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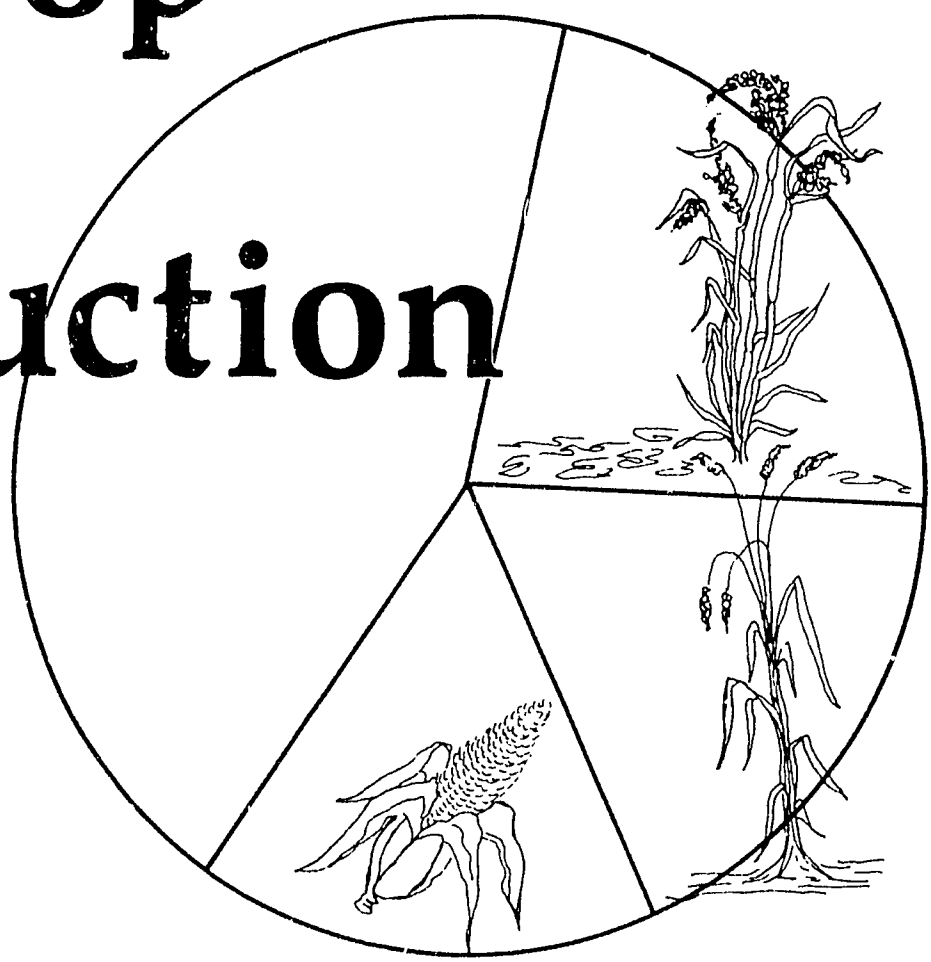
Fertilizer Use Statistics In Crop Production



IFDC International Fertilizer Development Center

PN-AAS-863

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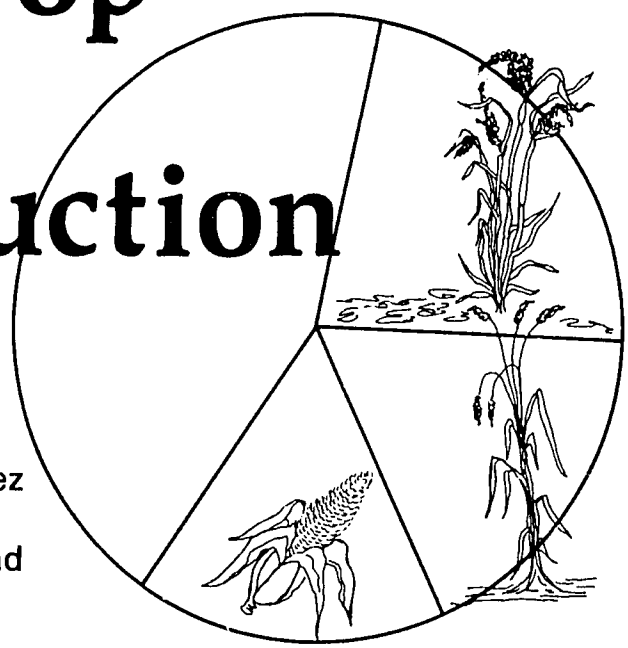

By
Dr. Adolfo Martinez
and
Dr. Ray B. Diamond

Abstract

This publication represents the International Fertilizer Development Center's (IFDC) first attempt to assemble statistics on fertilizer use for different crops on a country basis. This type of information is usually not readily available. Data, as presented in this publication, should provide a basis on which to develop and plan production and marketing strategies.

Through a literature review and a questionnaire developed by IFDC and mailed to approximately 300 parties throughout the world, data were gathered for 78 countries. Analysis of data showed that cereal crops, especially rice, maize, and wheat, are the main users of N, P_2O_5, and K_2O. Other important users of fertilizers include sugarcane and cotton.

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International Fertilizer Development Center
P.O. Box 2040
Muscle Shoals, Alabama 35660

Phone No. 205-381-6600
TWX-810-731-3970 IFDEC MCHL

Edited by E. D. Frederick and B. N. Roth
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Organizations

ADAB ..... Australian Development Assistance Bureau
ECCM ..... East Caribbean Common Market
ESCAP ..... Economic and Social Commission for Asia and the Pacific
FAO ..... Food and Agriculture Organization of the United Nations
IDCAS ..... Industrial Development Centre for Arab States
IFDC ..... International Fertilizer Development Center
ISMA ..... Originally "International Superphosphate Manufacturers Association"
OSU ..... Oregon State University
TVA ..... Tennessee Valley Authority
UNIDO ..... United Nations Industrial Development Organization
USDA ..... United States Department of Agriculture

Fertilizer and Chemical Abbreviations

AA ..... Anhydrous ammonia
AN ..... Ammonium nitrate
AQA ..... Aqua ammonia
AS ..... Ammonium sulfate
BS ..... Basic slag
CAN ..... Calcium ammonium nitrate
DAP ..... Diammonium phosphate
K_2O ..... Potassium; expressed as potassium oxide
MAP ..... Monoammonium phosphate
MOP ..... Muriate of potash or potassium chloride
N ..... Nitrogen
NP ..... Nitrophosphate
NPK ..... Compound fertilizer containing three primary nutrients, N, P_2O_5, and K_2O
P_2O_5 ..... Phosphate; expressed as phosphorous pentoxide
SN ..... Sodium nitrate
SOP ..... Sulfate of potash
SSP ..... Single superphosphate
TSP ..... Triple superphosphate

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FERTILIZER USE STATISTICS IN CROP PRODUCTION

Introduction

Statistics on total fertilizer use on a national and regional basis are usually readily available from several national and international sources. These statistics are highly aggregated, however, and do not provide information related to specific fertilizer use by different crops.

This publication represents the International Fertilizer Development Center's (IFDC) first attempt to compile information by country on fertilizer use for different crops. This type of information is important to government planners, researchers, and commercial entrepreneurs engaged in the fertilizer and agricultural sectors. Information, as presented here, should serve to provide general guidelines for the development and planning of production and marketing strategies on a national and regional basis.

Sources of Data

Data used in preparation of this publication were obtained from different sources. They can be classified as follows:

1. A questionnaire developed by IFDC and mailed to approximately 300 parties around the world.
2. Fertilizer-related country reports prepared by IFDC during the 1974-81 period.
3. A publication by the Food and Agriculture Organization of the United Nations (FAO) entitled, "Provisional Statistics on Fertilizer Use by Major Crops," Rome, Italy, June 1980.
4. Reports from the United Nations Industrial Development Organization (UNIDO), the Industrial Development Centre for Arab States (IDCAS), the International Phosphate Industry Association (ISMA), the U.S. Department of Agriculture (USDA), several publications from the Economic and Social Commission for Asia and the Pacific (ESCAP), and several FAO production yearbooks.
5. Forestry nitrogen use data collected by Dr. George W. Bengtson, Associate Dean, School of Forestry, Oregon State University (OSU).

A few countries, including the United States, the United Kingdom, and Sweden, use a systematic survey to collect these kinds of information. In most countries, however, available data on fertilizer use by crops come from the estimates or rough calculations made by government officials and others familiar with the fertilizer sector. Therefore, the degree of reliability of the data varies among countries.

Presentation of Data

Data obtained from different sources were standardized to facilitate analysis. This publication presents the following information related to fertilizer use:

1. Crop areas harvested, percentage of areas receiving fertilizer, and area fertilized. These data were obtained mainly from responses to the IFDC questionnaire and complemented with data from several FAO production yearbooks.
2. Total amounts of N, P_2O_5, and K_2O used in individual crops or groups of crops in a given year. Although these amounts provide general information and guidelines about nutrient use in crop production, they may differ from actual usage. Furthermore, data for some countries are not comprehensive and include only one or a few crops.
3. Estimates of rates of nutrients used by different crops, based on data described in

items 1 and 2. These estimates were made for the total harvested area and for the area receiving fertilizer.

4. Predominant product sources of N, P_2O_5, and K_2O for different crops.

Data were obtained from 78 countries. For some of them, data for more than 1 year were available, but only data from the most recent year are presented here. For some countries, data on nutrient sources by crop were complemented by IFDC staff members on the basis of their knowledge and experience.

To facilitate data analysis, the 78 countries were grouped into 14 regions as shown in Table 1. The following sections describe in summary form the most significant findings from each country. Emphasis is given to N, P_2O_5, and K_2O use by crop and to the type of fertilizers used by crop since these kinds of data are believed to be more reliable than data related to nutrient rates per hectare. Numbers in parentheses after country names indicate the latest year for which data were available.

Findings

North Africa

Table 2 presents data obtained from North African countries. It includes Egypt (1975), Morocco (1979), and Tunisia (1975). This table shows that in Egypt N, P_2O_5, and K_2O are used primarily in the production of cereals and cotton. The main fertilizer products used are urea, calcium ammonium nitrate (CAN), single superphosphate (SSP), and sulfate of potash (SOP). For Morocco the only available data on fertilizer use levels were available only for cereals and N sources. The main sources of N were urea, ammonium nitrate (AN), and ammonium sulfate (AS). For Tunisia the only available data relate to N use. The main users of N are cereals and fruit crops, and AN is the main fertilizer product used.

Sahel West Africa

Table 3 presents data obtained from Africa's Sahel region which includes the following countries: Chad (1978), Gambia (1976), Mali (1976), Niger (1979), Senegal (1975), and Upper Volta (1975). In Chad, Mali, and Upper Volta, cotton receives most of the fertilizer. Urea and NPK products are the main sources of nutrients. In Gambia, Mali, Niger, and Upper Volta, groundnuts are fertilized with phosphate only, principally in the form of SSP, whereas in Senegal groundnuts receive nutrients in the form of NPKs. Rice and sorghum/millet are important users of N in the Sahel region. Urea and NPK products are the main fertilizer products used.

West Africa Coast

Table 4 presents data obtained from the following countries of West Africa: Benin (1976), Cameroon (1977), Central African Republic (1976), Ivory Coast (1973), and Nigeria (1979). In Benin, Cameroon, the Central African Republic, and Ivory Coast, industrial crops (sugarcane, coffee, cotton, and fruits) receive most fertilizer. The main fertilizers used are urea and NPK products. In Nigeria millet, sorghum, maize, and rice are the main users of N and P_2O_5, while cereal crops are the main users of K_2O. Principal fertilizers used are NPK products, SSP, CAN, AS, and urea.

East and South Africa

Table 5 presents data obtained from countries located in south and east Africa. These countries are Burundi (1976), Ethiopia (1976), Lesotho (1979), Madagascar (1977), Malawi (1976), Mauritius (1977), Rwanda (1977), Somalia (1976), Sudan (1975), and Tanzania (1975). In Burundi coffee and tea are the main fertilizer-user crops. Urea, muriate of potash (MOP), triple superphosphate (TSP), and NPK products are the major sources of nutrients. In Ethiopia, teff is by far the main user of N and P_2O_5, followed by cotton and oilseeds. The main sources of nutrients are diammonium

phosphate (DAP) and urea. In Lesotho maize, wheat, and other cereal crops, in general, are the major fertilizer users. NPK products and CAN are the most common sources of nutrients. For Madagascar data on N use only were available. Rice and sugarcane are the main users. Urea is apparently the only product used. In Malawi tea and tobacco are the main fertilizer-user crops, followed by maize, rice, and sugarcane. Sources of nutrients include urea, AS, and NPK products. In Mauritius sugarcane is by far the greatest user of fertilizer, followed by tea, maize, and potatoes. Data on sources of nutrients were not available. For Rwanda data were available for tea only. Sources of nutrients used for tea are urea, TSP, MOP, and NPK products. In Somalia bananas and sugarcane are the main users of N and P_2O_5, while maize is the main user of K_2O. Sources of nutrients commonly used include urea, DAP, monoammonium phosphate (MAP), MOP, and NPK products. In Sudan cotton is by far the main user of N, followed by wheat and sugarcane; rice is the main user of P_2O_5. Fertilizer products most used are urea and TSP. In Tanzania maize is the main user of N, and tobacco is the main user of P_2O_5 and K_2O. Nutrient sources used include AS, CAN, TSP, and NPK products.

