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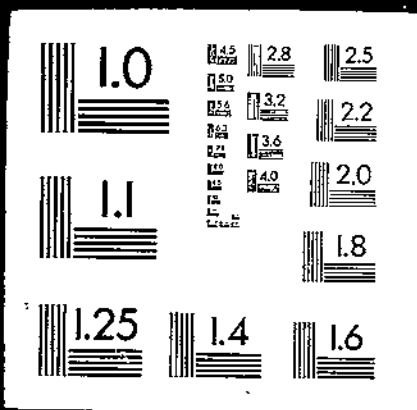
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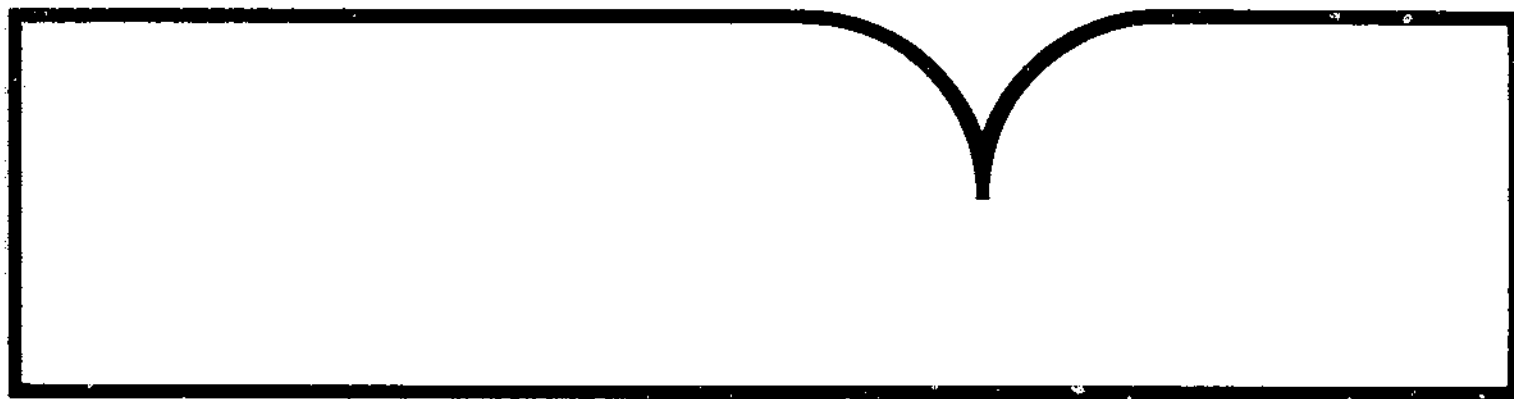


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Global Trade in Agricultural Inputs

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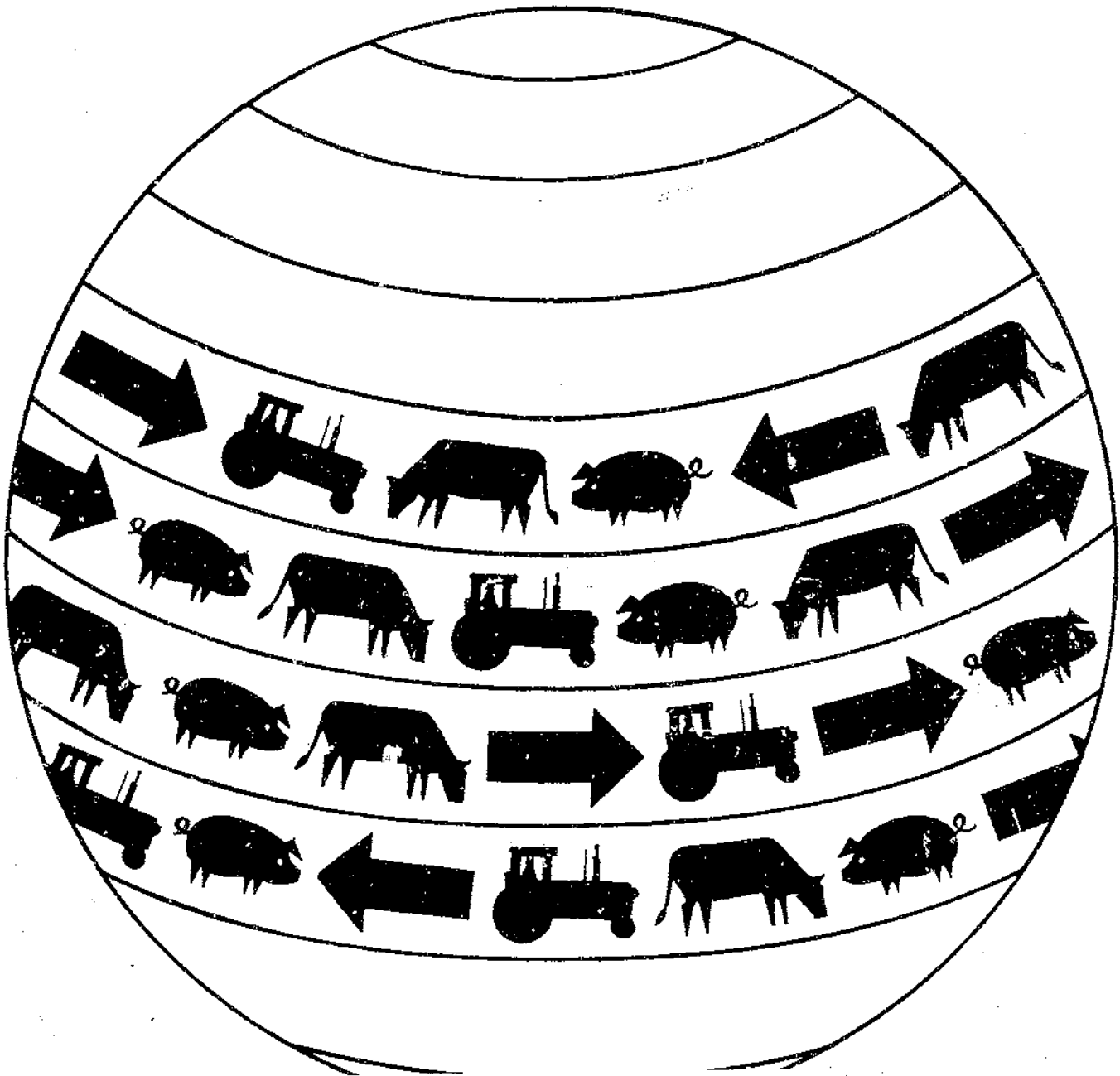
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Number 812

# Global Trade in Agricultural Inputs

Stan Daberkow and  
John Parks



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### **Abstract**

Trade in agricultural inputs, particularly fertilizer (crude and manufactured), pesticides, farm machinery, and genetic material, has been increasing over the last 25 years. Countries with either natural resources (for example, potash, phosphate rock, natural gas, or sulphur) or well-developed manufacturing infrastructure and heavy commitment to research and development have come to be major agricultural input exporters. Much world trade in agricultural inputs occurs in regional markets, often within the same continent, although some nations, such as the United States, ship to more than 100 countries. The dependence of U.S. farmers on imports of agricultural inputs is growing. Although the United States still enjoys a positive aggregate trade balance in these inputs, that balance has declined somewhat with increasing imports of manufactured fertilizers and farm machinery.

