated as expositor of the partial advances of research on manioc fertilization. On these Field Day participated over 100 persons among producers and technicians of the agricultural and livestock sector.

b. Field Tours.

- On January 17, 1986 joined with Heads of the IDIAP Staff went to the inauguration of San

Sebastian Fair on Ocu. In that fair like in other of the same type, IDIAP arranged a pavilion, where it demonstrated the research advances, by means of a display of photographs, audio-visual aids or agricultural products. In these opportunity we collaborated with the partners of IDIAP on the aspect of mounting visuals aids and product to exhibit.

- Once a fortnight at least we visited adjoined the Agronomist Nelson Gratacós of the MIDA, and with Eng. Benjamín Name the experiment of liming and fertilization of soils for pineapple cultivation. The objectives of those visits were monitoring the experiment with attendance of photographs, and other field operation practices of the experiments as fertilization, irrigation and preliminary valuations etc.
- Like in the past quarters, we visited the Experimental Station of Calabacito in partnership Eng. Benjamín Name. During this quarter the visits were to harvest Colocasia esculenta (tharo) lineages, sorghum and pigeon pea (Cajanus cajan) and maintenance of experiments

- on forestry species and experiments on manioc.
- Aside the field day, we described previously, we traveled in two opportunities to Chiriquí, during each one occasion we talked with Pedro Argel (Ph.D) in reference to the organization of a workshop on management of pastures on the tropics. Also we took advantage in our travels to visit the IDIAP pavilion on the Fair of David.
  - On february 4, 1986 we visited fields of melon of producers, located on the shores of Santa María River, on Coclé with the objectives to diagnostic possible physiological disorders in the cultivation. There were presents the producer, representatives of MIDA, of the BDA and Eng. Benjamín Name of the IDIAP. Since the valuation on the proper field the problems of the cultivation, we can conclude there were troubles about soils compactation, who feign the normal development of roots system. We can observe roots damaged by the nematods. Also we can observe that unknow causes (Possible some toxicity caused by a bad management of water) the roots of the plants didn't seek the placement of the fertilizer. We adviced the

producers to avoid compact soils, to control nematods, to a better management, to make a good allocation of water etc.

- On February 19, 1986 a team of IDIAP Staff Personnel included Eng. Beyra Jaén, Eng. Miguel Ríos, Eng. Alfonso Martínez, Eng. José A. Aguilar and Eng. Benjamín Name and the Soils Adviser visited the manioc experiments in Ocu with the finality to trace in the proper experimental field of "Los Llanos" the strategy to planning a field day to be performed on February 25, 1986.
- On March 6, we visited the Sub-Centre of Azuero with the main objective to advice Eng. Araíz Cajar, about the advance of his research and the futures plans of experimental research.

c. Conferences.

On March 3, 1986 we dictated a conference about "Stages of Research Process" to technicians who are working on the indigenous project and they participated on a Seminar organized by the IDIAP and MIDA (DITE-DRI). In this opportunity the Soils Adviser delivered to each one of the partners, a copy of the document about the theme explained to them.

On January 7, 1986 we were congregated on IDIAP bureau, located in Panamá city with Carlos Neyra, (Ph.D) and José Zorrilla (Ph.D). The main Advisory Group of the University of Rutgers to IDIAP.

- On January 16, we were reunited on the Central Region Direction of IDIAP and were presents his Director Eng. Rolando Sánchez Díez; Eng. Benjamín Name, Lic. Alfonso Sing and Alvaro Cordero (Ph.D.). The objective of the reunion was to ~~discuss~~ with the recently arrived Lic. Sing his future plan of work.
- The same January 16, Alvaro Cordero (Ph.D.) in representation of the University of Rutgers presented Adviser José Zorrilla expert on Animal Nutrition of the University of Rutgers in official form to the Regional Director, Eng. Rolando Sánchez Díez.
- On January 17, we executed a reunion with the technical personnel of the Soils Laboratory assembled by Eng. Benjamín Name with the purpose of reintegration of Lic. Alfonso Sing to the Soils Laboratory.

During the reunion the chemist of the Soils Laboratory and the analyst technician who operates the equipment of atomic absorption, demonstrated

to Eng. Name and to the Soils Adviser the damage of the apparatus of atomic absorption by effects of the injured part. Other details and the monitoring of the apparatus we wrote on the scheme relative to training and technical assessment.

Later, the Soils Adviser A. Cordero (Ph.D) delivered to Lic. Sing a copy of the Working Plan with the purpose he could reckon a guide to prepare his own working plan of research on the IDIAP.