North America

Table 6 presents data collected on North America. It includes data from Canada (1979), Mexico (1977), and the United States (1980). For Canada and the United States, data were available only for those few crops that are also the main fertilizer users. Wheat in Canada and maize in the United States are the crops using the largest amounts of N, P_2O_5, and K_2O. In Canada NPK products are the main source of nutrients while in the United States NPK products and anhydrous ammonia (AA) are the most commonly used products. In Mexico maize is by far the main fertilizer-user crop, followed by pastures and sugarcane. Nutrients are supplied mainly by urea, AS, AA, TSP, SSP, MOP, SOP, and NPK products.

Central America and Caribbean

Table 7 presents data collected from Central America and the Caribbean countries. It includes data from Barbados (1979), Cuba (1975), Dominican Republic (1979), ECCM[1] (1979), Panama (1977), and Trinidad (1977). For Barbados only data for N used on sugarcane were available. The main sources of N in Barbados are AS and NK products. In Cuba sugarcane is the main fertilizer-user crop, followed by rice and pastures. Sources of nutrients in Cuba include urea, AS, and NPK products. In the Dominican Republic industrial crops (sugarcane, coffee, and cocoa) are the main fertilizer users, followed by rice. The principal sources of N, P_2O_5, and K_2O are the following: NPK products, urea, AS, SOP, and MOP. Data for the ECCM countries indicate that bananas and sugarcane are the main fertilizer-user crops. Nutrients are supplied by NPK products and AS. In Panama and Trinidad rice is the main fertilizer user. Data on products used in these two countries were not available.

Andean Region

Table 8 presents data obtained from countries in the Andean region. It includes data from Bolivia (1977), Colombia (1978), Ecuador (1980), Peru (1980), and Venezuela (1980). Data obtained for Bolivia included only N use on potatoes, which is the main fertilizer-user crop in the country. In Colombia coffee and rice are the main users of N, while coffee and potatoes are the main users of P_2O_5 and K_2O. The principal fertilizers used are urea, AN, AS, MOP, TSP, and NPK products. In Ecuador cereal crops (maize, rice, and sorghum) are the main users of N and P_2O_5 while industrial crops (sugarcane, coffee, and cocoa) are the main users of K_2O. The principal fertilizers used are urea, AS, DAP, MOP, and NPK products. In Peru cotton is the main user of N, followed by sugarcane, rice, and maize; potato is the main user of P_2O_5 and K_2O. The principal fertilizer products used are urea, DAP, TSP, AN, SOP,

1. East Caribbean Common Market (ECCM) which includes the following countries: Dominica, Grenada, Anguilla, Montserrat, St. Kitts and Nevis, Antigua, St. Vincent, and St. Lucia.

and MOP. In Venezuela cereal crops (sorghum, maize, and rice) are the main users of N, P_2O_5, and K_2O, followed by sugarcane and coffee. Sources of nutrients include urea, AS, TSP, DAP, MOP, and NPK products.

Other South American Countries

Table 9 presents data obtained from several countries in South America. It includes data from Argentina (1979), Brazil (1978), Chile (1979), Guyana (1979), and Paraguay (1978). In Argentina wheat is the main N- and P_2O_5-user crop, followed by pastures. Fertilizer products used include urea, DAP, and AS. In Brazil coffee is the main user of N and K_2O, while soybeans are the main user of P_2O_5. Other important fertilizer users are sugarcane, rice, and maize. The principal sources of nutrients are NPK products. Data from Chile included fertilizer use on wheat only, which is the most important fertilizer user. Sources of nutrients include sodium nitrate (SN), urea, and DAP. From Guyana data were available only for sugarcane, the most important crop of the country. Fertilizer products used include urea, TSP, MOP, and AS. In Paraguay soybeans are the main users of N and P_2O_5, while cotton is the main user of K_2O. Cereal crops (wheat, maize, and rice) are also important fertilizer users. Urea, NPK products, TSP, and MOP are the main fertilizer products used.

Central and South Asia

Table 10 presents data obtained from countries in central and south Asia. It includes the following: Afghanistan (1975), Burma (1979), Bangladesh (1980), India (1979), Pakistan (1978), and Sri Lanka (1980). In Afghanistan and Pakistan wheat uses most of the N and P_2O_5. Wheat is followed by cotton in Afghanistan and by rice in Pakistan as the second most important N crop users. Industrial crops in Pakistan are the main users of K_2O. The main fertilizer products used in these two countries are: urea and DAP in Afghanistan and urea, DAP, CAN, SOP, and NPK products in Pakistan. In Burma, Bangladesh, and Sri Lanka rice is the main user of N, P_2O_5, and K_2O. Other important crop users of fertilizer in these countries are jute, groundnuts, and sugarcane in Burma; jute, potatoes, and sugarcane in Bangladesh; and tea, coconuts, and rubber in Sri Lanka. The main fertilizer products used in these countries are urea, TSP, MOP, and AS. For India rice is the main user of N, and wheat is the main user of P_2O_5 and K_2O. Sugarcane and fiber crops are also important users of fertilizers in India. Nutrient sources used include urea, DAP, MOP, and NPK products.

Southeast Asia

Table 11 presents data obtained from Southeast Asian countries. It includes Indonesia (1980), Malaysia (1980), Philippines (1980), and Thailand (1978). In Indonesia, the Philippines, and Thailand, rice is by far the main crop user of N and P_2O_5, followed by rubber in Indonesia and sugarcane in the Philippines and Thailand. Nutrient sources used in these countries include urea, AS, and NPK products. In Malaysia oil palm is the main user of N and K_2O, while rubber is the main user of P_2O_5. Rice is also a major fertilizer user in the country. The main fertilizer products used include NPK products, urea, AS, and TSP.

Middle East Region

Table 12 presents data obtained from countries of the Middle East. It includes Cyprus (1977), Iraq (1974), Israel (1976), Turkey (1979), Yemen Arab Republic (1974), and People's Democratic Republic of Yemen (1974). In Cyprus potatoes are the main user of N, P_2O_5, and K_2O, followed by grapes and citrus crops. Data on fertilizer products used were not available. In Iraq vegetables are the main users of N and cereal crops the main users of P_2O_5. Fertilizer products used include urea, AS, and TSP. In Israel deciduous trees are the main user of N, citrus trees the main user of P_2O_5, and cotton the main user of K_2O. Other important users of fertilizers are vegetables, groundnuts, and flowers. Common sources of nutrients used are aqua ammonia (AQA), urea, SSP, MOP, and NP. In Turkey wheat is the main user of N and P_2O_5 while industrial crops are the main users of

K_2O. Other important fertilizer-user crops include fruit and vegetables, cereals, and tuber crops. The main fertilizer products used are DAP, AS, urea, TSP, MOP, and SOP. In Yemen Arab Republic sorghum is by far the main user of N, P_2O_5, and K_2O; barley and wheat follow. Fertilizer products used include urea and TSP. In the People's Democratic Republic of Yemen wheat is the main user of N, and tomatoes and potatoes are the main users of P_2O_5 and K_2O, respectively. Other important crop users of fertilizer include sorghum, cotton, and bananas. The main fertilizer products used are urea, TSP, and SOP.

Northeast Asia

Table 13 presents data obtained from the northeast Asian countries of Japan (1979) and South Korea (1975). In Japan fruits and vegetables, considered as a unit, and rice are the main users of N, P_2O_5, and K_2O. Other important crop users of fertilizer include fodder, fiber, industrial crops, roots, and tubers. In South Korea rice is the main user of N and K_2O, while barley is the main user of P_2O_5. Other important fertilizer-user crops include vegetables, mulberry, pulses, and potatoes. Data on fertilizer products used by crop were not available, but it is known that urea, DAP, and NPK products are widely used.

Europe

Table 14 presents data obtained from European countries. It includes the following: Austria (1977), Denmark (1980), Finland (1979), France (1979), Federal Republic of Germany (1979), Hungary (1980), Ireland (1979), Malta (1977), Netherlands (1979), Portugal (1978), Spain (1979), Sweden (1977), Switzerland (1979), and the United Kingdom (1980). In Austria pastures are the main users of N, P_2O_5, and K_2O, followed by wheat, maize, and barley. Data about fertilizer products used were not available. In Denmark and Finland cereal crops are the main users of N, P_2O_5, and K_2O, followed by fodder crops. In both countries, the main sources of nutrients used are NPK products and CAN. In France cereal crops are the main users of nutrients, followed by root and tuber crops. Fertilizer products used include AN, TSP, MOP, and urea. In the Federal Republic of Germany cereal crops are the main users of N, P_2O_5, and K_2O, followed by fodder crops. Nutrient sources used include CAN, MOP, phosphate rock, and NPK products. In Hungary cereals are the main users of nutrients followed by legume forage. Sources of nutrients used are CAN, AS, AN, urea, TSP, MOP, and SOP. Data for Ireland included only N use in forest areas; these are fertilized with urea and AN. In Malta vegetables are the main users of N, P_2O_5, and K_2O, followed by potatoes. Data on nutrient sources were not available. In the Netherlands grasses are by far the greatest users of N, followed by tuber crops, which are also the main users of P_2O_5 and K_2O. Fertilizer products used include CAN, TSP, SSP, and MOP. In Portugal and Spain cereal crops are the main users of N, P_2O_5, and K_2O, followed by potatoes in Portugal and by fruits and vegetables in Spain. Fertilizer materials used in Portugal include NPK products, CAN, and SSP; in Spain AS, SSP, SOP, MOP, and NPK products are widely used. In Sweden cereal crops are the main users of N, P_2O_5, and K_2O, followed by pastures. Data on fertilizer products used were not available. In Switzerland grasses are by far the main user of N and P_2O_5, while cereal crops are the main users of K_2O. The main fertilizer products used are CAN, basic slag, urea, TSP, and SSP. In the United Kingdom cereal crops are the main users of N, P_2O_5, and K_2O, followed by pastures. Products used include AN, DAP, MOP, CAN, and TSP.

Oceania

Table 15 presents data obtained from countries in Oceania. It includes Australia (1979), Fiji (1980), and New Zealand (1979). In Australia wheat is the main user of N and P_2O_5, while sugarcane is the main user of K_2O. Other crops that are important fertilizer users are cereal crops, fruits, vegetables, fodder crops, and oil crops. Nutrient sources used in Australia include urea, DAP, SSP, and MOP. In Fiji sugarcane is the main N, P_2O_5 and K_2O user. Fertilizer products used include AS, SSP, and MOP. Data

obtained from New Zealand indicate that most of the fertilizer used is applied to pastures; actual usage data, however, could not be obtained. The only figures available were for N use in forests that are fertilized with AN, AS, and DAP.

Summary

Tables 16, 17, and 18 present a summary of information related to use of N, P_2O_5, and K_2O by nine crop groups. These tables indicate which crop group is the major user of N, P_2O_5, and K_2O in each country. It also shows the kind of fertilizer products used in each country (straights and/or compound products). Numbers at the end of the tables represent the total number of countries for which a given crop group is the main N, P_2O_5, and K_2O user. These totals may not add up to 78 (the total number of countries indicated in Tables 2-15) for several reasons:

1. For some countries, fertilizer use data were available only for one or two nutrients.
2. Some countries do not use any K_2O.
3. Data for Ireland and New Zealand were available only for N use on forest crops.

Table 16 indicates that cereal crops are the main users of N in 48 of 76 countries reported. The cereal crop group includes rice, maize, and wheat. However, the three crops mentioned are the main N users. In general, rice is the main N user in Asia, while maize and wheat are the main N user crops in North and South America and in Europe. Cereal crops are followed in importance by the industrial crops group that includes the following: sugarcane, sugar beets, rubber, and tobacco. There were six countries using most of their N on industrial crops, mainly on sugarcane. These countries are located in the Caribbean region and in Africa.

Table 17 indicates that cereal crops are the main users of P_2O_5 in 40 of 69 countries. They are followed by industrial crops, which are the main users in 9 countries. Rice, maize, and wheat are the main cereal crop users of P_2O_5, as they are also of N. Countries using most of their P_2O_5 on cereal crops are located in Asia, Europe, and North America, while most countries using P_2O_5 on industrial crops are located in Africa and the Caribbean region.

Table 18 indicates that cereal crops again are the main users of K_2O in 30 of 63 countries that use K_2O. They are followed by industrial crops, which are the main users in 16 countries. Rice, maize, and wheat are the main cereal crop users of K_2O, just as they are of N and P_2O_5. The countries that use most of their K_2O on cereal crops are located in central and south Asia and in Europe. The countries that use most of their K_2O on industrial crops are located in Central and South America, Africa (except north Africa), and Oceania.