**Keywords:** Agricultural inputs, trade, fertilizers, pesticides, agricultural machinery, seeds, livestock genetic material.

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### Summary

As the world's economic system has become more intertwined, its agricultural inputs, production, and food sectors have become more globally oriented. Agricultural input trade has grown as the world's demand for agricultural products has increased. To the extent that a geographic disparity continues to exist between agricultural input and output production, the potential for input trade will expand. Furthermore, if tariff and nontariff barriers for all types of products diminish, further gains from trade will be achieved.

Through the 1980's, the major exporters of crude and manufactured fertilizers tended to be those countries with energy-rich resources or mineral reserves. In the case of farm machinery, pesticides, certain manufactured fertilizer, and genetic materials, the major developed countries of North America, Western Europe, and Asia tended to be major agricultural input exporters. This was due to their manufacturing infrastructure and heavy commitment to public and private research and development expenditures.

The United States, overall, is an exporter of manufactured inputs and genetic material. However, over the last few years, the positive trade balance has lessened. The United States now imports more than it exports of farm machinery and certain fertilizers, such as nitrogen and potash. While this situation may cause substantial restructuring within these domestic industries, U.S. farmers should benefit through lower priced inputs.

# Global Trade in Agricultural Inputs

Stan Daberkow  
John Parks\*

## Introduction

Agricultural input trade for the United States and the world has steadily increased over the last 25 years. As the world's food production system has become more interdependent, trade in raw agricultural commodities, processed foods, and agricultural inputs has grown. Economic theory suggests that either final products or mobile factors of production will be traded to exploit comparative advantages (2).<sup>1/</sup> Restrictions on overall trade generally make both importing and exporting countries worse off (2).

Agricultural productivity is typically enhanced when capital goods or materials either are added to or replace the most basic agricultural input, land. Labor and water are other indigenous resources which augment land in the production process. These resources, when combined with modern inputs, such as farm machinery, fertilizers, pesticides, and improved seeds and genetic materials, can substantially improve agricultural productivity.

These modern agricultural inputs are indigenous to countries with appropriate natural resources and an established manufacturing infrastructure. However, nearly all countries import some agricultural inputs to support domestic agricultural production. Those countries with excess manufacturing capacity or natural resources have become net exporters of agricultural inputs. The geographic disparity between agricultural input and output production creates the potential for trade. Over time, these disparities have decreased for some countries and inputs but have increased for others.

This report gives a historical perspective on the extent and direction of international trade in manufactured agricultural inputs and agricultural genetic material. While the report

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<sup>1/</sup> Underscored numbers in parentheses refer to items in the References section.



focuses on U.S. agricultural input sources of imports and destination of exports, world trade of these products is also discussed where data are available. On a global scale, the specific agricultural inputs examined are crude fertilizer, manufactured fertilizer, agricultural machinery, and pesticides. For genetic material, which includes seeds, live breeding stock, and semen, only U.S. data are available. Also, as a secondary goal, this report compares the major data sources to determine if important discrepancies exist which would bias the results of any analysis.

A general discussion of the factors which influence the magnitude and changes of trade flows is also included. This discussion recognizes that many bilateral trade relationships involve special circumstances, such as import tariff and quota structures, import or export subsidies, health and phytosanitary restrictions, or licensing restrictions. All these can distort the underlying economic or comparative advantage motives for trade between countries.

#### **Factors Affecting Input Production and Trade**

The concept of comparative advantage is often used to explain why a country or region produces (and possibly exports) or imports an agricultural input or agricultural commodity (2). A number of factors underlie the concept of comparative advantage. A country's endowment of natural resources, such as natural gas, phosphate rock, or potash, is an obvious determinant of crude or manufactured fertilizer production and trade (10). A highly developed manufacturing infrastructure, such as is found in countries producing significant amounts of farm machinery and pesticides, influences trade flows of these products (4). In other cases, such as herbicides and plant and animal genetic material, a heavy commitment to public and private research and development is correlated with input production and export (9).

While the size of a country's domestic agricultural sector will influence absolute input consumption levels, myriad other factors will affect the export or import of inputs. Exchange rates, freight rates, tariffs, and quotas can help determine the extent of input imports and exports, as will other government actions shaping international trade flows. These include significant intellectual property protection, environmental standards, and investment incentives such as import protection, production subsidies, tax preferences, and below-market loans. Other factors are food self-sufficiency goals, agricultural commodity programs, and public resource ownership. Also important is the building of input production facilities for import substitution and export, which for example, can provide employment and earn foreign exchange (15). Less direct factors such as external debt, political stability, stable sources of finance, and macroeconomic policies can also affect a country's input trade.

One of the key factors driving the use of aggregate agricultural input is the amount of area devoted to cropland. Worldwide

cropland area of the major crops increased over 12 percent between 1969/70 and 1985/86, with corn, rice, and soybean areas up 26, 10, and 82 percent (fig. 1, app. table 1). Increased use of agricultural inputs is also reflected in the growth of crop production and yields (fig. 2, app. tables 2 and 3). Yields for nearly all major crops grew faster than harvested cropland area between 1969/70 and 1985/86. Improved seed varieties, better production practices, and increased use of manufactured inputs--including fertilizers, pesticides, and agricultural machinery--contributed to the 48-, 67-, and 29-percent growth in yields of the input-intensive crops of corn, cotton, and rice. Indeed, world fertilizer consumption grew over 90 percent between 1970 and 1986, while fertilizer use per hectare increased 84 percent (figs. 3 and 4).

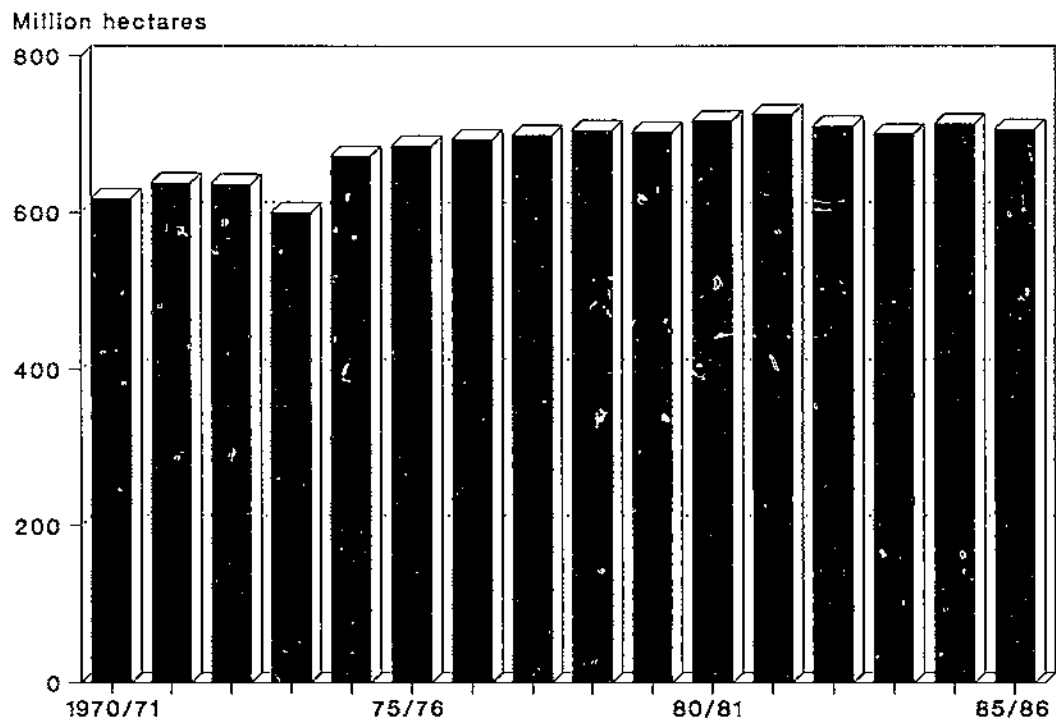
Trade in agricultural inputs arises partly because of the geographic disparity between agricultural input manufacturing and mining activities and the production of agricultural commodities. Just as the production of agricultural inputs is unevenly distributed around the world, so is the location of agricultural cropland and the production of agricultural commodities. Much of the world's cereal cropland in 1986 was located in Asia (43 percent), Eastern Europe/USSR (19 percent), and North and Central America (14 percent) (fig. 5). However, due to differing intensities of input use and crop mixes, the actual production of cereals showed a somewhat different distribution. Asia produced slightly over 40 percent of the world's cereals, followed by North and Central America (22 percent), and Eastern Europe/USSR (17 percent) (fig. 6). Cereal yields were highest in Western Europe and North and Central America, which can be partly explained by levels of input use (figs. 7 and 8).