- With the purpose to congregate the complete team of advisers of the University of Rutgers who are working on IDIAP with Mr. Reed Hertford (Ph.D.) we traveled to Panamá city on february 14, 1986. The objective of that reunion was to be acquainted with the work carried out and to talked over the advances and the future monitoring activities that the team of Rutgers shall develop on IDIAP. In most of the reunions was present Mr. Donald Drga (Ph.D.) Agricultural Attaché of USAID-Panamá. Therein after, in the evening the team of the University of Rutgers joined Mr. Hertford (Ph.

D.) and Mr. Drga (Ph.D.) were received by the Agricultural Director of USAID-Panamá Mission, Mr. David Schaer(Ph.D).

- On march 4-6, 1986 Eng. Name and the Soils Adviser, Dr. Cordero received the visit of the representatives of the foliage fertilizer "Reviva" with the finality that IDIAP could test the effectiveness of the chemical product. The following persons were present in the exhibit; the representatives of the fertilizers the Eng. Gerardo Loaiza, Eng. Rodolfo Ballesteros and Mr. Celio Ríos who gave up commercial patterns of the product.
- As we explained on the scheme of Technical Advisory with greater retails, on march 11, 1986 we traveled to Natá to the plant of COAGRO with onions producers of Garicin, province of Coclé; technicians of BDA; ISA; COAGRO and IDIAP in order to discuss the agronomic problems who the producers of onions in Garicin are confronting.  
The Soils Adviser participated on the exposition, he argued technical aspects on the management of soils who indorsed the official statement presented by the group of technicians of IDIAP.

## D. RESEARCH.

The design of research developed while the present quarter pointed out the support lended to Eng. Benja<sub>u</sub>mín Name on the harvest of most of the experimental crops we are carrying out on the Experimental Station of Calabacito; also we collaborated with the initial management of the collected data on site and observed the yielding of the crops.

Including the research we collaborated on the working activities. We executed the followings activities.

## a. Adaptation of forestry species on acid soils.

Head of Research: Eng. Benjamín Name-IDIAP.

Collaborators: Eng. Blas Morán - CATIE

Eng. Amable Gutierrez-RENARE

Alvaro Cordero (Ph.D.) Soils

Adviser. of the University of

Rutgers - IDIAP.

While the quarter january-march corresponds to a hard dry period, the most tolerables species are: Acacia magiun, Casuarina cunninghumiana and Euca-  
liptus camuldulensis.

## b. Adaptation of manioc varieties on acids soils

Head of Research: Eng. Benjamín Name-IDIAP.

Collaborator: Alvaro Cordero (Ph.D) of the Univer<sub>s</sub>ity of Rutgers - IDIAP.

Since there was a hard dry period, the varieties are passing over dormancy; nevertheless "Brasileña" variety and her similars demonstrated phenotypical better adaptation to the climatic conditions and the edaphic structure of the site.

- c. Adaptation of varieties of pigeon pea (Cajanus Cajan).

Head of Research: Eng. Benjamín Name-IDIAP.

Collaborator: Alvaro Cordero (Ph.D.) of the University of Rutgers-IDIAP.

We collected data during the quarter.

- d. Liming on sugar cane cultivation on acid soils.

Head of Research: Eng. Benjamín Name-IDIAP.

Collaborator: Alvaro Cordero (Ph.D.) of the University of Rutgers-IDIAP.

Working Activities: During the quarter we carried out activities of maintenance of the experiment..

- e. Management of the phosphorus on the corn cultivation on acid soils.

Head of Research: Eng. Benjamín Name - IDIAP.

Collaborator: Alvaro Cordero (Ph.D.) of the University of Rutgers - IDIAP.

Working Activities: Preliminary processing of the experimental results on yield. On this experiment we valuated 3 types of magement of phosphorus

at different doses. The placement of phosphorus were the followings:

- a. Broadcast with later incorporation.
- b. On bands.
- c. Combining the two cases.

The initial results demonstrated the following.

1. Practically the yielding is null if there wasn't placement of phosphorus.
2. There was a demonstration of an increase over 600 kg/ha of grain when the placement is about 50 kg of  $P_2O_5$ /ha on bands.
3. When the phosphorus is placed on bands and a share on broadcast and incorporating it needs by minimum a totality of 225 kg/ha to produce sparingly more over a ton.  
Superiors values to 550 and 1050 kg of  $P_2O_5$ /Ha. did not demonstrate an increasing yield
4. When the phosphorus was applied on broadcast and then we incorporated to the soil a lower dose to 500 kg/ha the results was sparingly 600 kg/ha of grain; but when we applied a

higher dose like this one of 1000 kg/ha of  $P_2O_5$  we reached the more high yieldings of the test, more or less 2100 kg/ha.