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Tables

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Table 1. List of Countries Included in Selected Regions

Region	Countries
Africa	
North Africa	Egypt, Morocco, Tunisia
Sahel West Africa	Chad, Gambia, Mali, Niger, Senegal, Upper Volta
West Africa	Benin, Cameroon, Central African Republic, Ivory Coast, Nigeria
East and South Africa	Burundi, Ethiopia, Lesotho, Madagascar, Malawi, Mauritius, Rwanda, Somalia, Sudan, Tanzania
America	
North America	Canada, Mexico, United States
Central America and Caribbean	Barbados, Cuba, Dominican Republic, ECCM, Panama, Trinidad
Andean Region	Bolivia, Colombia, Ecuador, Peru, Venezuela
Other South America	Argentina, Brazil, Chile, Guyana, Paraguay
Asia	
Central and South Asia	Afghanistan, Burma, Bangladesh, India, Pakistan, Sri Lanka
Southeast Asia	Indonesia, Malaysia, Philippines, Thailand
Middle East	Cyprus, Iraq, Israel, Turkey, Yemen Arab Republic, the People's Democratic Republic of Yemen
Northeast Asia	Japan, South Korea
Europe	
West and East Europe	Austria, Denmark, Finland, France, Federal Republic of Germany, Hungary, Ireland, Malta, Netherlands, Portugal, Spain, Sweden, Switzerland, United Kingdom
Oceania	
Oceania	Australia, Fiji, New Zealand

Table 2. North Africa--Fertilizer Use in Crop Production

Crop	Area Harvested (ha)	Area Fertilized (%)	Area Fertilized (ha)	Nutrient Consumption N (mt)	Nutrient Consumption P_2O_5 (mt)	Nutrient Consumption K_2O (mt)	Rate-Harvested Area N (kg/ha)	Rate-Harvested Area P_2O_5 (kg/ha)	Rate-Harvested Area K_2O (kg/ha)	Rate-Fertilized Area N (kg/ha)	Rate-Fertilized Area P_2O_5 (kg/ha)	Rate-Fertilized Area K_2O (kg/ha)	Principal Nutrient Sources
(Country--Egypt Year = 1975)													
Wheat			590,000	71,800	11,200	0				122	19	0	Urea, CAN, SSP
Millet	205,000	97	199,000	26,300	0	0	128	0	0	132	0	0	Urea, CAN
Maize			795,000	119,700	0	0				151	0	0	Urea, CAN
Barley	42,000	36	15,000	3,300	0	0	79	0	0	219	0	0	Urea, CAN
Rice			453,000	34,100	8,600	300				75	19	1	Urea, CAN, SSP, SOP
Potato			54,000	9,800	1,000	0				181	19	0	Urea, CAN, SSP
Sugarcane			102,000	21,100	1,900	60				207	19	1	Urea, CAN, SSP, SOP
Cotton	565,000	93	524,000	69,100	10,000	2,500	122	18	4	132	19	5	Urea, CAN, SSP, SOP
Groundnuts			15,000	500	500	0				34	34	0	Urea, CAN, SSP
Soybeans			7,000	500	0	0				75	0	0	Urea, CAN
Sesame	14,000	93	13,000	900	200	0	64	14	0	66	19	0	Urea, CAN, SSP
Pulses			205,000	3,500	600	100				17	3	1	Urea, CAN, SSP, SOP
Vegetables			305,000	28,700	5,800	0				94	19	0	Urea, CAN, SSP
Citrus crops			78,000	300	1,400	0				4	18	0	Urea, CAN, SSP
Mangos			11,000	1,600	200	0				142	18	0	Urea, CAN, SSP
Bananas			5,000	3,200	1,000	30				642	197	5	Urea, CAN, SSP, SOP
Grapes			21,000	1,500	400	80				70	18	4	Urea, CAN, SSS, SOP
(Country--Morocco Year = 1979)													
Wheat	1,714,000	43	737,000	7,400	7,400	5,900	4	4	3	10	10	8	Urea, AN
Maize	411,000	43	176,700	1,700	1,700	1,500	4	4	4	10	10	8	AS, AN
Rice	9,000	43	3,900	60	60	50	7	7	5	16	16	12	Urea, AS
Other cereals	2,287,000	43	983,400	9,800	9,800	7,800	4	4	3	10	10	8	Urea, AN
(Country--Tunisia Year = 1975)													
Cereals	2,007,000			6,200			3						AN
Legume forage	223,000			900			4						AN
Vegetables	95,000			1,000			11						AN
Fruits	2,189,000			4,900			2						AN
Other crops				300									

Sources: Egypt: FAO. "Provisional Statistics on Fertilizer Use by Major Crops," Rome, June 1980.
Morocco: IFDC Questionnaire.
Tunisia: IFDC reports.

Table 3. Sahel West Africa--Fertilizer Use in Crop Production

Crop	Area Harvested	Area Fertilized		Nutrient Consumption			Rate-Harvested Area			Rate-Fertilized Area			Principal Nutrient Sources
				N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	
	(ha)	(%)	(ha)	(mt)			(kg/ha)						
(Country--Chad Year = 1978)													
Wheat	2,000			10	10	0	3	3	0				
Rice	50,000	2	1,000	60	30	30	1	1	1	60	30	30	Urea
Other cereals				10	0	0							
Sugarcane	2,000			20	10	10	8	4	5				
Cotton	281,000	40	112,400	3,500	2,200	3,500	12	8	12	31	19	31	NPK, urea
(Country--Gambia Year = 1976)													
Rice	25,000	94	23,500	200	60	0	6	2	0	6	3	0	NPK, urea
Cotton	1,300	100	1,300	20	30	0	18	23	0	18	23	0	NPK
Groundnuts	115,000	20	23,000	0	500	0	0	4	0	0	22	0	SSP
(Country--Mali Year = 1976)													
Maize	81,000	80	64,800	700	0	0	9	0	0	11	0	0	Urea
Rice	130,000	12	15,600	1,800	0	0	14	0	0	118	0	0	Urea, PR
Cotton	88,000	90	79,200	2,000	3,100	900	26	44	0	28	49	0	NPK, urea
Vegetables	300			40	0	0	123	0	0				Urea
Groundnuts	150,000	90	135,000	0	700	0	0	5	0	0	5	0	SSP
(Country--Niger Year = 1979)													
Rice	25,000			700	100	100	28	4	4				Urea, SSP, TSP
Industrial crops				10	10	10							NPK
Groundnuts	174,000			0	500	0	0	3	0				SSP, TSP
Fruits and vegetables				10	10	10							NPK
Fiber crops				40	60	30							NPK
(Country--Senegal Year = 1975)													
Millet/sorghum	989,000	19	187,900	3,900			4			21			NPK, urea
Rice	82,000	70	57,400	2,100			26			37			Urea, NPK
Cotton	39,000	97	37,800	1,400			36			37			NPK, urea
Groundnuts	1,123,000	28	314,400	3,300			3			10			NPK
(Country--Upper Volta Year = 1975)													
Sorghum	1,800,000	1	18,000	400	800	0	0	0	0	23	45	0	NPK
Rice	45,000	12	5,400	200	100	0	4	3	0	30	27	0	Urea, DAP
Sugarcane	2,250	100	2,300	400	300	80	164	153	33	164	153	33	AS, TSP, MOP
Cotton	120,000	35	42,000	600	1,100	0	5	9	0	14	27	0	NPK
Groundnuts	140,000	6	8,400	0	300	0	0	2	0	0	36	0	TSP

Sources: Chad, Gambia, Mali, Upper Volta: UNIDO. 1978. "Identification of Facilities needed to Expand Fertilizer Production and Supplies in 23 Least Developed Countries," October 1978.
Niger: IFDC Questionnaire.
Senegal: IFDC reports.

Table 4. West Africa--Fertilizer Use in Crop Production

Crop	Area Harvested (ha)	Area Fertilized (%)	Area Fertilized (ha)	Nutrient Consumption N (mt)	Nutrient Consumption P_2O_5 (mt)	Nutrient Consumption K_2O (mt)	Rate-Harvested Area N (kg/ha)	Rate-Harvested Area P_2O_5 (kg/ha)	Rate-Harvested Area K_2O (kg/ha)	Rate-Fertilized Area N (kg/ha)	Rate-Fertilized Area P_2O_5 (kg/ha)	Rate-Fertilized Area K_2O (kg/ha)	Principal Nutrient Sources
(Country--Benin Year = 1976)													
Maize	26,200			10	60	400	0	2	16				NPK, urea, TSP, AS, MOP
Rice	10,200			10	20	0	1	1	0				NPK, urea
Cotton	50,000			1,200	1,400	800	23	27	16				NPK, urea
Oil palm	320,000			30	500	100	0	2	0				AS, MOP, SOP
(Country--Cameroon Year = 1977)													
Rice	25,000	26	6,600	500	70	60	20	3	2	70	11	9	NPK, urea, CAN
Sugarcane	16,000	95	15,200	1,300	600	1,400	81	38	88	84	38	89	NPK, urea
Coffee	300,000	1	1,600	200	100	100	1	0	0	125	63	63	NPK, urea, AS
(Country--Central African Republic Year = 1976)													
Cotton	136,000	6	8,200	200	0	0	2	0	0	30	0	0	Urea, AS
Coffee	30,000	10	3,000	300	100	200	11	4	5	113	37	50	NPK, urea, MOP, TSP, NPK
(Country--Ivory Coast Year = 1973)													
Rice	290,000			400	100	100	1	0	0				NPK, AS
Sugarcane				100	100	200							
Cotton	65,000			1,600	1,500	1,500	25	23	23				NPK, AS, SSP, MOP
Bananas and pineapples				4,200	1,200	8,300							NPK, AS, SSP
Industrial pineapples				800	400	2,000							NPK, AS, MOP
Coffee and cocoa	2,374,000			400	600	700	0	0	0				NPK, AS, SSP
Coconut				100	200	800							NPK, AS, MOP
Oil palm				90	20	3,600							AS
Rubber				30	20	400							
Other crops				100	40	100							NPK
(Country--Nigeria Year = 1979)													
Wheat	6,000	58	3,400	300	80	0	46	14	0	80	24	0	NPK, urea
Millet	3,622,700	11	398,500	8,000	4,300	1,100	2	1	0	20	11	3	NPK, CAN, SSP
Sorghum	4,836,600	14	652,900	11,300	7,200	1,700	2	1	0	17	11	3	NPK, CAN, SSP
Maize	740,000	20	144,300	7,000	2,600	300	9	4	0	49	18	2	NPK, AS
Rice	386,000	34	129,300	6,100	2,300	1,000	16	6	3	48	17	8	NPK, AS
Potato	87,600	34	29,800	600	200	200	7	3	2	21	8	7	NPK
Cassava	763,000	3	21,400	400	200	500	1	0	1	21	11	23	NPK
Cocoyams	187,900	2	3,400	50	40	0	0	0	0	14	11	1	
Yams	678,000	24	160,700	2,700	2,100	2,900	4	3	4	17	13	18	NPK, urea
Sugarcane	78,000	50	39,300	2,200	1,300	1,500	28	16	20	56	33	39	NPK, urea
Cotton	362,200	49	176,000	4,300	1,900	0	12	5	0	24	11	0	NPK, SSP
Tobacco	14,900	100	14,900	600	500	700	42	33	44	42	33	44	NPK, AS
Vegetables	192,000	25	47,600	1,000	400	600	5	2	3	21	8	13	AS
Cocoa	259,700	14	36,100	1,200	600	400	5	2	2	33	17	12	NPK, urea, AS
Oil palm	533,000	2	10,100	300	100	400	1	0	1	29	13	38	NPK, MOP
Rubber	199,700	1	2,600	70	50	50	0	0	0	26	20	19	NPK, MOP

Sources: Benin, Central African Republic: UNIDO. "Identification of Facilities Needed to Expand Fertilizer Production and Supplies in 23 Least Developed Countries," October 1978.
Cameroon, Ivory Coast: FAO. "Provisional Statistics on Fertilizer Use by Major Crops," Rome, June 1980.
Nigeria: IFDC report.