Fertilizer consumption, the best documented input use statistic, reflects the world's geographic distribution of cereal land and input use intensity (fig. 9, app. table 4). World use of fertilizer increased about 80 percent between 1970/71 and 1983/84; use in Asia tripled, and use in Eastern Europe doubled. Concomitantly, Asia's share of world fertilizer consumption grew from 17 percent in 1970/71 to 30 percent in 1983/84, while Eastern Europe maintained its former share (table 1).

However, Asia produced about 40 percent of the world's cereals with only 30 percent of the fertilizer, while Eastern Europe produced only 19 percent of the cereal production but consumed 28 percent of all fertilizer. Crop mix, the extent of noncereal commodity production, relative input and output prices, climate, available technology, and soil nutrient requirements varied considerably between Asia and Eastern Europe.

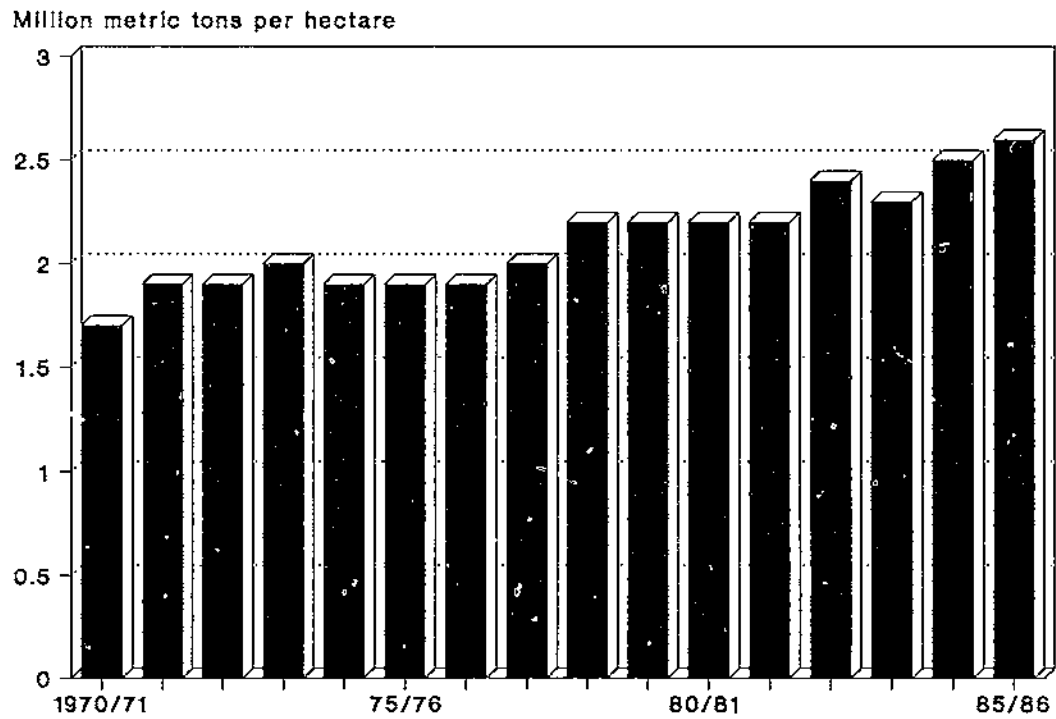
The location of the raw material and of the manufacturing infrastructure used to produce agricultural inputs does not coincide with the location of agricultural production (fig. 10). For example, the North American share of world phosphate and potash production exceeds its share of fertilizer consumption, and so, these countries have become major fertilizer exporters. In a reverse manner, Asia has become a major fertilizer importer.

Figure 1  
World cropland, 1970-85



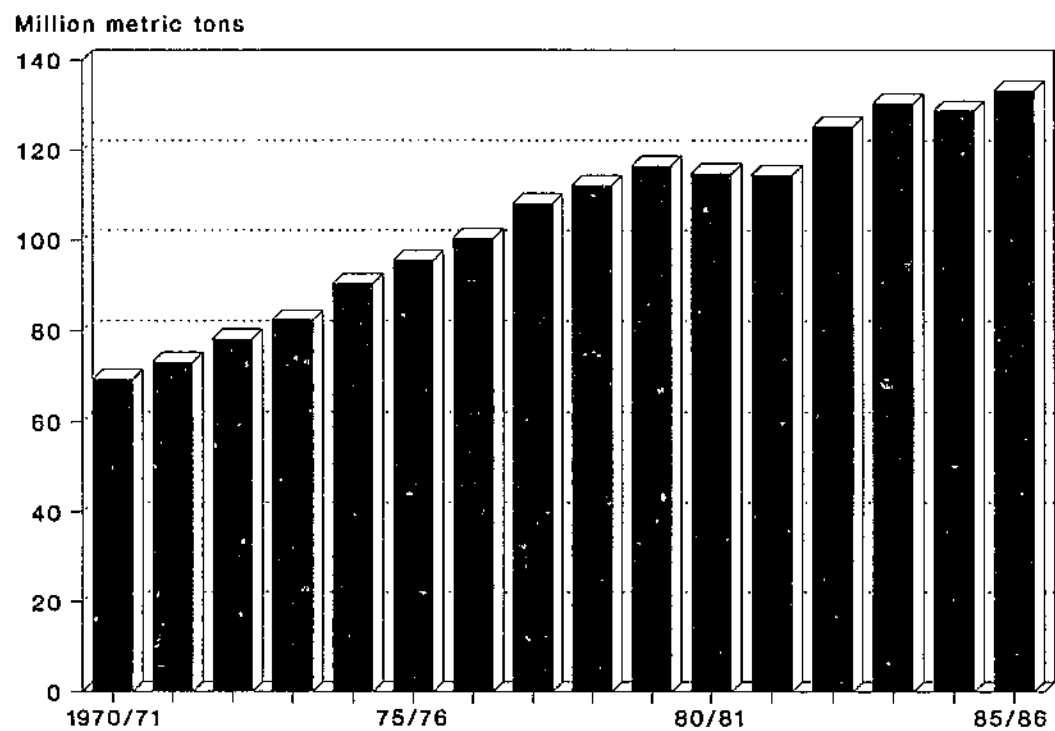
Source: See appendix table 1.