The model of response demonstrated ascendants increases more pronounced to the termination, departing of 500 kg of  $P_2O_5$ /ha. This model follows the fixation pattern of phosphorus of this soils in which it is possible a fixation of 85 percentage of the phosphorus placed on:

- While 1986 we shall continue with the testing of phosphorus placement to valuate the residual effect..

f. Liming and fertilization of pineapple on acid soils.

Site: Lola, Las Palmas District, Province of Veraguas.

Head of Research: Eng. Benjamin Name-IDIAP

Collaborators: Agr. Nelson Gratacos-MIDA.

Alvaro Cordero(Ph.D.) of the University of Rutgers-IDIAP.

Working Activities: The working activities carried out on the pineapple cultivation were third fertilization; irrigation. We photographed the cultivation and gave maintenance generally to the test.

In accordance with the visual valuations of the vegetative development we recommended a dose of 5 ton/Ha of lime and 28 qq of the formula 12-24-12. The results stands out and his conveyance is similar or superior to the treatment with a high rate of fertilizers and lime.

- g. Fertilization on manioc cultivation on acid soils, site Los Llanos, province of Herrera.

Head of Research: Eng. José A. Aguilar

Collaborators: Eng. Benjamin Name-IDIAP

Alvaro Cordero(Ph.D.) University of Rutgers - IDIAP.

Working activities: Maintenance of the experiment. Maintenance of the cultivation while stands dry season.

- h. Fixation of phosphorus on acid soils of Panama.

Site, Soils Laboratory of IDIAP on Divisa.

Head of Research: Lic. Pedro González-IDIAP

Collaborators: Group of Technician of Soils of IDIAP

Adviser on Soils-University of Rutgers-IDIAP.

IV. LIVESTOCK PRODUCTION

DR. JOSE ZORRILLA-RIOS

RE.: PROGRESS REPORT No. 15

The project is over 60 percent of advancement on the analytical work.

E. OTHERS ACTIVITIES.

We prepared Progress Report within stands out the Quarter Report. We endure collaborating with others technicians of the Agricultural Technology Development Project in Panama USAID-University of Rutgers-IDIAP.

We prepared visual material (Rotafolio) for the Field Day about the manioc cultivation in Los Llanos de Ocu.

We attended different visitors inclusive the visit of His Excellence, Ministry of Agricultural Development, Eng. Bruno Garisto.

Most of the working time was spent on revision of scientific literature (principally on soils articles) with the main objective of presenting the IDIAP.

Alvaro Cordero

May, 1986

REPORT ON ACTIVITIES CONDUCTED DURING THE PERIOD JANUARY TO MARCH/86, BY DR. JOSE ZORRILLA-RIOS, LIVESTOCK SPECIALIST.

A. SPECIFIC ACTIVITIES.

- January 6. Arrival date to Panamá.
- 7 - 15. Interview with Rutgers Group Chief-of-Party; IDIAP authorities; visit to Oriental Region (Chepo) of IDIAP.
- Conduction of administrative steps with AID and Mexican Embassy in Panamá.
16. In transit to Santiago, Veraguas.
- 22-28. Introductory trip through Central and Occidental Regions of IDIAP.
30. Visit to Exp. Sta. of Los Llanos, Coclé.
- 31 and February 1. Visit Exp. Sta. to Gualaca, Chiriquí.
5. Visit Exp. Sta. of Calabacito, Santiago.
7. Seminar with dairy producers. Topic: Alternative strategies for cattle nutrition during the dry season.
- 13-15. Visit of Dr. Reed Hertford. In transit to Panamá City, meeting with AID people and - return to Santiago.
17. Tour to Occidental Region of IDIAP with University

of Rutgers team; AID group and IDIAP people.

19. Visit "Finca El Ejido", at Los Santos (a State Dairy farm run by the Ministry of Agriculture for extension purpose) to consider possibilities to conduct a trial with pumpkins as feed to dairy cattle.
- Feb 23, till March 1. Visit Dr. Collin Scanes to Panamá. A separate report on this visit has been submitted to Chief-of-Party in Panamá.
6. Interview with Dr. M. Sands, at Ranch "Los Morales", Chiriquí, to discuss possibilities for future work.
  7. Meeting with Dr. A. de Gracia, at Divisa, to coordinate future work at the state Dairy Farms. Contact was also made with people at Milk Laboratory.
  17. Visit to farm "El Ejido", to discuss details in execution of trial with pumpkins.
  20. Visit to farm "El Ejido", at Los Santos to select animals and initiate trial.
  21. Trip to Soná, to establish a demonstration trial on improvement of nutritive value of low quality roughages with urea. This practice will be part of IDIAP stand for the local fair.
  31. Visit to National Institute in Agriculture (INA)

to establish cooperation in future work.