Table 5. East and South Africa--Fertilizer Use in Crop Production

Crop	Area Harvested	Area Fertilized		Nutrient Consumption			Rate-Harvested Area			Rate-Fertilized Area			Principal Nutrient Sources
				N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	
	(ha)	(%)	(ha)	(mt)			(kg/ha)						
(Country--Burundi Year = 1976)													
Cotton	6,900			70	0	0	10	0	0				AS
Coffee	40,000	20	8,000	200	0	0	4	0	0	22	0	0	Urea
Tea	4,000	100	4,000	300	100	200	85	32	40	85	32	40	NPK, MOP, TSP
(Country--Ethiopia Year = 1976)													
Teff	2,200,000	10	220,000	4,200	3,100	0	2	2	0	20	14	0	DAP, urea
Wheat	1,100,000	5	49,500	900	700	0	1	1	0	18	14	0	DAP, urea
Sorghum	1,200,000	3	31,200	600	500	0	1	0	0	19	16	0	DAP, urea
Maize	900,000	3	25,200	1,000	700	0	1	2	0	40	28	0	DAP, urea
Barley	1,800,000	2	41,400	800	600	0	0	0	0	20	14	0	DAP, urea
Sugarcane	9,000	100	9,000	1,100	0	0	127	0	0	127	0	0	Urea, AS
Cotton	300,000	100	300,000	1,600	0	0	5	0	0	5	0	0	Urea
Oil seeds	900,000	9	81,000	1,100	2,800	0	1	3	0	13	34	0	DAP, urea
Pulses	900,000	6	54,000	500	1,200	0	1	1	0	9	22	0	DAP
Other crops				100	300	0			0			0	DAP, urea
(Country--Lesotho Year = 1979)													
Wheat	46,000	60	27,600	300	1,000	0	6	21	0	11	36	0	NPK
Maize	112,000	30	33,600	400	1,200	10	3	11	0	10	35	0	NPK, CAN
Other cereals	62,000	20	12,400	100	400	0	2	6	0	8	32	0	NPK
Edible beans	20,000	20	4,000	40	0	0	2	0	0	9	0	0	NPK
(Country--Madagascar Year = 1977)													
Rice	1,108,000			3,000			3						Urea
Sugarcane	38,000			1,800			47						Urea
Cotton	19,000			600			32						Urea
Coffee	241,000			600			2						Urea
(Country--Malawi Year = 1976)													
Maize	1,000,000			1,100	900	200	1	1	0				NPK
Rice	45,000			1,100	300	0	24	6	0				NPK, AS
Sugarcane	9,000			800	200	700	89	19	80				SSP, TSP, SOP, MOP, AS
Cotton	40,000			400	0	0	9	0	0				CAN, AS
Tobacco	61,000			2,000	2,700	2,200	33	45	37				Urea, AS, NPK
Vegetables				200	0	0							
Tea	17,000			3,200	400	400	186	21	21				NPK, AS
Other crops				4,100	0	0							

(Continued)

Table 5. East and South Africa--Fertilizer Use in Crop Production (Continued)

Crop	Area Harvested	Area Fertilized		Nutrient Consumption			Rate-Harvested Area			Rate-Fertilizer Area			Principal Nutrient Sources
				N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	
	(ha)	(%)	(ha)	(mt)			(kg/ha)						
(Country--Mauritius Year = 1977)													
Maize	1,000	50	500	100	60	100	124	59	107	248	118	214	
Rice				10	0	10							
Potato	1,000	70	700	100	100	200	100	100	200	170	180	260	
Sugarcane			87,000	9,000	9,300	15,000				104	107	172	
Bananas			300	30	20	100				99	47	284	
Tea			5,800	300	800	800				47	142	142	
(Country--Rwanda Year = 1977)													
Tea	5,000	100	5,000	800	400	500	168	84	90	168	84	90	Urea, NPK, TSP, MOP
(Country--Somalia Year = 1976)													
Maize	172,000	20	34,400	300	100	2,300	2	1	13	10	4	67	MAP, NPK, DAP
Rice	7,000	75	5,300	200	200	100	24	33	19	32	44	25	DAP, NPK
Sugarcane	7,000	100	7,000	1,000	40	100	143	6	16	143	6	16	Urea, NPK
Cotton	9,000	75	6,800	200	10	300	27	1	36	36	1	48	MAP, urea, NPK
Groundnuts	500	100	500	10	30	0	10	50	0	10	50	0	MAP
Bananas	7,400	75	5,600	2,600	500	1,400	346	68	184	461	90	245	Urea, DAP, MOP, NPK
(Country--Sudan Year = 1975)													
Wheat	277,000			25,300	0	0	91	0	0				Urea, TSP
Rice	10,000	100	10,000	700	1,000	0	69	104	0	69	104	0	Urea, TSP
Sugarcane	25,000	100	25,000	5,500	0	0	221	0	0	221	0	0	AS, urea
Cotton	400,000	100	400,000	43,700	0	0	109	0	0	109	0	0	Urea
Vegetables				1,700	0	0							Urea, NPK
(Country--Tanzania Year = 1975)													
Maize	1,100,000	12	132,000	4,400	1,900	0	4	2	0	32	14	0	AS, TSP
Tobacco	27,000	100	27,000	900	5,300	3,800	32	197	142	32	197	142	NPK
Coffee	154,000	8	11,500	2,700	1,300	1,300	17	9	9	233	117	117	AS, CAN, NPK, TSP, MOP
Tea	18,350	100	18,400	1,700	1,900	1,800	91	103	101	91	103	101	TSP, AS, NPK

Sources: Mauritius: FAO. "Provisional Statistics on Fertilizer Use by Major Crops," Rome, June 1980.
Lesotho: IFDC Questionnaire.
Madagascar: IFDC reports.
Burundi, Ethiopia, Malawi, Rwanda, Somalia, Sudan, Tanzania: UNIDO. 1978. "Identification of Facilities needed to Expand Fertilizer Production and Supplies in 23 Least Developed Countries," October 1978.

Table 6. North America--Fertilizer Use in Crop Production

Crop	Area Harvested	Area Fertilized		Nutrient Consumption			Rate-Harvested Area			Rate-Fertilized Area			Principal Nutrient Sources
				N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	
	(ha)	(%)	(ha)	(mt)			(kg/ha)						
(Country--Canada Year = 1979)													
Wheat	10,500,000	60	6,300,000	353,000	471,000	58,800	34	45	6	57	75	9	NPK
Other cereals	7,300,000	60	4,380,000	189,000	247,000	0	26	34	0	43	56	0	NPK
Oil crops	5,020,000	75	3,765,000	112,000	214,000	56,000	22	45	11	30	59	15	NPK
(Country--Mexico Year = 1977)													
Wheat	709,000	99	705,000	93,700	28,200	0	132	39	0	133	40	0	AA, TSP
Maize	7,470,000	41	3,094,000	321,700	133,000	0	43	18	0	104	43	0	Urea, AS, TSP, SSP
Barley	248,000	52	130,000	11,300	5,200	0	46	21	0	87	40	0	Urea, AS, TSP, SSP
Oats	64,000	39	25,000	2,500	1,000	0	39	16	0	99	40	0	Urea, AS, TSP, SSP
Rice	180,000	65	116,000	16,200	3,500	0	90	19	0	139	30	0	Urea, TSP
Potato	54,000	78	42,000	3,200	4,100	0	59	76	0	77	98	0	TSP, urea
Sugarcane	638,000	99	632,000	82,100	37,900	37,900	128	59	59	130	60	60	NPK, MOP
Cotton	659,000	45	295,000	35,700	10,900	0	54	17	0	121	37	0	AA, TSP
Groundnuts	45,000	27	12,000	600	700	0	13	16	0	54	56	0	TSP
Soybeans	314,000	55	171,000	8,000	6,800	0	25	22	0	47	40	0	TSP
Sesame	205,000	27	55,000	3,900	1,800	0	19	9	0	71	33	0	AS, urea, TSP, SSP
Safflower	404,000	53	213,000	17,200	3,800	0	43	9	0	81	18	0	AA, DAP, TSP, NP
Pulses			339,000	14,600	13,400	0				43	39	0	TSP
Copra			85,000	9,300	4,200	8,500				109	50	99	
Tobacco	40,000	93	37,000	4,400	6,600	3,700	110	165	93	120	180	100	NPK, SOP
Vegetables			112,000	15,100	6,100	600				135	54	6	Urea
Pastures			1,356,000	131,000	66,300	0				97	49	0	
Citrus crops			81,000	9,100	4,800	3,700				113	60	46	NPK
Apples and pears			13,000	1,500	700	700				112	51	51	NPK
Peaches			11,000	600	500	600				51	41	51	NPK
Plantains			29,000	3,500	1,600	2,100				121	56	71	NPK
Avocado and mangoes			22,000	2,100	1,300	1,200				97	59	57	NPK, TSP, urea
Nut trees			8,000	800	0	0		0		103	0	0	
Grapes			21,000	800	1,700	800		61		40	81	40	
Coffee	389,000	21	80,000	8,000	6,400	8,000	21	16	21	101	80	101	NPK
Cocoa	64,000	42	27,000	1,600	1,600	2,700	25	25	42	60	60	100	
(Country--United States[a] Year = 1980)													
Wheat	28,800,000			1,257,000	592,000	275,700	44	21	10	66(67)	44(43)	48(18)	AA, NPK, NP
Sorghum	4,900,000			332,000	97,000	41,000	68	20	8	85(80)	41(44)	35(22)	AA, NPK, NP
Maize	28,900,000			4,047,000	2,037,000	2,511,000	140	70	87	146(96)	73(87)	97(81)	AA, NPK
Rice	1,451,000			193,500	23,000	24,128	133	16	16	133(100)	44(36)	48(34)	Urea, AN, TSP, PK, MOP
Cotton	5,400,000			307,000	146,000	92,000	57	27	17	80(71)	51(48)	51(30)	AA, NPK
Soybeans	28,100,000			118,000	554,000	863,000	4	20	31	18(23)	52(35)	79(36)	NPK
Forests	117,000			20,300			173						Urea, AN, AS, DAP
Citrus crops	495,000			83,000	3,900	66,700	175	8	140	175(100)	82(10)	126(78)	AN, urea, TSP, NPK, SOP
Sugarcane	298,000			29,700	17,800	32,205	100	60	108	212(47)	87(69)	138(78)	Urea, AA, AN, TSP, MOP, SOP

a. For the United States, data for percentage of area fertilized with N, P_2O_5, and K_2O were available. The numbers in parentheses after net application rates refer to these percentages. Data for rice, citrus, and sugarcane are estimates provided to IFDC by extension agents in producing states.

Sources: United States: USDA and IFDC questionnaire.
Canada: IFDC Questionnaire.
Mexico: IFDC reports.

Table 7. Central America and Caribbean Region Fertilizer Use in Crop Production

Crop	Area Harvested	Area Fertilized		Nutrient Consumption			Rate-Harvested Area			Rate-Fertilized Area			Principal Nutrient Sources
				N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	
	(ha)	(%)	(ha)	(mt)			(kg/ha)						
(Country--Barbados Year = 1979)													
Sugarcane	45,000			2,300			51						NK, AS
(Country--Cuba Year = 1975)													
Rice	200,000			17,500	6,900	6,500	88	35	33				
Potato	13,000			1,700	2,400	3,000	131	185	231				
Roots and tubers				2,500	1,800	3,700							
Sugarcane	1,235,000			86,700	27,500	62,100	70	22	50				
Tobacco	65,000			6,400	6,800	10,700	98	105	165				
Vegetables				3,100	3,100	5,200							
Pastures				16,700	3,000	3,000							
Citrus crops				4,800	1,600	3,600							
Plantains				3,600	2,700	10,400							
Coffee	50,000			3,500	2,000	5,700	70	40	114				
Other crops				9,800	1,400	1,500							
(Country--Dominican Republic Year = 1979)													
Maize	22,000	15	3,300	200	200	50	7	7	2	45	45	15	NPK
Rice	78,000	80	62,400	6,000	3,000	3,000	77	38	38	96	48	48	NPK, AS, urea
Other cereals	8,400	25	2,100	70	80	0	8	10	0	31	38	0	NP, urea
Edible beans	34,000	10	3,400	200	200	200	5	5	5	46	46	46	NPK
Roots and tubers	36,000	11	4,000	400	400	400	11	11	11	101	101	101	NPK, NPK
Fiber crops	4,000	98	3,900	200	300	200	60	75	38	61	77	38	AS, NPK
Industrial crops	463,000	55	254,600	21,300	12,500	12,500	46	27	27	83	49	49	NPK, AS
Legume forage	1,000,000	2	20,000	1,000	800	400	1	1	0	48	38	20	SOP, MOP
Fruits and vegetables	15,000	80	12,000	800	800	800	53	53	53	67	67	67	NPK, AS, urea
Oil crops	53,000	19	10,100	200	300	400	5	5	7	24	28	35	NPK
Other crops	63,000	25	15,800	800	800	800	12	12	12	48	48	48	NPK
(Country--ECCM Countries Year = 1979)													
Sugarcane	12,800			600			47						NPK, AS
Bananas	24,800			2,800			113						NPK, AS
(Country--Panama Year = 1977)													
Maize	76,000			600	800	400	8	10	5				
Rice	105,000			4,500	4,600	2,300	43	44	22				
Edible beans				100	200	0							
(Country--Trinidad Year = 1977)													
Maize	1,000	20	200	20	10	10	20	9	9	100	45	45	
Rice	9,000	28	2,500	100	100	100	11	11	11	49	49	49	

Sources: Cuba, Panama, Trinidad: FAO. "Provisional Statistics on Fertilizer Use by Major Crops," Rome, June 1980.
Dominican Republic: IFDC Questionnaire.
Barbados, ECCM Countries: IFDC reports.