Figure 2  
World crop yields, 1970-85



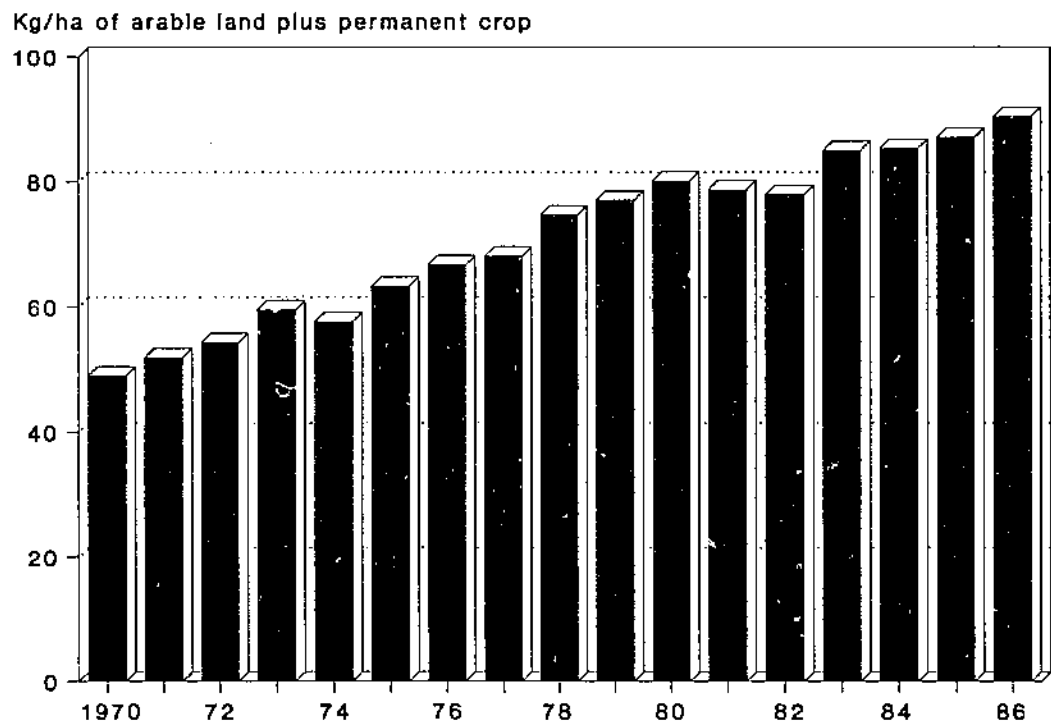
Source: See appendix table 3.

Figure 3  
World fertilizer consumption, 1970-85



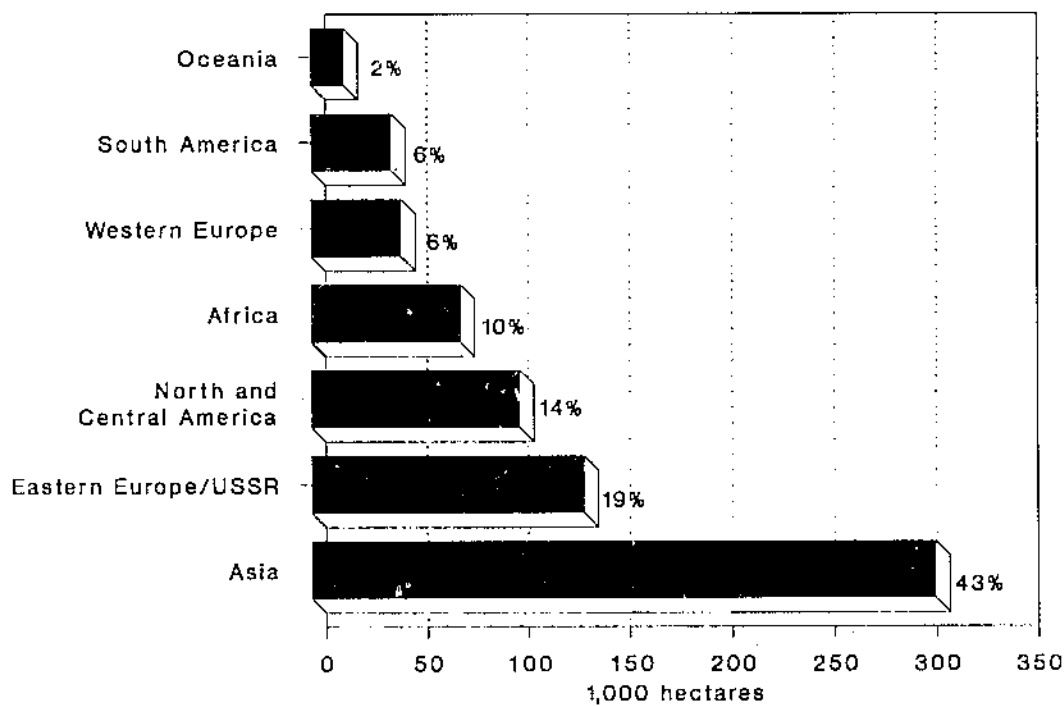
Source: See appendix table 4.

Figure 4  
World fertilizer use per hectare, 1970-86



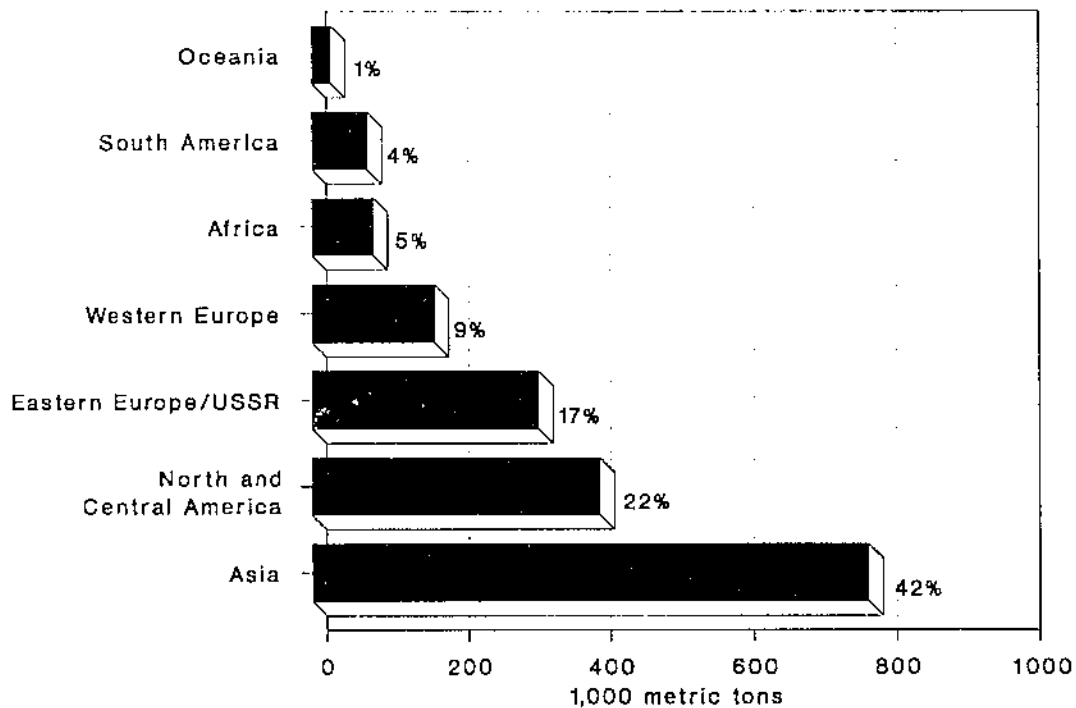
Source: FAO Fertilizer Yearbook.