B . GENERAL ACTIVITIES.

- \_ Study of literature , proceedings, etc. related to IDIAP organization, policies and previous work.
- \_ Talks and interviews with IDIAP personel.

The above is with the purpose to familiarize my self with the Institution and consider the information in the planning of future program. The propousal of working program will be presented by the end of April.

- \_ Two suggestions were presented to IDIAP authorities related one, to an organizational model between - IDIAP-AID and producers, and the other to a management system of a heard as an alternative for the Chiriquí Station. Copies of these were sent to the Chief-of-Party.

C.1 Descripción general de una alternativa de manejo de ganado productor de carne mantenido en pastoreo.

A continuación, se presenta una alternativa de manejo de un hato productor de carne que podría implementarse en la Finca Chiriquí, de la Región Occidental del IDIAP.

Antecedentes

La propuesta esta basada en un sistema tradicional de manejo practicado en la Península de Yucatan-México.

Basicamente esta diseñado para explotaciones en las que los sitios de suministro de agua para el ganado son limitantes en la finca. En base a éste aspecto se diseña la finca a partir del aguaje. En el punto en que se encuentra éste, se construye un corral de contención de dimención apropiada de acuerdo al número de cabezas que forman el hato (aproximadamente  $4 \text{ m}^2/\text{animal}$  adulto. Este corral puede al mismo tiempo servir de corral de manejo cuando así se requiera). El agua se suministra en bebederos de mampostería.. A partir de éste corral, se establecen las divisiones de los potreros, de tal manera que conyerjan en el corral. No es imprescindible proporcionar sombra al ganado en el corral, aunque si éste puede incluir sombra natural,

Bajo éste principio, el ganado se encorralla todas las mañanas, después de que pase el período de pastoreo intenso de las primeras horas del día. El ganado permanece en el corral hasta las primeras horas de la tarde (2-3 pm), cuando nuevamente es soltado a pastorear hasta la mañana siguiente.

Dentro de las ventajas que tiene el sistema, se pueden apreciar:

1. Aprovechamiento eficiente del recurso agua, evitando el acceso directo de los animales a los aguajes naturales.
2. Inspección diaria del hato.
3. Docilidad del ganado, incluyendo su trabajo en corral.
4. Facilita la implementación de prácticas especializadas, como inseminación artificial, rotación de potreros.
5. Mejora la utilización de la pradera al reducirse el efecto negativo de pisoteo y apasentamiento que ejerce el ganado sobre el pasto durante el período de reposo (no pastoreo).

Si bien ésta es una práctica tradicional en uso en una zona tropical de México, su implementación en el medio rural requiere un alto grado de experiencia técnica. Un factor importante a considerar será el buen drenaje del terreno en donde se ubique el corral. En virtud de que la Finca Chiriquí reúne características de tamaño y con una infraestructura por realizar, se propone como una estación adecuada para considerar ésta alternativa de manejo de ganado de carne.

## C.2 Modelo de agrupación entre productores e Instituto de Investigaciones.

A continuación, se analiza una estructura de organización institucional, basada en un módulo existente en México. El propósito de ésta es presentar a la consideración de las autoridades competentes del Instituto de Investigación Agropecuaria de Panamá (IDIAP) y a la Agencia Internacional de Desarrollo de los Estados Unidos en Panamá (AID) una alternativa que pudiese tener operación en el ambiente panameño.

### Antecedentes

La implementación de investigación en el área agropecuaria tendiente a dar respuesta a las necesidades de los productores, es una función del gobierno.

En ocasiones, la magnitud de esta labor sobrepasa la capacidad financiera del mismo para llevarla a cabo en la medida que los productores reconocen necesaria.

El apoyo directo y específico del sector privado a una tarea del sector público, dentro de un marco de absoluta coordinación, ha demostrado ser una posibilidad efectiva para subsanar necesidades de la población. En particular, tal ha sido el caso de una unión tripartita establecida en México desde los años '60, en la cual el gobierno federal, el gobierno estatal y los productores se asociaron en torno a un renglón productivo agrícola (trigo) y crearon una organización de investigación dedicada a estudiar las limitantes a su producción. Dicha organización fue sede de una parte de los trabajos del Dr. Norman Borlaug, y su obra "Revolución Verde", la que eventualmente contribuyera en su obtención del Premio Nobel de la Paz.