Table 8. Andean Region--Fertilizer Use in Crop Production

Crop	Area Harvested	Area Fertilized		Nutrient Consumption			Rate-Harvested Area			Rate-Fertilized Area			Principal Nutrient Sources
				N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	
	(ha)	(%)	(ha)	(mt)			(kg/ha)						
(Country--Bolivia Year = 1977)													
Potato	126,000			1,300			10						
(Country--Colombia Year = 1978)													
Wheat	76,000	10	7,600	300	800	200	5	11	3	45	110	31	NPK
Maize	628,000	15	94,200	4,800	900	900	8	1	1	51	10	10	NPK, AN
Rice	217,000	99	214,800	41,200	7,300	8,000	190	34	37	192	34	37	Urea, NPK, AS, MOP
Potato	127,000	99	125,700	18,000	39,000	10,500	142	307	83	143	310	84	NPK
Cotton	376,000	56	210,600	10,600	1,600	1,600	28	4	4	50	8	7	Urea, NPK, MOP, AS
Pastures	2,433,000	10	243,300	12,300	5,100	0	5	2	0	51	21	0	Urea, NPK, MOP
Bananas	342,000	33	112,900	5,100	1,700	10,000	15	5	29	45	15	89	Urea, NPK
Coffee	1,055,000	26	274,300	44,600	10,800	39,600	42	10	38	163	39	144	Urea, NPK
Oil palm	18,000	95	17,100	2,300	2,700	4,100	125	150	225	132	158	237	Urea, NPK, AS, MAP, TSP
(Country--Ecuador Year = 1980)													
Cereals	279,000			9,900	7,100	2,500	36	26	9				Urea, AS, NPK, DAP
Legume grains	97,000			1,600	1,500	500	16	15	5				Urea, DAP, NPK
Tuber crops	91,000			1,100	1,200	500	12	13	6				Urea, MOP, NPK
Industrial crops				5,300	2,100	2,900							
Vegetables	15,000			700	0	300	49	0	21				Urea, NPK
Pastures				1,800	1,300	600							
Fruit crops	57,000			700	0	600	11	0	10				Urea, AS, SSP, DAP, NPK
Oil crops	99,000			2,000	1,600	1,000	21	16	10				Urea, AS, MOP
Export crops	814,000			3,400	2,200	1,600	4	3	2				Urea, NPK
(Country--Peru Year = 1980)													
Wheat	124,000			800	100	40	6	1	0				
Maize	262,000			13,000	2,200	800	50	9	3				Urea, DAP, AN, TSP
Barley	128,000			700	100	20	6	1	0				
Rice	103,000			13,500	400	10	131	4	0				Urea, TSP, AS
Potato	264,000			6,600	3,200	2,700	25	12	10				Urea, DAP, MOP, AN, TSP
Sugarcane	106,000			16,700	0	0	157	0	0				Urea, AN
Cotton	130,000			20,400	1,700	700	157	13	5				Urea, TSP, AN, DAP
Vegetables	74,000			3,500	1,400	800	47	19	11				Urea, TSP, AN, DAP
Fruits	78,000			3,000	1,000	800	39	13	10				
Coffee	104,000			1,200	700	1,100	11	7	10				Urea, DAP, MOP, AN, SOP
Other crops	466,000			3,000	1,300	500	6	3	1				

(Continued)

Table 8. Andean Region--Fertilizer Use in Crop Production (Continued)

Crop	Area Harvested	Area Fertilized		Nutrient Consumption			Rate-Harvested Area			Rate-Fertilized Area			Principal Nutrient Sources
				N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	
	(ha)	(%)	(ha)	(mt)			(kg/ha)						
(Country--Venezuela Year = 1980)													
Sorghum	326,000			28,200	19,700	13,800	87	60	42				Urea, NPK
Maize	535,000			32,100	21,200	17,100	60	40	32				AS, urea, NPK
Rice	218,000			20,800	13,300	9,600	96	61	44				Urea, AS, NPK
Broad beans	279,000			400	700	400	1	3	1				Urea, NPK
Edible beans	67,000			400	1.000	300	7	15	4				DAP, NPK
Potato	17,000			2,800	1,900	2,300	162	109	137				Urea, NPK
Cassava	39,000			1,500	1,800	2,100	39	47	54				Urea, NPK
Sugarcane	82,000			17,100	2,500	10,600	208	31	129				AS, urea, TSP, MOP
Cotton	46,000			4,500	5,200	3,500	97	114	77				DAP, AS, urea, MOP, SOP
Groundnuts	25,000			4,600	3,700	1,900	184	148	74				NPK, urea, AS
Soybeans				90	200	90							
Tobacco	11,000			60	100	200	5	10	15				NPK
Onions				200	500	200							Urea, NPK
Tomatoes				1,200	1,700	1,200							Urea, NPK
Pepper				200	200	100							Urea, NPK
Garlic				50	100	50							Urea, NPK
Coffee	260,000			9,900	2,100	1,400	38	8	5				NPK, urea, TSP
Coconut	21,000			800	800	1,100	36	36	51				NPK
Oil palm				50	50	80							

Sources: Bolivia, Ecuador, Venezuela: IFDC Report.
Colombia, Peru: IFDC Questionnaires.

Table 9. Other South American Countries--Fertilizer Use in Crop Production

Crop	Area Harvested	Area Fertilized		Nutrient Consumption			Rate-Harvested Area			Rate-Fertilized Area			Principal Nutrient Sources
				N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	
	(ha)	(%)	(ha)	(mt)			(kg/ha)						
(Country--Argentina Year = 1979)													
Wheat	4,564,000			16,400	23,000	0	4	5	0				Urea, DAP
Maize	2,800,000			900	0	0	0	0	0				Urea
Sugarcane	339,000			11,900	0	0	35	0	0				Urea, AS
Pastures				900	9,200	0							
(Country--Brazil Year = 1978)													
Wheat	2,811,000			62,000	124,000	62,000	22	44	22				NPK
Maize	11,125,000			67,000	100,000	50,000	6	9	4				NPK
Rice	5,623,000			62,000	124,000	62,000	11	22	11				NPK
Potato	211,000			23,000	46,000	23,000	109	218	109				NPK
Sugarcane	2,391,000			117,000	234,000	175,000	49	98	73				NPK
Cotton	1,470,000			23,000	46,000	23,000	16	31	16				NPK
Soybeans	7,782,000			42,000	384,000	189,000	5	49	24				NPK
Vegetables				52,000	52,000	52,000							NPK
Citrus crops	454,000			26,000	13,000	26,000	57	29	57				NPK
Coffee	2,183,000			199,000	66,000	199,000	91	30	91				NPK
Other crops	13,481,000			87,000	174,000	87,000	6	13	6				NPK
(Country--Chile Year = 1979)													
Wheat	551,000	75	413,300	24,800	18,600	6,200	45	34	11	60	45	15	SN, urea, DAP
(Country--Guyana Year = 1979)													
Sugarcane	134,000			26,000	2,800	3,500	194	21	26				Urea, TSP, MOP, AS
(Country--Paraguay Year = 1978)													
Wheat	30,000	30	9,000	300	500	200	10	17	7	30	50	20	NPK, urea, TSP, MOP
Maize	276,000	2	6,000	200	300	200	1	1	1	30	45	30	NPK
Rice	342,000	6	2,000	100	100	60	3	3	2	51	61	30	
Sugarcane	48,000			10	10	10	0	0	0				
Cotton	285,000	13	37,000	600	1,300	3,400	2	5	12	15	36	92	NPK
Soybeans	272,000	33	89,100	900	4,500	2,700	3	16	10	10	51	30	TSP, MOP
Vegetables			1,000	20	20	20				18	18	23	

Sources: Argentina: ISMA. "Fertilizer Consumption Report 1978-79," Paris, 1980.
Brazil, Chile, Guyana: IFDC Questionnaires.
Paraguay: FAO. "Provisional Statistics on Fertilizer Use by Major Crops," Rome, June 1980.

Table 10. Central and South Asia--Fertilizer Use in Crop Production

Crop	Area Harvested	Area Fertilized		Nutrient Consumption			Rate-Harvested Area			Rate-Fertilized Area			Principal Nutrient Sources
				N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	
	(ha)	(%)	(ha)	(mt)			(kg/ha)						
(Country--Afghanistan Year = 1975)													
Wheat	2,350,000			18,700	7,800	0	8	3	0				Urea, DAP
Other cereals	694,000			1,100	200	0	2	0	0				Urea, DAP
Sugarbeet	5,000			100	60	0	25	11	0				Urea, DAP
Cotton	112,000			4,700	3,500	0	42	32	0				Urea, DAP
Other crops	721,000			1,900	600	0	3	1	0				Urea, DAP
(Country--Burma Year = 1979)													
Wheat	83,000			400	200	0	5	2	0				Urea, TSP, MOP
Maize	80,000			500	200	10	7	3	0				Urea, TSP, MOP
Rice	5,013,000			56,500	17,300	2,800	11	3	1				Urea, TSP, MOP
Sugarcane	50,000			1,400	300	0	27	6	0				Urea, TSP, MOP
Cotton	165,000			1,100	500	100	7	3	1				Urea, TSP, MOP
Jute	52,000			3,300	0	40	64	0	1				Urea, TSP, MOP
Groundnuts	523,000			1,800	2,100	20	3	4	0				Urea, TSP, MOP
Pulses	567,000			300	200	0	0	0	0				Urea, TSP, MOP
Rubber				200	100	0							Urea, TSP
(Country--Bangladesh Year = 1980[a])													
Wheat	591,000			21,800	14,200	2,400	37	24	4	46(80)	42(60)	32(35)	Urea, TSP, MOP
Rice	10,308,000			219,000	123,700	9,300	21	12	1	40(54)	38(32)	32(19)	Urea, TSP, MOP
Potato	97,000			3,400	0	1,200	35	0	12	55(65)	0(0)	68(23)	Urea, TSP, MOP
Sugarcane	150,000			2,400	500	300	16	3	2	38(41)	26(9)	38(6)	Urea, TSP, MOP
Jute	635,000			5,900	1,300	1,300	9	2	2	29(32)	31(7)	34(5)	Urea, TSP, MOP
Oilseeds	283,000			3,400	1,100	300	12	4	1	43(28)	32(15)	29(5)	Urea, TSP, MOP
Pulses	328,000			100	300	0	3	1	0	38(7)	30(4)	35(1)	Urea, TSP, MOP

(Continued)

Table 10. Central and South Asia--Fertilizer Use in Crop Production (Continued)

Crop	Area Harvested	Area Fertilized		Nutrient Consumption			Rate-Harvested Area			Rate-Fertilized Area			Principal Nutrient Sources
				N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	
	(ha)	(%)	(ha)	(mt)			(kg/ha)						
(Country--India Year = 1979)													
Wheat	22,220,000	90	19,998,000	600,000	240,000	120,000	27	11	5	30	12	6	NPK, urea, DAP, MOP
Maize	5,800,000	50	2,900,000	58,000	5,800	0	10	1	0	20	2	0	Urea
Rice	40,200,000	75	30,150,000	754,000	181,000	60,000	19	5	1	25	6	2	Urea, DAP, NPK
Other cereals	37,378,000	60	22,426,800	336,000	45,000	22,000	9	1	1	15	2	1	Urea, SOP
Tuber crops	790,000	95	750,500	60,000	30,000	23,000	76	38	29	80	40	31	Urea, SOP, DAP, MOP
Sugarcane	3,119,000	80	2,495,200	200,000	50,000	20,000	64	16	6	80	20	8	Urea, DAP, NPK
Fiber crops	8,275,000	50	4,137,500	166,000	41,000	21,000	20	5	3	40	10	5	NPK, urea, DAP
Fruits and vegetables	5,531,000	50	2,765,500	28,000	14,000	6,000	5	3	1	10	5	2	Urea, PR, MOP, DAP
(Country--Pakistan Year = 1978)													
Wheat	6,687,000	78	5,215,900	349,000	88,300	0	52	13	0	67	17	0	Urea, DAP, CAN, NPK
Maize	605,000	73	441,600	29,600	6,600	0	49	11	0	67	15	0	Urea, AS, DAP, SOP, NPK
Rice	2,026,000	86	1,742,400	104,500	26,100	0	52	13	0	60	15	0	Urea, DAP, CAN, NPK
Other cereals	1,300,000	1	13,000	300	200	0	0	0	0	25	12	0	Urea, NPK, SOP
Tuber crops	37,000	100	37,000	5,600	1,900	1,900	150	50	50	150	50	50	Urea, NPK, CAN, DAP, SOP
Industrial crops	800,000	95	760,000	76,000	20,500	3,900	95	26	5	100	27	5	Urea, AS, SSP, PR, NPK
Cotton	1,891,000	86	1,626,300	104,100	44,400	0	55	23	0	64	27	0	CAN, urea, DAP
Oilseeds	500,000	10	50,000	1,300	1,300	0	3	3	0	25	25	0	Urea, DAP
Fruits and vegetables	390,000	35	136,500	13,700	1,400	1,400	35	4	4	100	10	10	Urea, NPK, CAN, DAP, SOP
Other crops				13,700	1,400	1,400							
(Country--Sri Lanka Year = 1980)													
Rice	636,000			54,500	23,200	19,500	86	36	31				Urea, MOP, AS, PR, TSP
Grasses				1,700	900	900							
Tea	220,000			25,400	4,600	13,400	115	21	61				Urea, MOP, AS, PR
Coconut	465,000			12,100	7,100	19,400	26	15	42				Urea, MOP, AS, PR
Rubber	210,000			2,400	3,000	1,700	11	14	8				Urea, MOP, AS, PR, TSP
Other crops	460,000			14,500	10,900	12,200	32	24	27				Urea, MOP, AS, PR, TSP

a. For Bangladesh, data for percentage of area fertilized with N, P_2O_5, and K_2O were available. The numbers in parentheses after net application rates refer to these percentages.