Figure 5  
World cereal cropland area and distribution by region, 1986<sup>1</sup>



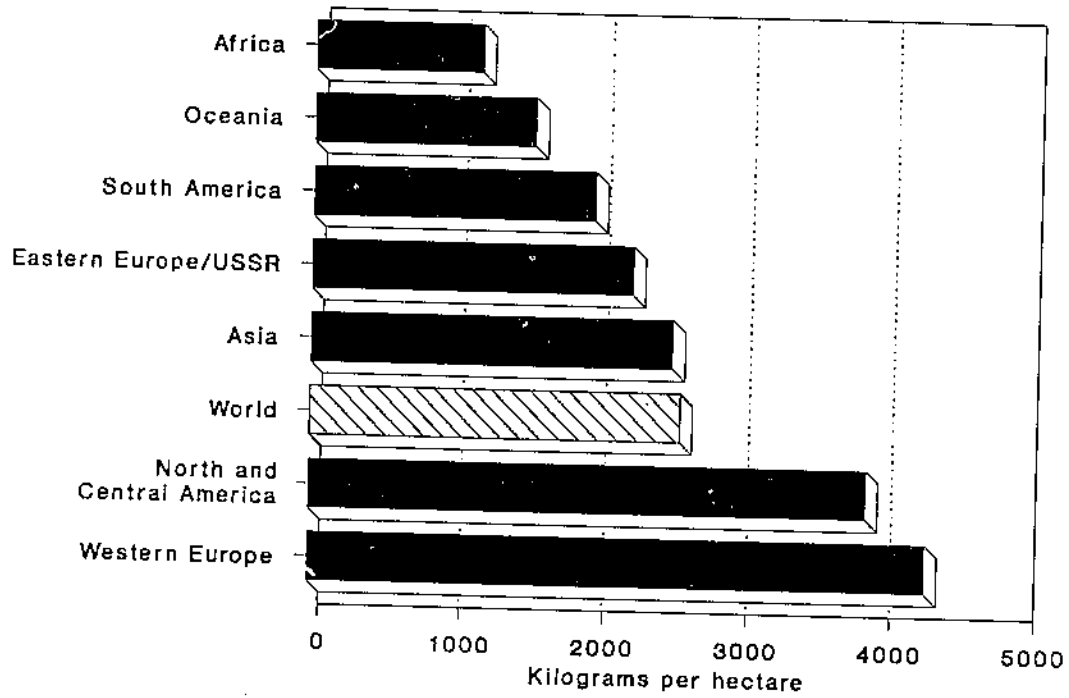
<sup>1</sup>Includes wheat, maize, oats, rice, sorghum, barley, and millet. Source: (8, 1987).

Figure 6  
World cereal production and distribution by region, 1986



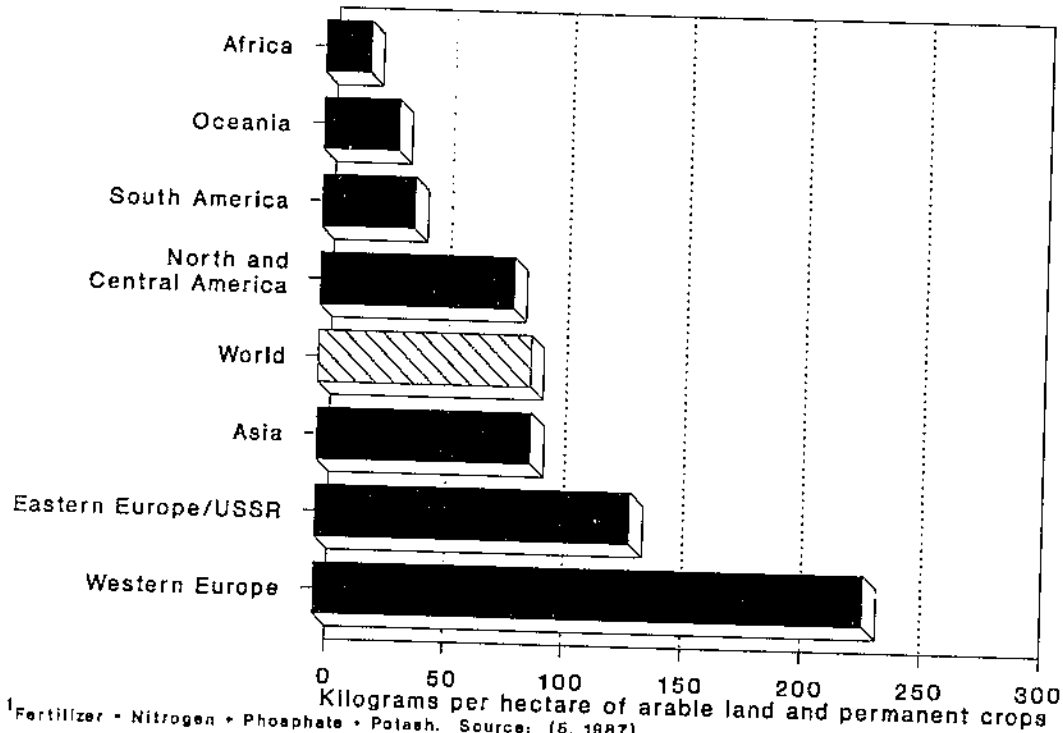
Source: (8, 1987).

Figure 7  
World cereal yields per hectare by region, 1986



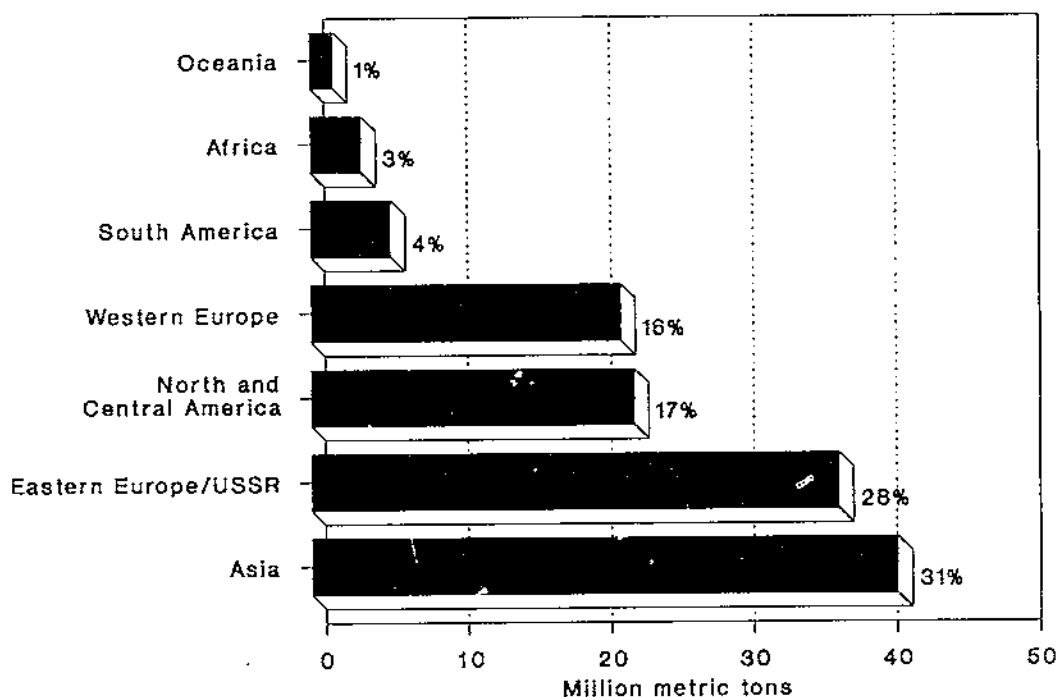
Source: (5, 1987).