### Consideraciones Generales:

Dentro de una concepción de agrupación, la idea fundamental es conjugar recursos de índole material humano, financiero y moral de dos o más sectores, que encuentren complementación en su integración. En el caso Panamá, tal condición podría presentarse entre los organismos IDIAP-AID- Asociación de Productores. El Instituto cuenta entre sus más valiosos recursos con el personal científico preparado para conducir la investigación, así como con infraestructura y representatividad. Su mayor limitación podría ubicarse en el área financiera, especialmente el renglón de operación. Para el programa AID, el garantizar dentro de ciertos límites que la asistencia económica y de asesoría que proporciona

incidan en la forma más directa y efectiva posible, en mejorar los niveles productivos y de eficiencia, reviste una gran importancia. Finalmente, el productor como contribuyente, exige intervención gubernamental en la atención especial a los problemas que limitan su actividad agropecuaria y resiente la imposibilidad del gobierno para atenderlo. Sin embargo, se espera que el productor este consciente de la desproporción que existe entre la capacidad económica del gobierno en financiar investigación para el campo, y las necesidades a nivel nacional.

Bajo un marco de referencia similar al descrito, se puede considerar que la integración de IDIAP-AID y productores organizados en unidades de apoyo a la Investigación en rubros específicos, conjugue los recursos e intereses comunes, subsane deficiencias parciales y redunde en beneficio directo a las tres partes integrantes y por consiguiente al país.

Estructura Propuesta: En concreto, se propone la creación de asociaciones con personalidad jurídica, a las cuales denominaremos patronato, integrados por:

- A.- Representantes del sector privado (asociaciones de productores).
- B.- El sector oficial representado por el IDIAP, y
- C.- La asistencia externa, representada por AID.

Esta última dependencia canalizaría parte de los fondos asignados en su programa de asistencia al programa agropecuaria, a cubrir necesidades económicas del Patronato. El IDIAP aportaría el personal técnico y administrativo con cargo a su presupuesto, necesario para implementar y llevar a cabo los programas de investigación requeridos de acuerdo al objetivo del Patronato establecido. Los productores, a través de su Asociación donarían terreno, animales e implementarían cuotas entre sus agrupados para constituir un patrimonio propio y autónomo de cada Patronato.

La Directiva del Patronato estaría constituida por representantes de cada una de las partes integrantes, y serían los responsables de administrar sus bienes fijos, así como el producto originado en su operación.

La creación de un Patronato respondería a la identificación de áreas de producción en la que tanto los productores responsables como la capacidad técnica del IDIAP, coincidieron dentro de sus capacidades ejecutivas.

Los Patronatos formados, responderían a problemas específicos, con programas definidos, personal y recursos asignados en forma permanente, todo lo cual ofrece una mejor perspectiva de que la actividad de investigación agropecuaria logre avance en la solución o reducción de las limitantes que enfrentan los productores.

V. AGRICULTURAL RESEARCH ADMINISTRATION AND MANAGEMENT

DR. CARLOS A. NEYRA

RE.: PROGRESS REPORT No. 15

## V. ADMINISTRATION AND MANAGEMENT OF AGRICULTURAL RESEARCH

Carlos A. Neyra, Ph.D

Period: January 1 to March 31, 1986

The services of the Agricultural Research Administration and Management Specialist has been provided for the purpose of helping improve resource use and the overall management and administrative capacity of IDIAP. The specialist is also acting as a Chief-of-Party of a five-persons research team placed in-country by Rutgers University as part of the Technical Assistance component of the ATD project.

The activities of the Agricultural Research Administration and Management specialist are organized according to the following specific goals:

- A: "To assist IDIAP in the formulation and implementation of institutional objectives, strategies, priorities and evaluation of agricultural research".
- B: "To act as a Chief-of-Party and in-country coordinator of the technical assistance provided by Rutgers University to the ATD project in Panama".

### ACTIVITIES

- A. Goal: "To assist IDIAP in the formulation and implementation of institutional objectives, strategies, priorities and evaluation of agricultural research".

- A.1 Strategic Plan/Agenda: Necessary Actions of the ATD project in 1986.