Sources: Afghanistan, Burma, Sri Lanka: ESCAP.
India, Pakistan: IFDC Questionnaires.
Bangladesh: IFDC report.

Table 11. Southeast Asia--Fertilizer Use in Crop Production

Crop	Area Harvested	Area Fertilized		Nutrient Consumption			Rate-Harvested Area			Rate-Fertilized Area			Principal Nutrient Sources
				N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	
	(ha)	(%)	(ha)	(mt)			(kg/ha)						
(Country--Indonesia Year = 1980)													
Maize	2,600,000			40,200	19,200	3,200	15	7	1				Urea, TSP, MOP
Rice	8,495,000			616,000	123,200	104,700	73	15	12				Urea, AS, TSP
Sugarcane	165,000			16,900	4,900	11,800	102	30	72				AS, NPK
Groundnuts	517,000			1,700	2,200	0	3	4	0				Urea, MOP, TSP
Soybeans	710,000			1,700	4,400	0	2	6	0				Urea, TSP, MOP
Pepper, dry				2,200	1,200	1,200							Urea, NPK
Tobacco	189,000			6,400	700	700	34	4	4				AS, NPK
Vegetables				32,700	12,200	6,100							Urea, NPK
Cloves				2,900	1,500	1,500							Urea, NPK
Coffee	456,000			5,800	2,300	2,300	13	5	5				Urea, NPK
Tea	83,000			8,700	2,900	4,400	105	35	35				Urea, NPK
Coconut				2,800	2,800	2,800							Urea, NPK
Oil palm				11,700	11,700	23,300							Urea, NPK
Rubber				25,500	25,500	25,500							Urea, NPK
(Country--Malaysia Year = 1980)													
Rice	1,500,000	90	1,350,000	36,500	18,000	18,000	24	12	12	27	13	13	NPK, urea, PR, MOP
Tuber crops	14,000	90	12,600	300	300	300	21	21	21	24	24	24	NPK, TSP, AS, MAP
Fruits and vegetables	500,000	50	250,000	4,500	4,500	4,500	9	9	9	18	18	18	NPK, NPK
Oil palm	1,500,000	80	1,200,000	54,000	16,300	81,700	36	11	54	45	14	68	Urea, SSP, MOP, AS
Rubber	3,600,000	60	2,160,000	39,000	43,800	59,000	11	12	16	18	20	27	AS, PR, MOP
(Country--Philippines Year = 1980)													
Maize	3,215,500			7,200			2						NPK, NP, Urea
Rice	3,543,600			117,000			33						Urea, AS, NP
Sugarcane	528,600			76,900			145						Urea, NPK, AS
Vegetables				3,300									
Bananas and pineapples	315,700			17,500			55						Urea, NPK, AS
Other crops				2,900									NPK, urea, AS
(Country--Thailand Year = 1978)													
Rice	8,288,000			82,900	95,300	2,700	10	11	0				AS, AC, NPK
Sugarcane	480,000			37,100	3,300	5,500	77	7	11				AS, NPK
Tobacco	153,000			4,000	2,500	3,000	26	16	20				NPK
Rubber				5,000	6,000	2,000							NPK
Other crops				39,000	26,900	23,800							NP, AS, NPK

Sources: Indonesia: ESCAP.
Malaysia: IFDC Questionnaire.
Philippines and Thailand: IFDC reports.

Table 12. Middle East--Fertilizer Use in Crop Production

Crop	Area Harvested	Area Fertilized		Nutrient Consumption			Rate-Harvested Area			Rate-Fertilized Area			Principal Nutrient Sources
				N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	
	(ha)	(%)	(ha)	(mt)			(kg/ha)						
(Country--Cyprus Year = 1977)													
Wheat	28,000	79	22,000	800	600	0	29	21	0	36	27	0	
Barley	44,000	61	26,900	1,000	700	0	23	16	0	36	26	0	
Potato	9,000	97	8,700	2,600	1,300	1,300	288	144	144	301	150	150	
Vegetables			6,100	900	800	0				141	139	0	
Pastures			21,400	600	1,000	0				30	46	0	
Citrus crops			4,200	1,000	500	800				245	112	185	
Deciduous crops			4,700	1,000	400	0				216	81	0	
Bananas			100	80	30	30				840	290	300	
Grapes			41,600	1,200	1,000	0				28	25	0	
(Country--Iraq Year = 1974)													
Wheat	161,500			12,700	13,900	0	78	86	0				AS, TSP
Maize	18,000			1,500	1,700	0	84	92	0				AS, TSP
Rice	73,000			6,100	6,700	0	84	92	0				AS, TSP
Potato	4,300			500	600	0	105	147	0				AS, TSP
Cotton	68,000			5,800	4,100	0	86	60	0				AS, TSP
Flax	760			70	70	0	86	93	0				Urea, TSP
Jute	2,600			100	100	0	44	38	0				Urea, TSP
Groundnuts	600			100	100	0	165	170	0				Urea, TSP
Sunflower	3,250			300	300	0	85	93	0				AS, TSP
Safflower	2,800			200	200	0	65	76	0				AS, TSP
Onions				2,300	1,900	0							
Vegetables	130,000			21,000	20,700	0	162	159	0				AS, TSP
(Country--Israel Year = 1976)													
Wheat	103,000	65	66,900	8,000	4,000	0	78	39	0	120	60	0	AQA, urea, SSP, NP
Sorghum	12,000	12	1,400	200	0	0	14	0	0	120	0	0	AQA, urea, NP
Maize	2,000	2	0	10	10	10	4	3	4	200	150	200	Urea, AQA, SSP, NP, MOP
Sugarbeet	1,600	100	1,600	200	200	200	120	100	100	120	100	100	AS, urea, SSP, NP, MOP
Cotton	65,000	100	65,000	9,800	3,300	6,500	150	50	100	150	50	100	AQA, urea, SSP, NP, MOP
Groundnuts	6,000	100	6,000	300	700	1,200	50	120	200	50	120	200	AQA, urea, SSP, NP, MOP
Legume forage	4,200	100	4,200	2,100	400	600	500	100	150	500	100	150	AN, AS, SSP, NP, MOP
Vegetables	28,000	28	7,800	3,100	800	1,600	112	28	56	400	100	200	AN, urea, SSP, NP, MOP
Flowers	2,000	100	2,000	1,600	400	2,000	800	200	1,000	800	200	1,000	AN, NPK, PA, NP, MOP
Citrus crops	41,000	100	41,000	5,700	5,700	2,100	140	140	50	140	140	50	AS, AN, SSP, NP, MOP
Deciduous crops	30,000	100	30,000	24,000	600	1,200	800	20	40	800	20	40	AN, urea, PA, NP, PA

(Continued)

Table 12. Middle East--Fertilizer Use in Crop Production (Continued)

Crop	Area Harvested	Area Fertilized		Nutrient Consumption			Rate-Harvested Area			Rate-Fertilized Area			Principal Nutrient Sources
				N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	
	(ha)	(%)	(ha)	(mt)			(kg/ha)						
(Country--Turkey Year = 1979)													
Wheat	9,400,000	67	6,298,000	333,900	325,600	700	36	35	0	53	52	0	DAP, AS, DAP, urea, TSP
Maize	585,000	79	462,100	32,200	22,000	700	55	38	1	70	48	1	DAP, AS, TSP, urea
Rice	75,000	96	72,000	9,500	6,400	40	126	86	1	132	89	1	DAP, AS, TSP, urea, SSP
Other cereals	3,710,000	49	1,817,900	75,400	76,300	200	20	21	0	42	42	0	DAP, AS, urea, SSP
Tuber crops	462,000	80	369,600	44,800	32,900	9,900	97	71	21	121	89	27	DAP, AN, TSP, AS, UREA
Industrial crops	1,483,000			111,000	87,700	13,000	75	59	9				DAP, AN
Legume forage	408,000	32	130,600	5,000	4,900	0	12	12	0	38	37	0	DAP
Leguminous				10,300	14,200	500							
Fruits and vegetables	2,642,000	55	1,453,100	137,700	77,400	10,800	52	29	4	95	53	7	NPK, NPK, AS, TSP, PR
Oil plants	8,200,000	51	4,182,000	13,000	10,500	2,000	2	1	0	3	3	0	AS, TSP, SOP, CAN, MOP
(Country--Yemen Arab Republic Year = 1974)													
Wheat	65,100			3,700	800	2,600	57	13	41				Urea, TSP
Sorghum	1,933,000			78,100	27,600	87,000	40	14	45				Urea
Maize	58,800			2,400	800	2,600	40	13	45				Urea
Barley	168,100			5,100	2,000	6,000	30	12	36				TSP
Potato	6,500			300	90	300	48	14	50				
Cotton	28,200			700	200	0	24	6	0				Urea
Pulses	71,400			1,700	900	2,900	24	13	41				
Spices	9,700			200	80	0	20	8	0				
Tobacco	4,200			30	10	0	7	2	0				
(Country--People's Democratic Republic of Yemen Year = 1974)													
Wheat	6,313	70	4,400	300	40	0	44	6	0	62	8	0	Urea, TSP
Sorghum	21,448	15	3,200	200	0	0	8	0	0	50	0	0	Urea
Maize	2,752	30	800	90	0	0	33	0	0	111	0	0	Urea
Fodder crops	4,259	10	400	30	0	0	7	0	0	66	0	0	Urea
Potato	278	95	300	30	0	20	101	0	54	106	0	57	Urea, SOP
Cotton	5,284	80	4,200	200	0	0	44	0	0	54	0	0	Urea
Sesame	3,116	15	500	30	0	0	10	0	0	66	0	0	Urea
Tomatoes	1,561	70	1,100	60	60	0	38	38	0	55	55	0	Urea, TSP
Bananas	580	100	600	100	0	0	238	0	0	238	0	0	Urea

Sources: Cyprus: FAO. "Provisional Statistics on Fertilizer Use by Major Crops," Rome, June 1980.
Israel and Turkey: IFDC Questionnaire.
Iraq, Yemen Arab Republic, and People's Democratic Republic of Yemen: IDCAS. 1977. "Survey Report on the Present Status and Future Plans for the Production and Use of Fertilizers in the Arab States," Vienna.

Table 13. Northeast Asia--Fertilizer Use in Crop Production

Crop	Area Harvested	Area Fertilized		Nutrient Consumption			Rate-Harvested Area			Rate-Fertilized Area			Principal Nutrient Sources
				N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	
	(ha)	(%)	(ha)	(mt)			(kg/ha)						
(Country--Japan Year = 1979)													
Wheat	149,000	99	147,500	13,300	14,900	18,300	89	100	123	90	101	124	Urea, SSP, MOP
Maize	2,000	99	2,000	100	200	100	50	100	50	51	101	51	NPK
Rice	2,497,000	99	2,472,000	229,100	253,900	241,700	92	102	97	93	103	98	NPK
Other cereals	145,000	99	143,500	9,000	11,000	11,100	62	76	77	63	77	77	NPK
Fodder crops	1,002,000	99	992,000	114,200	132,200	102,200	114	132	102	115	133	103	NPK
Edible beans	248,000	99	245,500	9,200	26,000	25,100	37	105	101	37	106	102	NPK
Roots and tubers	189,000	99	187,100	18,500	22,900	26,400	98	121	140	99	122	141	NPK
Industrial crops	258,000	99	255,400	56,500	57,000	52,800	219	221	205	221	223	207	NPK
Fiber crops	126,000	99	124,700	34,900	18,900	22,100	277	150	175	280	152	177	NPK
Forests	48,706			3,800			78						NPK
Fruits and vegetables	1,046,000	99	1,035,500	238,100	238,000	225,700	228	228	216	230	230	218	NPK
(Country--South Korea Year = 1975)													
Cereals	98,000			10,800	3,900	2,800	110	40	28				
Barley	995,000			130,500	78,200	31,800	131	79	32				
Rice	1,314,000			171,700	77,400	82,000	131	59	62				
Feed crops	69,000			12,400	7,900	4,800	180	115	70				
Potato	179,000			15,700	9,500	9,600	87	53	54				
Industrial crops	144,000			10,900	6,100	3,400	76	43	24				
Pulses	420,000			16,800	10,500	6,700	40	25	16				
Tobacco	56,000			5,700	8,500	8,500	101	152	152				
Vegetables	360,000			79,000	34,100	21,500	219	95	60				
Mushrooms				1,100	0	0							
Forests	395,000			2,700	4,000	1,200	7	10	3				
Fruits	168,000			15,100	7,900	8,300	90	47	50				
Mulberry	107,000			18,700	11,100	8,300	175	104	78				
Other crops	71,000			4,900	3,500	1,800	69	49	25				

Sources: South Korea: FAO. "Provisional Statistics on Fertilizer Use by Major Crops," Rome, June 1980.
Japan: IFDC Questionnaire.