Figure 8  
World consumption of fertilizer per hectare by region, 1986/87<sup>1</sup>



<sup>1</sup>Fertilizer = Nitrogen + Phosphate + Potash. Source: (5, 1987).

Figure 8  
World fertilizer consumption and distribution by region, 1986



Source: (5, 1987).

The raw materials used for agricultural input production--phosphate rock, natural gas and oil, iron ore, potash, and sulphur--are found in widely dispersed areas of North America, Africa, the Middle Eastern part of Asia, Eastern Europe, and the USSR. However, the agricultural input manufacturing infrastructure tends to be located in North America, Europe, and, to a lesser extent, South America.

The location of much input manufacturing capacity depends on the availability of raw materials and on proximity to major farm production regions. However, an active agricultural input research and development program in the public and private sector also is important. For pesticides, seeds, and livestock genetic material, research and development expenditures are particularly influential in establishing a domestic industry which may eventually become a major input exporter.

#### Data Sources

The availability of trade data varies by country and by data source. In many cases, which include the United States, input trade data for earlier years--for example, the 1970's--are not available due to definitional or coding changes.

The United Nations Food and Agriculture Organization (FAO) annually publishes value statistics by country on imports and exports of crude fertilizer, manufactured fertilizer,

Table 1--Regional shares of world fertilizer consumption by volume,  
1970-83 1/ 2/

Region	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77
	<u>Percent</u>						
Africa	2	3	3	2	3	3	3
North and Central America	26	24	24	24	23	24	24
South America	2	2	3	3	3	3	4
Asia	17	17	18	19	18	18	18
Western Europe	25	25	24	23	21	20	20
Eastern Europe	26	27	26	27	30	31	29
Oceania	2	2	2	3	2	1	2
World	100	100	100	100	100	100	100

1977/78 1978/79 1979/80 1980/81 1981/82 1982/83 1983/84

	<u>Percent</u>						
Africa	3	2	3	3	3	3	3
North and Central America	22	22	22	22	21	19	20
South America	4	4	4	5	3	3	3
Asia	22	23	25	26	27	29	30
Western Europe	19	19	19	18	18	18	17
Eastern Europe	28	27	25	25	26	27	27
Oceania	2	2	2	1	1	1	1
World	100	100	100	100	100	100	100

1/ Fertilizer marketing years.

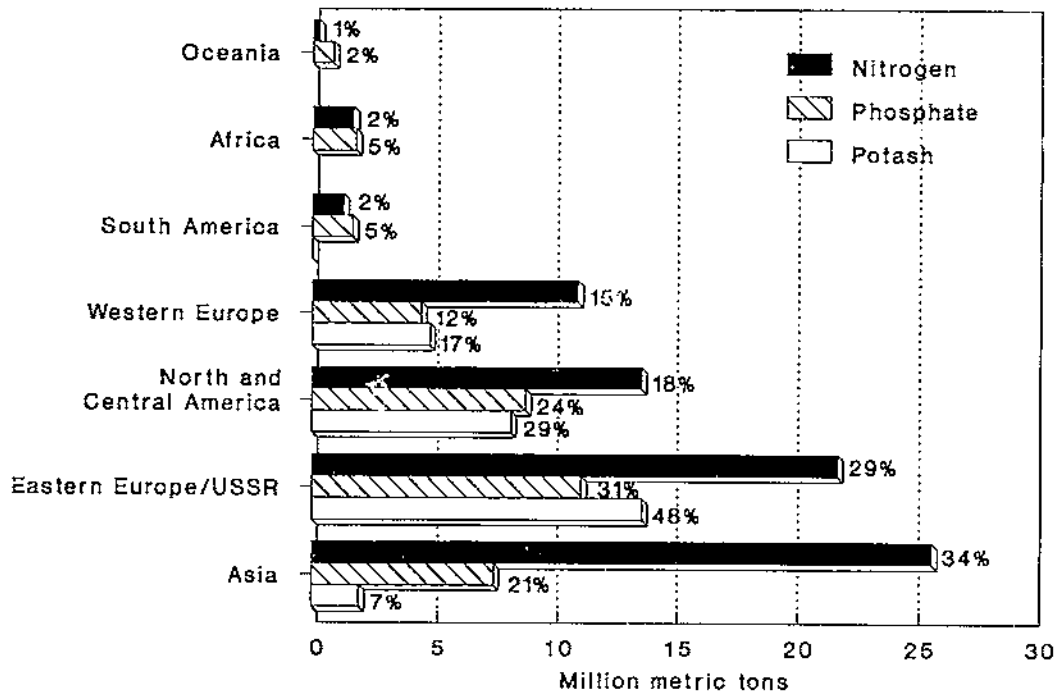
2/ Totals may not add due to rounding.

Source: (5).

agricultural machinery, and pesticides. However, no export destination or import source information is available from this organization. The United Nations Trade Data System (UNTDS) does provide import source and export destination data, but not all countries provide current trade data. For this report, 1980 was chosen as a benchmark year in which to examine trade flows between the major agricultural input importing and exporting countries. But, even using 1980 data required an estimate of exports of several developing and Eastern European countries which was made by querying all importing countries reporting to the UNTDS. However, as the following tables illustrate, discrepancies exist between the FAO and UNTDS statistics. The differences were relatively modest for most countries. An additional source presented here is the U.S. Bureau of the Census, which provides detailed data on U.S. agricultural input imports and exports, including information on genetic material, that is, seeds, live breeding stock, and semen.



Figure 10  
World fertilizer production and distribution by region, 1986



Source: (5, 1987).

Comparisons of the major trade data sources for the United States showed considerable variation over the period 1980-85 (app. tables 32 and 33). A Standard Industrial Classification (SIC) estimate of trade is also included because this is an industry-based, rather than product-based, classification of exports and imports. With several notable exceptions, the import and export totals for the United States, as given by the SIC estimates, are within 15-20 percent of the figure reported by the U.S. Bureau of the Census. (A listing of the Bureau of the Census product codes included in each major U.S. input category is given in app. table 34). In general, import statistics are much more consistent across data sources than are export statistics. For imports, several of the largest discrepancies occurred in 1982 for agricultural machinery and fertilizers and in 1985 for fertilizers. The largest consistent discrepancies over time occurred with exports. This was true of the agricultural machinery data reported in Foreign Agricultural Trade of the United States (FATUS) (2), of seed data reported in the UNTDS (4), and of the pesticides reported in the FAO Trade Yearbook (6). The FATUS series excludes machine parts from the definition of agricultural machinery exports. The UNTDS seed series does not include field seeds; these are not distinguished from grain commodities. For pesticide exports, FAO attempts to provide trade information only on final or formulated products and does not include pesticide intermediate material. Although the absolute levels of the trade series vary by data source, most of the series follow similar year-to-year trends.