The Agricultural Research Administration and Management specialist outlined an Strategic Plan/Agenda taking into account the necessary actions

PLAN ESTRATEGICO/AGENDA

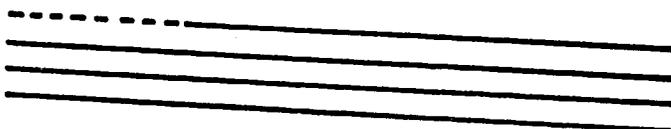
Re.: Acciones Necesarias del Proyecto ATD (Año 1986)

ACCIONES

MESES  
E P M A M J J A S O N D

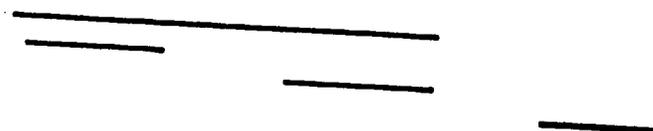
1. Proyecto ATD

- a. Construcciones
- b. Capacitación
- c. Investigación
- d. Administración (MTA)
- e. Presupuesto y PCA 1987



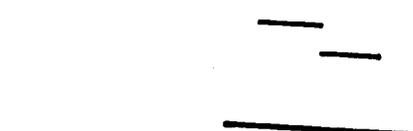
2. Propuesta/Expansión (Reorientación)

- a. IDIAP/Participación
- b. AID/Recomendación
- c. Rutgers (Estrategia)
- d. AID (Acción)



3. Evaluaciones

- a. IDIAP/Interna
- b. IDIAP/USAID



4. IDIAP/Investigaciones

- Proyecciones/Oportunidades
- Estrategia/Prioridades
- Programación/Implementación



RECOMENDACIONES:

1. Preparar una agenda de actividades en concordancia con las acciones requeridas:
  - a. Propuesta del Asesor en Administración y Manejo de la Investigación (Carlos A. Neyra)
  - b. IDIAP formula agenda definitiva.
2. Designar contrapartes institucionales del IDIAP en las acciones correspondientes.

for the operation of the ATD project in 1986 (see Table 1) and the proposed "Expansion and Refocussing" of the ATD project (IDIAP/Rutgers/USAID). This Agenda was submitted and discussed with both the Director and Sub-Director General of IDIAP and in general terms is being followed closely.

For each of the components included in the Strategic Plan/Agenda IDIAP has counterparts to work with the Ag. Research Adm. and Management Specialist. The list of counterparts include:

Arg. Gladys Isturain, Constructions  
 Lic. Miguel Cuellar, Planning  
 Ing. Gemino K. Vargas, Training

#### A.1.a Proyecto ATD (General)

Dr. Rafael Castrellón, Research-Livestock  
 Dr. Gaspar Silvera, Research-Agronomy  
 Lic. Miguel Cuellar, Research-Planning  
 Dr. Carlos Morán, Expansion and Reorientation ATD project

Lic. Miguel Cuéllar, Evaluations  
 Lic. Hermel López, Evaluations

#### A.2 Evaluation of the ATD Project

The Ag. Research Adm. and Management specialist considered necessary to initiate, with sufficient time in advance, the process of evaluation of the ATD project (USAID No.525-0180) scheduled to take place sometime in the middle of 1986. For this purpose, the specialist arranged meetings with the Director and Staff of the Direction of Planning at IDIAP to discuss needed preliminary arrangements, outline some general procedures and a possible Agenda of activities to follow. The specialist also met, for the same purpose, and help define the terms of reference for the appointment of outside evaluators, with Donald Drga and Frank Pope from USAID/Panama.

The Ag. Research Adm. and Management specialist prepared a working document entitled "Evaluación del

Proyecto de Desarrollo de Tecnología Agropecuaria en Panamá" and was submitted for consideration and suggestions to Lic. Miguel Cuellar, Director de Planificación y Socio economía of IDIAP on March 17, 1986. In brief, the document suggest two types of evaluation:

- a) In-house, conducted by IDIAP with the collaboration from the Rutgers Technical Assistance Team and
- b) External, with participation of outside evaluators appointed by AID and complemented with local counterparts from IDIAP, Rutgers and USAID/Panama.

The In-house evaluation should consider activities in the fields of agronomical, livestock and farming systems research and may make emphasis particularly, into the following components:

- Planning and Implementation Procedures.
- Research results in production systems in project selected areas and complementary research.
- Effectiveness of efforts for results dissemination.
- Financial and budgetary management of the project.
- Institutional Development.