Table 14. Europe--Fertilizer Use in Crop Production

Crop	Area Harvested	Area Fertilized		Nutrient Consumption			Rate-Harvested Area			Rate-Fertilized Area			Principal Nutrient Sources
				N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	
	(ha)	(%)	(ha)	(mt)			(kg/ha)						
(Country--Austria Year = 1977)													
Wheat	285,000	100	285,000	25,700	14,300	28,500	90	50	100	90	50	100	
Maize	166,000	100	166,000	19,900	11,600	19,900	120	70	120	120	70	120	
Barley	328,000	100	327,000	19,600	13,100	26,200	60	40	80	60	40	80	
Potato	60,000	100	60,000	7,200	3,600	6,000	120	60	100	120	60	100	
Sugarbeet	56,000	100	56,000	7,800	3,400	8,400	140	60	150	140	60	150	
Pastures			1,100,000	44,000	33,000	44,000				40	30	40	
Apples			8,000	600	400	1,000				80	50	120	
Grapes for wine	50,000	100	50,000	5,000	2,500	4,500	100	50	90	100	50	90	
(Country--Denmark Year = 1980)													
Wheat	140,000	100	140,000	21,000	6,000	8,000	150	43	57	150	43	57	NPK
Other cereals	1,689,000	100	1,689,000	186,000	68,000	93,000	110	40	55	110	40	55	NPK
Sugarbeet	240,000	100	240,000	29,000	11,000	14,000	121	46	58	121	46	58	NPK, CAN
Rape seed	150,000	100	150,000	18,000	7,000	8,000	120	47	53	120	47	50	NPK
Fodder crops	699,000	85	594,100	140,000	41,000	47,000	200	59	67	236	69	79	NPK
Forests				700									
(Country--Finland Year = 1979)													
Spring wheat	97,000	100	97,000	8,100	8,100	8,100	84	84	84	84	84	84	NPK
Winter wheat and rye	81,000	100	81,000	10,200	8,800	4,400	126	109	54	126	109	54	NPK
Barley and oats	1,045,000	100	1,045,000	90,500	89,000	84,700	87	85	81	87	85	81	NPK
Fodder crops	950,000	75	712,500	82,900	37,900	34,900	87	40	37	116	53	49	NPK
Edible beans	4,000	100	4,000	200	400	400	50	100	100	50	100	100	NPK
Tuber crops	73,000	100	73,000	7,200	10,500	8,300	98	144	114	98	144	114	NPK
Ornamentals	20,000	80	16,000	1,300	1,300	2,600	64	64	128	80	80	160	NPK
Forests	100,000	100	100,000	8,800	5,400	5,400	88	54	54	88	54	54	CAN, NPK
Fruits and vegetables	20,000	100	20,000	2,000	2,000	4,000	100	100	200	100	100	200	NPK
Oil plants	55,000	100	55,000	5,400	5,400	5,400	98	98	98	98	98	98	NPK
(Country--France Year = 1979)													
Rice	7,000	99	6,900	1,000	1,000	1,000	143	143	143	144	144	144	
Maize	1,752,000	99	1,735,000	245,000	242,000	223,000	140	138	127	141	139	129	AN, TSP, MOP, urea
Wheat	4,465,500	99	4,420,000	527,000	380,000	326,000	118	85	73	119	86	74	AN, TSP, MOP, PK
Other cereals	3,409,000	99	3,375,000	239,000	266,000	239,000	70	78	70	71	79	71	AN, TSP, MOP, NPK
Edible legumes	7,000	99	6,900	1,000	1,000	1,000	143	143	143	144	144	144	
Roots and tubers	772,000	99	764,000	116,000	124,000	178,000	150	161	231	152	162	233	AN, TSP, MOP, NPK
Fruits and vegetables	814,000	80	651,000	51,000	90,000	98,000	100	111	120	124	138	150	AN, SOP, MOP
Oil crops	504,000	99	500,000	66,000	55,000	66,000	131	109	131	132	110	132	AN, TSP, MOP
Forests	5,250			700			124						AN, DAP
Vineyards	1,173,000	30	351,900	35,000	35,000	59,000	30	30	50	99	99	168	

(Continued)

Table 14. Europe--Fertilizer Use in Crop Production (Continued)

Crop	Area Harvested	Area Fertilized		Nutrient Consumption			Rate-Harvested Area			Rate-Fertilized Area			Principal Nutrient Sources
				N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	
	(ha)	(%)	(ha)	(mt)			(kg/ha)						
(Country--Federal Republic of Germany Year = 1979)													
Wheat	1,627,000	100	1,627,000	195,200	130,200	195,200	120	80	120	120	80	120	CAN, MOP, NPK, PR
Maize	764,000	100	764,000	137,500	122,200	152,800	180	160	200	180	160	200	CAN, MOP, NPK, PR
Other cereals	3,492,000	100	3,492,000	314,300	209,500	279,400	90	60	80	90	60	80	CAN, MOP, NPK, PR
Fodder crops	4,780,000	100	4,780,000	573,600	334,600	382,400	120	70	80	120	70	80	CAN, SSP, MOP, NPK
Edible beans	2,000	100	2,000	40	100	200	20	60	100	20	60	100	BS, MOP
Potato	276,000	100	276,000	24,800	22,100	33,100	90	80	120	90	80	120	AS, TSP, SOP, NPK
Sugarbeet	393,000	100	393,000	62,900	47,200	78,600	160	120	200	160	120	200	CAN, PR, MOP, NPK
Rape seed	124,000	100	124,000	17,800	16,500	20,300	143	133	164	143	133	164	
Forests	5,850			500			92						AN, NPK
Fruits and vegetables	52,000	100	52,000	7,800	5,200	7,300	150	100	140	150	100	140	NPK
(Country--Hungary Year = 1980)													
Wheat	1,135,000	100	1,135,000	133,900	105,600	78,300	118	93	69	118	93	69	CAN, SSP, MOP, AN, TSP
Maize	1,352,000	100	1,352,000	183,900	127,100	162,200	136	94	120	136	94	120	AS, SSP, MOP, urea, TSP
Rice	20,000	100	20,000	2,000	1,200	1,400	102	61	71	102	61	71	AS, SSP, SOP, urea, TSP
Other cereals	376,000	100	376,000	33,800	22,600	30,100	90	60	80	90	60	80	CAN, SSP, MOP, AN, TSP
Edible beans	61,000	100	61,000	4,300	4,900	6,100	70	80	100	70	80	100	AN, SSP, SOP, CAN, TSP
Roots and tubers	195,000	100	195,000	22,400	16,600	27,300	115	85	140	115	85	140	CAN, SSP, SOP, AN, TSP
Industrial crops	35,000	100	35,000	3,200	2,100	4,600	90	60	130	90	60	130	CAN, SSP, SOP, AN, TSP
Legume forage	928,000	90	835,200	83,500	60,300	83,500	90	65	90	100	72	100	AN, SSP, MOP, urea, TSP
Grasses	730,000	47	343,100	29,200	11,000	14,600	40	15	20	85	32	43	AN, SSP, MOP, urea, TSP
Vegetables	126,000	100	126,000	16,400	11,300	16,400	130	90	130	130	90	130	CAN, SSP, SOP, AN, TSP
Fruits and wines	318,000	36	114,500	32,900	20,700	28,600	103	65	90	287	181	250	CAN, SSP, SOP, urea, TSP
Oil crops	276,000	100	276,000	20,400	24,800	27,600	74	90	100	74	90	100	AN, SSP, MOP, CAN, TSP
(Country--Ireland Year = 1979)													
Forests	50			10			200						Urea, AN
(Country--Malta Year = 1977)													
Wheat	1,000			20	20	20	23	19	17				
Potato	3,000			100	100	90	41	34	31				
Pulses	1,000			20	20	20	23	19	17				
Vegetables				200	100	100							
Fruits				30	20	20							
(Country--Netherlands Year = 1979)													
Wheat	141,000	100	141,000	16,000	6,600	7,300	113	47	52	113	47	52	CAN, SSP, MOP, TSP
Maize	139,000	100	139,000	15,000	3,800	3,000	108	27	22	108	27	22	CAN, TSP, NPK
Other cereals	110,000	100	110,000	9,800	5,200	5,600	89	47	51	89	47	51	CAN, SSP, MOP
Edible beans	8,000	100	8,000	500	600	1,100	64	75	131	64	75	131	CAN, TSP, MOP
Tuber crops	291,000	100	291,000	51,800	34,800	49,700	178	119	171	178	119	171	NPK, CAN, TSP, MOP
Industrial crops	31,000	100	31,000	4,000	3,400	5,600	130	110	180	130	110	180	NPK
Grasses	1,221,000	100	1,221,000	340,700	15,100	21,200	279	12	17	279	12	17	CAN, SSP, MOP, NPK
Ornamentals	26,000	100	26,000	3,100	2,600	4,700	120	100	180	120	100	180	NPK
Fruits and vegetables	88,000	100	88,000	14,300	9,300	17,400	163	106	198	163	106	198	NPK, CAN, TSP, SOP

(Continued)

Table 14. Europe--Fertilizer Use in Crop Production (Continued)

Crop	Area Harvested	Area Fertilized		Nutrient Consumption			Rate-Harvested Area			Rate-Fertilized Area			Principal Nutrient Source
	(ha)	(%)	(ha)	N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	
				(mt)			(kg/ha)						
(Country--Portugal Year = 1978)													
Wheat	354,000	99	350,500	26,300	17,500	1,800	74	50	5	75	50	5	NPK, CAN
Maize	369,000	85	313,600	31,400	18,800	9,400	85	51	26	100	60	30	NPK, CAN
Rice	32,000	100	32,000	3,200	1,900	300	100	59	9	100	59	9	NPK, CAN
Other cereals	263,000	85	223,500	1,000	5,500	0	42	21	0	49	25	0	NPK
Potato	119,000	98	116,600	14,000	11,700	11,700	118	98	98	120	100	100	NPK, AS, SSP
Legume forage	160,000	50	80,000	1,600	2,400	800	10	15	5	20	30	10	NPK, SSP
Tomatoes	20,000	100	20,000	2,600	2,000	2,000	130	100	100	130	100	100	NPK, CAN
Fruits	64,000	80	51,200	5,100	3,600	2,600	80	56	40	100	70	50	NPK, CAN
Grapes, wine	340,000	70	238,000	9,500	7,100	4,800	28	21	14	40	30	20	NPK
Olives	405,000	30	121,500	600	1,200	1,200	1	3	3	5	10	10	NPK
(Country--Spain Year = 1979)													
Wheat	2,752,000	80	2,201,600	110,100	88,100	44,000	40	32	16	50	40	20	AS, SSP, MOP, NPK
Maize	443,000	90	398,700	59,800	27,900	27,900	135	63	63	150	70	70	NPK, AS, SSP, SOP
Rice	69,000	100	69,000	12,400	6,900	3,500	180	100	50	180	100	50	AS, SSP, MOP, NPK
Other cereals	4,189,000	80	3,351,200	217,800	134,000	67,000	52	32	16	65	40	20	AS, NPK, MOP, SSP
Roots and tubers	375,000	90	337,500	60,800	27,000	27,000	162	72	72	180	80	80	AS, SSP, SOP, NPK
Fiber crops	11,780,000	9	1,024,900	30,700	0	0	3	0	0	30	0	0	AS, SSP, SOP
Industrial crops	297,000	88	262,300	39,300	15,700	17,000	132	53	57	150	60	65	AS, SSP, SOP, Urea
Legume forage	1,183,000	66	774,900	46,900	39,100	39,100	40	33	33	61	50	50	AN, SSP, SOP, CAN, TSP
Leguminous crops	575,000	30	172,500	3,500	6,900	0	6	12	0	20	40	0	AN, SSP, MOP, AN, DAP
Ornamentals	3,000	100	3,000	300	500	900	90	150	300	90	150	300	AS, DAP, SOP, SSP, AN
Fruits and vegetables	1,443,000	74	1,067,800	192,200	64,100	64,100	133	44	44	180	60	60	AS, SSP, SOP, NPK
Grapes, wine	1,685,000	60	1,011,000	50,600	30,300	30,300	30	18	18	50	30	30	NPK, AS, SSP, SOP
Oil crops	2,741,000	46	1,266,300	57,000	31,700	31,700	21	12	12	45	25	25	AS, SSP, SOP, NPK
(Country--Sweden Year = 1977)													
Wheat	376,000	100	376,000	37,200	22,800	17,000	99	61	45	99	61	45	
Rye	112,000	100	112,000	8,100	6,900	6,500	72	62	58	72	62	58	
Barley	641,000	100	641,000	42,900	35,300	29,500	67	55	46	67	55	46	
Oats			491,000	30,900	24,600	17,700				63	50	36	
Other cereals			63,000	2,800	2,800	2,200				44	44	35	
Potato	48,000	96	46,000	4,300	5,500	8,700	90	115	181	93	120	189	
Sugarbeet	54,000	100	54,000	7,600	8,000	8,300	141	148	154	141	148	154	
Rape seed	124,000	100	124,000	16,800	9,100	7,000	135	73	56	135	73	56	
Forests				19,000									
Pastures			886,000	39,900	26,600	27,500				45	30	31	
(Country--Switzerland Year = 1979)													
Wheat	85,000	99	84,100	7,000	6,000	10,000	82	71	118	83	71	119	CAN, BS, MOP, urea, TSP
Maize	17,000	99	16,800	2,000	2,000	3,000	118	118	176	119	119	178	CAN, TSP, MOP, urea, BS
Other cereals	76,000	99	75,200	5,000	5,000	9,000	66	66	118	66	66	120	CAN, BS, MOP, urea, SSP
Grasses	790,000	99	782,100	26,000	19,000	4,000	33	24	5	33	24	5	CAN, BS, MOP, urea, SSP
Leguminous crops	8,000	99	7,900	1,000	1,000	1,000	125	125	125	126	126	126	CAN, SSP, SOP, urea, BS
Fruits and vegetables	20,000	99	19,800	1,000	1,000	2,000	50	50	100	51	51	101	CAN, SSP, urea, BS, MOP
Other crops	40,000	99	39,600	4,000	4,000	8,000	100	100	200	101	101	202	