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While general consistency appears in the input trade data used to show trends, substantial differences can exist in statistics for a given year, even for a developed country such as the United States. For example, throughout this report several sources of data are employed to indicate U.S. input trade values for 1980. The various data sources show U.S. crude fertilizer export values ranging from \$509 million to \$526 million, while import estimates are between \$37 million and \$42 million for 1980. Similarly, manufactured fertilizer exports range from \$2,265 million to \$2,839 million, and import values ranged between \$979 million and \$1,177 million. U.S. agricultural machinery export estimates for 1980 are between \$2,700 million and \$3,191 million, and import values are from \$1,445 million to \$1,686 million. Excluding the FAO estimates, U.S. pesticide exports in 1980 ranged from \$1,077 million to \$1,210 million and imports from \$266 million to \$308 million. Some of these discrepancies can be attributed to definitional issues. Nevertheless, analysts must be aware that the choice of data source can influence the analysis.

### World Input Trade

World trade in fertilizers, agricultural machinery, and pesticides grew significantly in both real and nominal terms between 1970 and 1984. Countries with large deposits of natural resources--potash, phosphate rock, natural gas, and sulphur--tended to be the major exporters of crude and/or manufactured fertilizers. Exports of agricultural machinery and pesticides were often correlated with countries possessing active agricultural input manufacturing and research and development sectors.

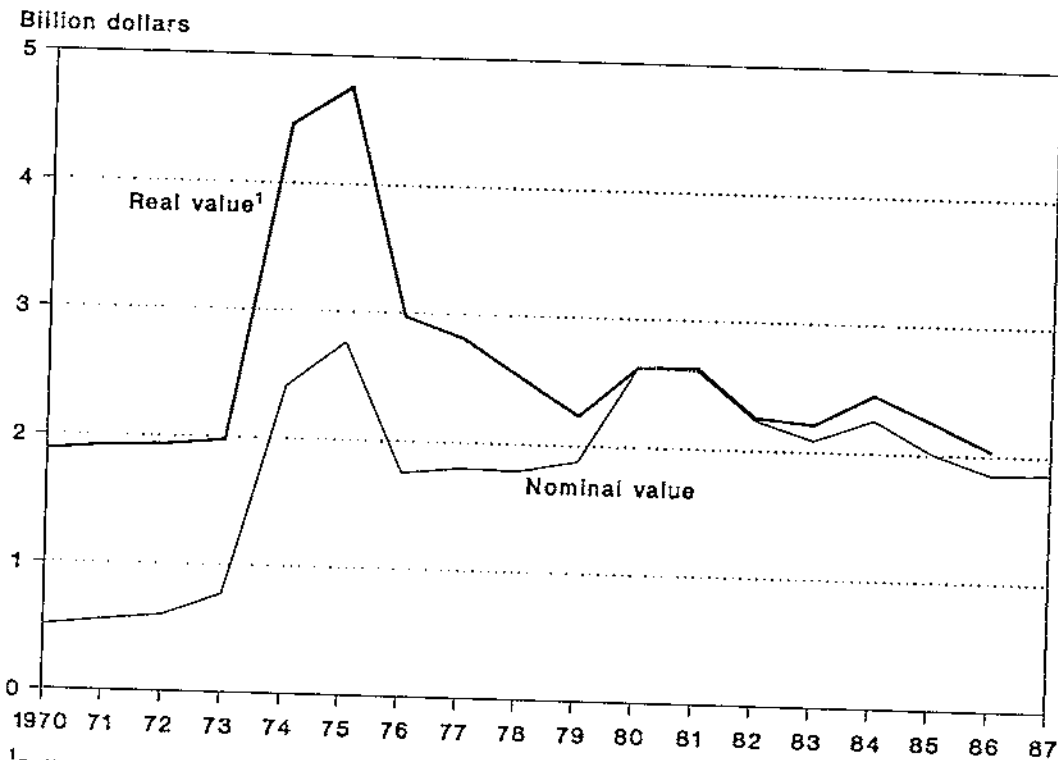
### Crude Fertilizer

World trade in crude fertilizer (Standard Industrial Trade Classification 271), which is primarily phosphate rock, increased between threefold and fourfold in value from 1970 to 1984 (fig. 11, app. tables 5 and 6). Between 1985 and 1987, FAO estimated that the value of world crude fertilizer exports were slightly less than \$2 billion. In real value, crude fertilizer exports have trended downward since 1975 and, in 1983, approximated the trade levels of the early 1970's. This indicates stagnating trade flows as more phosphate rock is processed rather than shipped in raw form.

Africa, North America, and Eastern Europe, by virtue of their large deposits of phosphate rock, dominate the export market for crude fertilizers, but Asia's share of the export market has increased at the expense of Eastern Europe (table 2). Morocco, the USSR, the United States, Togo, and Jordan are the major exporting countries.

Western Europe has traditionally been the major importer of crude fertilizer with nearly one-half of the total value (table 3). Eastern Europe and Asia have also been major customers for crude fertilizer. France, Spain, Belgium, West Germany, the

Figure 11  
World export value of crude fertilizer, 1970-87



Netherlands, the United Kingdom, Italy, Yugoslavia, Japan, Poland, Romania, Turkey, and Australia, because they lack natural phosphate resources and need phosphate fertilizers, are the primary importing countries.

### Manufactured Fertilizer

While crude fertilizer trade patterns depend upon the disparities between deposits of phosphate rock and the location of agricultural production, the trade in manufactured fertilizer (SITC 561) is more complex. The production of manufactured fertilizer depends on such natural resources as natural gas, sulphur, and potash reserves and on a manufacturing infrastructure. In many cases, economy favors shipping value-added products like anhydrous ammonia, phosphoric acid, diammonium phosphate, or urea rather than raw natural resources. Trade and industrial development policies also affect the extent to which manufactured products rather than natural resources are exported or imported.

Manufactured fertilizer export trade grew from \$1.3 billion in 1970 to over \$10.8 billion in 1980, and then fell to \$9.6 billion in 1984 (fig. 12, app. tables 7 and 8). FAO estimated that world exports were \$9.3 billion in 1985 and \$9.7 billion in 1986 and that world imports rose to \$11.4 billion and \$11.7 billion in those years. Both real and nominal exports of manufactured

Table 2--Regional shares of world crude fertilizer exports by value, 1970-84 1/

Region	1970	1971	1972	1973	1974	1975	1976	1977
	<u>Percent</u>							
Africa	33	33	35	37	59	49	43	39
North and Central America	19	18	19	15	11	17	19	21
South America	4	4	3	3	2	2	2	2
Asia	3	3	4	4	6	6	7	6
Western Europe	1	1	1	1	1	1	1	1
Eastern Europe	31	33	31	30	17	22	22	24
Oceania	9	8	8	10	4	5	6	6
World	100	100	100	100	100	100	100	100
	<u>Percent</u>							
	1978	1979	1980	1981	1982	1983	1984	
Africa	40	39	40	39	36	32	35	
North and Central America	21	23	19	16	17	20	17	
South America	3	2	1	1	1	1	1	
Asia	7	8	9	10	12	13	13	
Western Europe	1	1	1	1	1	1	1	
Eastern Europe	21	19	23	27	28	26	27	
Oceania	7	7	6	6	5	6	5	
World	100	100	100	100	100	100	100	

1/ Totals may not add due to rounding.  
Source: (5).

fertilizer have grown almost continually since 1970. The energy price boom years of the early and late 1970's are reflected in the increase and subsequent decline in the value of manufactured fertilizer exports during that time.