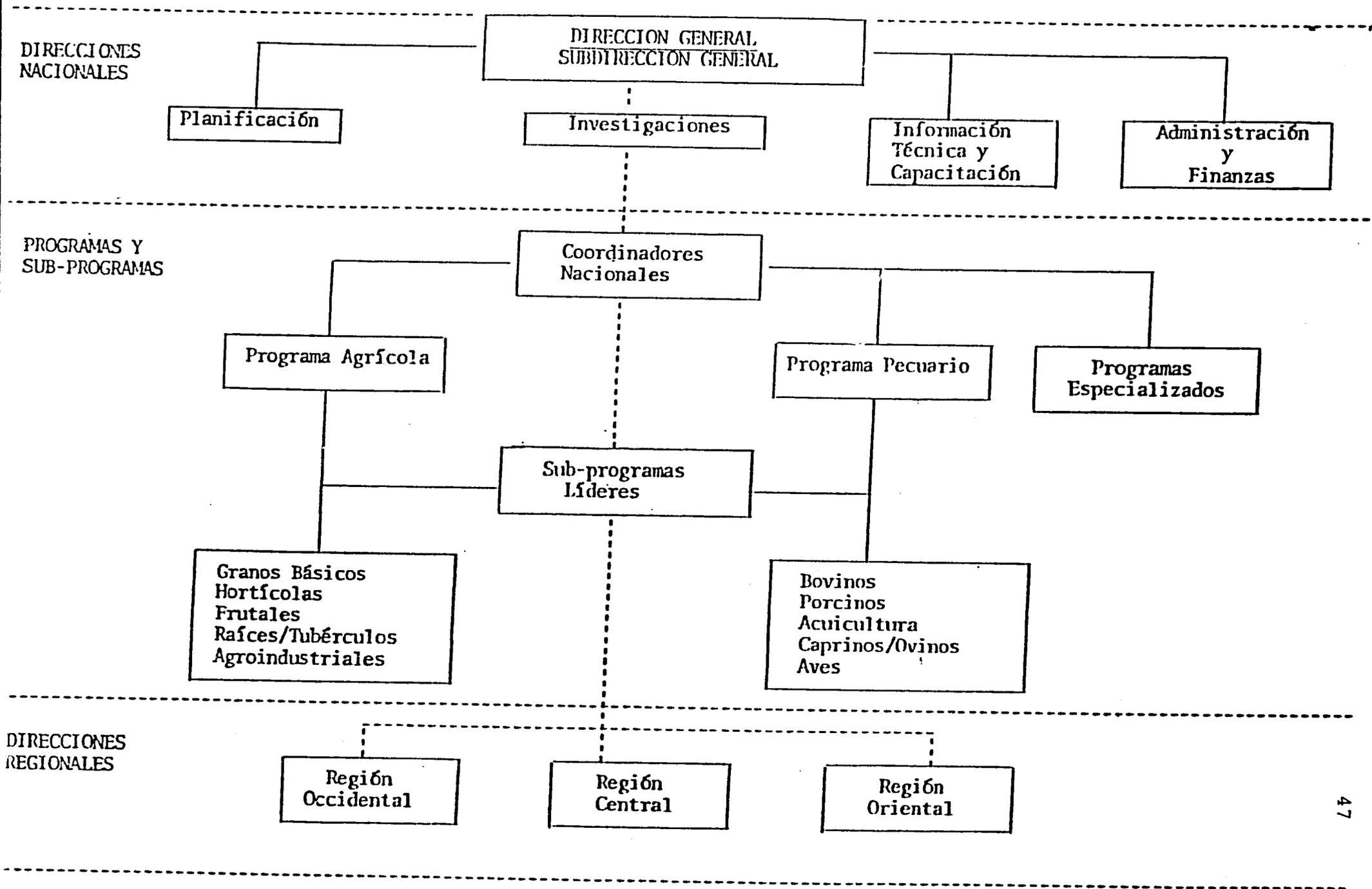
The information gathered by the in-house evaluation could serve as a base reference for the external evaluation, but the latter may not be limited to the approach and scope of the in-house evaluation.

### A.3 Modified Proposal for a Research Administration Organigram at IDIAP.

The proposed scheme (Fig. 1) has been prepared on the following premises:

- That, the activities of research expressed in the Annual Operational Plan (POA) are organized basically in terms of commodities and disciplines.
- That, there is a lack of an operational scheme or diagram that clearly consolidate the administrative

# ORGANIGRAMA GENERAL DEL IDIAP



and research functions of the institute.

- The need to review, actualize and consider alternatives to the General Organigram currently used by IDIAP.
- The need to give more relevance to the research role of IDIAP in consonance with the legal mandate.
- The recommendation to reduce the number of National Directorships by conjugation of the Agronomical and Livestock components into one single National Directorship and reorganization of Plant and Environment Protection component.
- The need to highlight the importance of a research organization by commodities as the functional units and the conjugation of the research activities with the National and Regional administrative functions.