(Continued)

Table 14. Europe--Fertilizer Use in Crop Production (Continued)

Crop	Area Harvested	Area Fertilized		Nutrient Consumption			Rate-Harvested Area			Rate-Fertilized Area			Principal Nutrient Source
				N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	
	(ha)	(%)	(ha)	(mt)			(kg/ha)						
(Country--United Kingdom Year = 1980)													
Wheat	1,441,000	99	1,426,600	208,900	66,300	56,200	145	46	39	146	46	39	AN, DAP, MOP, CAN, TSP
Barley	2,338,000	98	2,291,200	201,100	86,500	93,500	86	37	40	83	38	41	AN, PR, MOP
Potato	205,000	98	200,900	37,900	37,900	53,100	185	185	259	189	189	264	AN, DAP, MOP, DAP, TSP
Sugarbeet	213,000	93	198,100	29,200	13,800	30,700	137	65	144	147	70	155	AN, DAP, MOP, PR
Rape seed	98,000	99	97,000	24,900	5,000	3,700	254	51	38	257	52	38	
Short-term grasses	1,982,000	93	1,843,300	331,000	69,400	73,300	167	35	37	180	38	40	AN, DAP, MOP, TSP
Forests				700									
Permanent grasses	5,133,000	73	3,747,100	447,400	107,800	102,700	93	21	20	127	29	27	AN, DAP, MOP, CAN, TSP
Fruits and vegetables	188,000	80	150,400	18,800	9,800	15,000	100	52	80	125	65	100	AN, DAP, MOP, CAN, TSP

Sources: Austria, Malta, and Sweden: FAO. "Provisional Statistics on Fertilizer Use by Major Crops," Rome, June 1980.
Denmark, Finland, France, Federal Republic of Germany, Hungary, Ireland, Portugal, Spain, Netherlands, United Kingdom, and Switzerland: IFDC Questionnaire.

Table 15. Oceania--Fertilizer Use in Crop Production

Crop	Area Harvested	Area Fertilized		Nutrient Consumption			Rate-Harvested Area			Rate-Fertilized Area			Principal Nutrient Sources
	(ha)	(%)	(ha)	N	P_2O_5	K_2O	N	P_2O_5	K_2O	N	P_2O_5	K_2O	
				(mt)			(kg/ha)						
(Country--Australia Year = 1979)													
Wheat	11,159,000	70	7,811,300	55,000	198,000	0	5	18	0	7	25	0	Urea, SSP, DAP
Maize	56,000	70	39,200	2,000	1,000	600	36	18	11	51	26	15	AA, DAP, MOP, urea, SSP
Rice	115,000	85	97,700	8,000	2,000	0	70	17	0	82	20	0	Urea, SSP, AS, DAP
Other cereals	4,200,000	85	3,570,000	27,000	115,000	0	6	27	0	8	32	0	Urea, SSP, DAP
Fodder crops	2,200,000	80	1,760,000	13,000	35,000	1,900	6	16	1	7	20	1	Urea, SSP, AN, MAP
Tuber crops	47,000	95	44,600	4,000	5,000	6,000	85	106	128	90	112	134	AS, SSP, SOP, DAP, MOP
Sugarcane	267,000	100	267,000	52,000	23,000	32,000	194	86	120	194	86	120	
Fiber crops	69,000	100	69,000	8,000	4,000	0	116	58	0	116	58	0	Urea, SSP, AN, TSP
Industrial crops	10,000	100	10,000	1,000	400	600	100	40	60	100	40	60	DAP, MOP, SSP, urea
Ornamental shrubs	200,000	33	66,000	1,000	1,000	300	5	5	2	15	15	5	AS, MOP, SSP, urea, DAP
Forests	8,197			400			49						NPK
Fruits and vegetables	287,000	95	272,600	25,000	45,000	21,600	87	157	75	92	165	79	AN, AS, SSP, MOP, urea
Oil crops	329,000	25	82,300	5,000	1,000	0	15	3	0	61	12	0	AA, DAP, MOP, urea, SSP
(Country--Fiji Year = 1980)													
Rice				90	10	60							AS, SSP, MOP
Sugarcane				10,300	1,100	2,500							AS, SSP, MOP
Other crops				100	40	50							
(Country--New Zealand Year = 1979)													
Forests	6,900			2,900			413						Urea, AN, AS, DAP

Sources: Australia and New Zealand: IFDC Questionnaire.
Fiji: ADAB. "Fiji Fertilizer Study," March 1980.

Table 16. Major N-User Crop Groups and Types of Products Used by Country

	Crop Groups									Products Used	
	Cereals	Roots and Tubers	Vegetables	Fiber Crops	Fruits	Stimulants	Oil Crops	Industrial Crops	Pastures	Straights	Compounds
North Africa											
Egypt	X	-	-	-	-	-	-	-	-	X	-
Morocco	X	-	-	-	-	-	-	-	-	X	-
Tunisia	X	-	-	-	-	-	-	-	-	X	-
Sahel West Africa											
Chad				X						X	X
Gambia	X									X	X
Mali	X									X	X
Niger	X									X	X
Senegal	X									X	X
Upper Volta	X									X	X
African West Coast											
Benin				X						X	X
Cameroon								X		X	X
Central African Republic						X				X	X
Ivory Coast					X					X	X
Nigeria	X									X	X
East and South Africa											
Burundi						X				X	X
Ethiopia	X									X	
Lesotho	X									X	X
Madagascar	X									X	
Malawi						X				X	X
Mauritius								X			
Rwanda						X				X	X
Somalia					X					X	X
Sudan				X						X	
Tanzania	X									X	X
North America											
Canada	X										X
Mexico	X									X	X
United States	X									X	X
Central America and Caribbean											
Barbados								X		X	X
Cuba								X			
Dominican Republic								X		X	X
ECCM					X					X	X
Panama	X										
Trinidad	X										
Andean Region											
Bolivia		X									
Colombia	X									X	X
Ecuador	X									X	X
Peru	X									X	
Venezuela	X									X	X

(Continued)

Table 16. Major N-User Crop Groups and Types of Products Used by Country (Continued)

	Crop Groups									Products Used	
	Cereals	Roots and Tubers	Vegetables	Fiber Crops	Fruits	Stimulants	Oil Crops	Industrial Crops	Pastures	Straights	Compounds
Other South American Countries											
Argentina	X									X	
Brazil						X					X
Chile	X									X	
Guyana								X		X	
Paraguay							X			X	X
Central and South Asia											
Afghanistan	X									X	
Burma	X									X	
Bangladesh	X									X	
India	X									X	X
Pakistan	X									X	X
Sri Lanka	X									X	
Southeast Asia											
Indonesia	X									X	X
Malaysia							X			X	X
Philippines	X									X	
Thailand	X									X	X
Middle East											
Cyprus		X									
Iraq			X							X	
Israel					X					X	
Turkey	X									X	
Yemen	X									X	
People's Democratic Republic of Yemen	X									X	
Northeast Asia											
Japan	X										X
Korea	X										
West and East Europe											
Austria	X										
Denmark	X										X
Finland	X										X
France	X									X	
Federal Republic of Germany	X									X	X
Hungary	X									X	
Malta			X								
Netherlands									X	X	X
Portugal	X									X	X
Spain	X									X	
Sweden	X										
Switzerland									X	X	
United Kingdom									X	X	
Oceania											
Australia	X										
Fiji									X		
TOTAL	48	2	2	3	4	5	2	6	4		

Table 17. Major P_2O_5-User Crop Groups and Types of Products Used by Country

	Crop Groups									Products Used	
	Cereals	Roots and Tubers	Vegetables	Fiber Crops	Fruits	Stimulants	Oil Crops	Industrial Crops	Pastures	Straights	Compounds
North Africa											
Egypt	X									X	
Morocco	X										
Sahel West Africa											
Chad				X							X
Gambia							X			X	X
Mali				X							X
Niger							X			X	
Upper Volta				X							X
African West Coast											
Benin				X							X
Cameroon								X			X
Central African Republic						X				X	X
Ivory Coast					X					X	X
Nigeria	X									X	X
East and South Africa											
Burundi						X				X	X
Ethiopia	X									X	
Lesotho	X										X
Malawi								X			X
Mauritius								X			
Rwanda						X				X	X
Somalia	X									X	X
Sudan	X									X	
Tanzania								X		X	X
North America											
Canada	X										X
Mexico	X									X	X
United States	X									X	X
Central America and Caribbean											
Cuba								X		X	X
Dominican Republic								X		X	X
Panama	X										
Trinidad	X										
Andean Region											
Colombia		X									X
Ecuador	X									X	X
Peru	X									X	
Venezuela	X									X	X

(Continued)

Table 17. Major P_2O_5-User Crop Groups and Types of Products Used by Country (Continued)

	Crop Groups									Products Used	
	Cereals	Roots and Tubers	Vegetables	Fiber Crops	Fruits	Stimulants	Oil Crops	Industrial Crops	Pastures	Straights	Compounds
Other South American Countries											
Argentina	X									X	
Brazil							X				X
Chile	X									X	
Guyana								X		X	
Paraguay							X			X	X
Central and South Asia											
Afghanistan	X									X	
Burma	X									X	
Bangladesh	X									X	
India	X									X	X
Pakistan	X									X	X
Sri Lanka	X									X	
Southeast Asia											
Indonesia	X									X	X
Malaysia								X		X	X
Thailand	X										X
Middle East											
Cyprus		X									
Iraq	X									X	
Israel				X						X	
Turkey	X									X	
Yemen Arab Republic	X									X	
People's Democratic Republic of Yemen			X							X	
Northeast Asia											
Japan	X										X
Korea	X										
West and East Europe											
Austria									X		
Denmark	X										X
Finland	X										X
France	X									X	
Federal Republic of Germany	X										X
Hungary	X									X	
Malta		X	X								
Netherlands		X								X	
Portugal	X										X
Spain	X									X	X
Sweden	X										
Switzerland									X	X	
United Kingdom	X									X	
Oceania											
Australia	X								X		
Fiji								X			
TOTAL	40	4	2	5	1	3	4	9	3		

Table 18. Major K_2O-User Crop Groups and Types of Products Used by Country

	Crop Groups									Products Used	
	Cereals	Roots and Tubers	Vegetables	Fiber Crops	Fruits	Stimulants	Oil Crops	Industrial Crops	Pastures	Straights	Compounds
North Africa											
Egypt				X						X	
Morocco	X										
Sahel West Africa											
Chad				X							X
Mali				X						X	
Niger	X										X
Upper Volta								X		X	
African West Coast											
Benin				X						X	X
Cameroon								X			X
Central African Republic						X				X	X
Ivory Coast					X					X	X
Nigeria	X									X	X
East and South Africa											
Burundi						X				X	X
Lesotho	X										X
Malawi								X		X	X
Mauritius								X			
Rwanda						X				X	X
Somalia	X									X	X
Tanzania								X		X	X
North America											
Canada	X										X
Mexico								X		X	X
United States	X									X	X
Central America and Caribbean											
Cuba								X			
Dominican Republic								X		X	X
Panama	X										
Trinidad	X										
Andean Region											
Colombia						X					X
Ecuador								X		X	X
Peru		X								X	
Venezuela	X									X	X

(Continued)

Table 18. Major K_2O-User Crop Groups and Types of Products Used by Country (Continued)

	Crop Groups									Products Used	
	Cereals	Roots and Tubers	Vegetables	Fiber Crops	Fruits	Stimulants	Oil Crops	Industrial Crops	Pastures	Straights	Compounds
Other South American Countries											
Brazil						X					X
Chile	X										
Guyana								X		X	
Paraguay				X						X	
Central and South Asia											
Burma	X									X	
Bangladesh	X									X	
India	X									X	X
Pakistan								X		X	X
Sri Lanka	X									X	
Southeast Asia											
Indonesia	X									X	X
Malaysia								X		X	X
Thailand								X			X
Middle East											
Cyprus		X								X	
Israel				X				X		X	
Turkey	X									X	
Yemen Arab Republic		X								X	
People's Democratic Republic of Yemen											
Northeast Asia											
Japan	X										X
Korea	X										
West and East Europe											
Austria	X										X
Denmark	X										X
Finland	X										X
France	X									X	
Federal Republic of Germany	X										
Hungary	X									X	
Malta		X								X	X
Netherlands		X									X
Portugal	X									X	
Spain	X									X	
Sweden	X									X	
Switzerland	X									X	
United Kingdom	X								X	X	
Oceania											
Australia								X		X	
Fiji								X		X	
TOTAL	30	5	0	6	1	5	0	16	1		