B. Goal: "To act as a Chief-of-Party and in-country coordinator of the technical assistance provided by Rutgers University to the ATD project in Panama".

#### ACTIVITIES

- B.1 The Ag. Research Adm. and Management specialist used about 50 percent of the effective time in activities related to overall project coordination.
- B.2 The coordination activities can be grouped as follows:
- a. Keeping records of activities and reports of each member of the Rutgers Technical Assistance Team.
  - b. Review and editing, in Spanish and English, of the quarterly reports and work plans prepared by the TA team.
- Organization of report No. 14 covering October, November and December, 1985.
- c. Participate and assist in the coordination of visits to Panama by Rutgers faculty as part of the

backstopping efforts to the ATD project.

- Coordination of activities related to the visit made by Dr. Colin Scanes, Chairman of the Animal Sciences Dept., Cook College, Rutgers University.
- The activities of Dr. Scanes included visit with:
  - 1) Administrators and research staff of IDIAP in all three regions: Eastern (Panama and Chepo), Central (Santiago, Los Santos, Divisa, Calabacito) and Western (Chiriqui);
  - 2) Visits to the National Agricultural Institute (INA) and the soils laboratory at Divisa;
  - 3) Agricultural sector staff of USAID/Panama.
 Visits were complemented with field trips. Dr. Jose Zorrilla-Rios acted as the host for most of the activities taking place at locations away from Panama City.

d. Organized a one-day meeting in Panama City with the participation of all five team members and Dr. Reed Hertford, Project Manager (IAFP/Cook). The purpose of the meeting was to discuss:

- Individual Project Reports and Publications
- Individual Plan of Activities for 1986
  - a. In-Service Training
  - b. Institutional Planning Efforts
  - c. Research: Field, Laboratory, Station
- Problems, Limitations and Suggested Solutions.
- Other Business

### B.3 Liasson person between Rutgers, IDIAP and USAID-Panama.

a. Arrangements were made locally in coordination with IDIAP, USAID/Panama and the University of Panama for the intended visit to Panama by Rutgers President, Dr. Edward J. Bloustein. The visit was postponed to a later date in the year due to unforeseeable circumstances that led to the cancellation of his trip to Panama.

b. As part of the agenda for the Presidential visit we had scheduled a trip to Chiriqui to visit representative experimental fields of the research being conducted under the ATD project on the low lands and highlands of Chiriqui, particular emphasis was placed

upon the pasture work of Dr. Pedro Argel and the Horticultural research being conducted by Mark Gaskell, both members of the Rutgers Technical Assistance Team in Panama. This part of the agenda took place with the participation of Reed Hertford (IAFP/Cook), several USAID officers and the complete five members Team of Rutgers University.

c. A Concept Paper elaborated by Rutgers and IDIAP as part of the preparation of a Proposal entitled "Expansion and Reorientation of the ATD Project" was submitted to the AID/Panama Mission on January 8, 1986 for a reaction and possibilities of funding. This document (Concept Paper) was prepared taken as a reference: 1) The opportunities for research by IDIAP and Panama; 2) The sector strategies outlined by USAID/Panama and 3) The experience gained by Rutgers University through the ATD project.

On January 8, 1986 the following proposal and pre-proposals were submitted to Mr. David Schaer, Director of the Agricultural Division of AID:

1. Proposals for "Expansion and Reorientation of the ATD Project: Technical Assistance Component".

2. Three pre-proposals on topics of interest for Panama and prepared by different units at Cook College, Rutgers University.

- "Onion Drying at a Remote Location (Panama)"  
by: Mark E. Singley.

- "Development of Biotechnological Methodologies for the study of Mosquito-Borne Viruses in Panama and the Caribbean Region".

By: Wayne J. Crans, Mosquito Research Control,  
Cook College, RU.

Randy Gaugler, Dept. Entomology and Economic  
Zoology, Cook College, RU.

Donald Caccamise, Depto. Entomology and Economic  
Zoology, Cook College, RU.

- "Food Science Short Course for Panama". By:  
Food Science Dept., Cook College, RU.

After revision and discussion of the proposal for Expansion of the ATD project and the three pre-proposals, a recommendation was given to develop an Strategic Plan for the elaboration of a Final Proposal for the "Expansion and Reorientation of the ATD project" and that the three pre-proposals could be considered within the proposal for the ATD project.