The industrial countries of North America and Western Europe have been the leading exporters of manufactured fertilizers over the last 15 years. The United States, Canada, the Netherlands, West Germany, and Belgium have accounted for much of these exports. Eastern European countries, such as the USSR, Romania, and East Germany, are also major fertilizer exporters. At the same time, the Asian countries of Korea, Israel, and Japan have contributed to a growing share of world fertilizer exports (table 4).

Asia and Western Europe are the primary import markets for manufactured fertilizers, with each region accounting for roughly one-third of the value of world imports (table 5). However, while Western Europe's fertilizer imports and exports have been

Table 3--Regional shares of world crude fertilizer imports by value, 1970-84 1/

Region	1970	1971	1972	1973	1974	1975	1976	1977
	<u>Percent</u>							
Africa	1	1	1	1	1	2	2	0
North and Central America	5	5	5	5	5	6	6	7
South America	2	6	7	3	4	3	4	4
Asia	20	19	17	19	18	18	17	18
Western Europe	47	44	45	49	54	47	44	44
Eastern Europe	17	18	19	18	15	19	21	22
Oceania	8	6	6	6	3	5	6	5
World	100	100	100	100	100	100	100	100
	<u>Percent</u>							
	1978	1979	1980	1981	1982	1983	1984	
Africa	1	1	1	1	1	1	1	
North and Central America	9	7	7	7	6	7	8	
South America	3	3	2	2	1	0	0	
Asia	17	19	18	21	20	21	23	
Western Europe	44	45	49	46	47	48	45	
Eastern Europe	20	19	18	17	17	17	18	
Oceania	6	7	5	7	8	7	5	
World	100	100	100	100	100	100	100	

0 = Less than 0.5 percent.

1/ Totals may not add due to rounding.

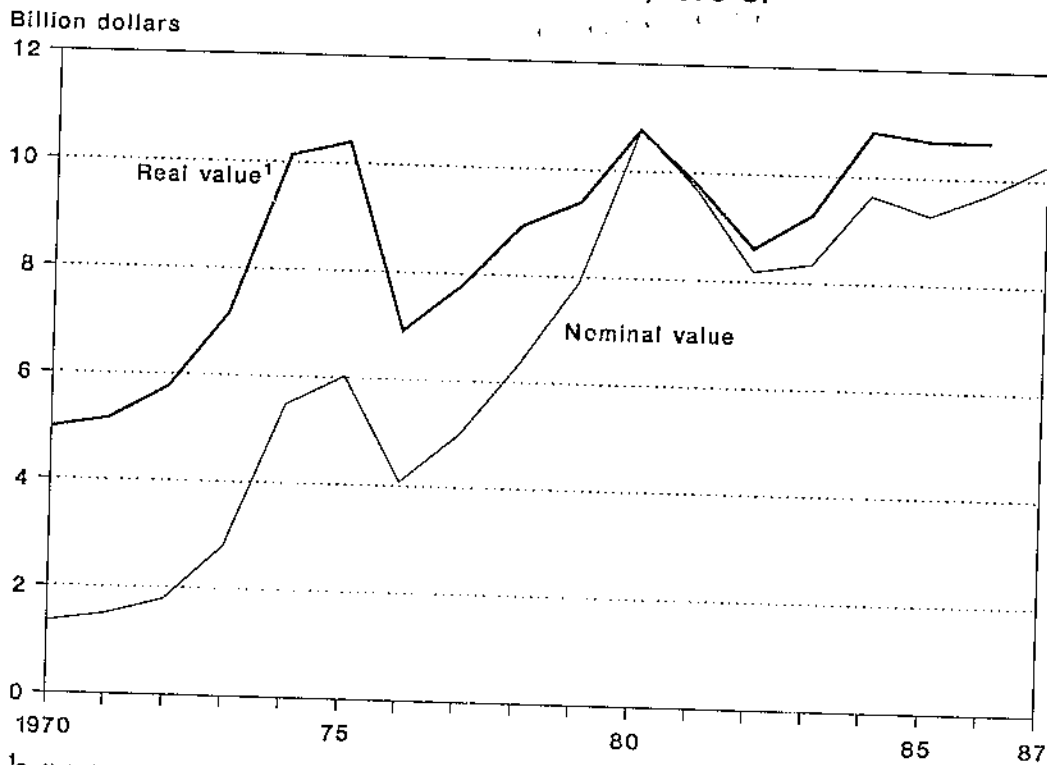
Source: (5).

nearly equal in value each year, Asia has become a net importer primarily due to India, China, and Japan. But Eastern Europe and North America are net exporters of fertilizer, with the USSR, Romania, East Germany, the United States, and Canada the major exporting countries.

### Agricultural Machinery

Farm machinery production, which includes tractors and other agricultural machinery, is located in the industrialized countries of North America and Western Europe and in Japan. World export values increased nearly fivefold from 1970 to 1980 but have declined somewhat since then (fig. 13, app. tables 9 and 10). While nominal farm machinery trade (SITC 722) grew steadily between 1970 and 1980 and then declined, the real value of this trade leveled off much earlier. After 1975, very little growth

Figure 12  
World export value of manufactured fertilizer, 1970-87



occurred in farm machinery trade, with the decline beginning in 1980 as the world's farm sector began a recession.

Western Europe historically dominated the trade of farm machinery, accounting for nearly one-half of all exports in most years (table 6). West Germany, the United Kingdom, and Italy are the major exporting countries of Western Europe. North America (the United States) and Eastern Europe (the USSR) are also major exporting regions, but North America's worldwide share is now declining. North America's share is being lost to Asia where Japan has become the major exporter.

The major importing countries are in North America, Western Europe, and Eastern Europe, with much of the trade occurring among countries within those regions (table 7). Africa and Oceania have historically been net importers of farm machinery, and North America also became a net importer in 1982. In value terms, the major importing countries have been the USSR, Canada, the United States, France, and the United Kingdom.

### Pesticides

International trade in pesticide products (SITC 5992) grew from around \$0.5 billion in 1970 to over \$4 billion in 1984. World export values continued to grow in 1985 and 1986 with exports estimated at \$4.4 billion and \$4.9 billion, respectively (fig.

Table 4--Regional shares of world manufactured fertilizer exports by value, 1970-84 1/

Region	1970	1971	1972	1973	1974	1975	1976	1977
	<u>Percent</u>							
Africa	3	4	3	3	3	2	2	2
North and Central America	31	30	31	26	24	26	30	27
South America	0	0	0	0	0	0	0	0
Asia	8	8	9	14	13	15	9	11
Western Europe	43	35	37	39	41	36	33	36
Eastern Europe	15	23	20	17	18	20	26	23
Oceania	0	0	0	0	0	0	0	0
World	100	100	100	100	100	100	100	100

	1978	1979	1980	1981	1982	1983	1984
	<u>Percent</u>						
Africa	2	2	2	3	4	5	4
North and Central America	27	29	32	30	27	27	32
South America	0	1	1	1	1	1	1
Asia	13	14	14	11	12	11	11
Western Europe	37	34	28	29	31	31	29
Eastern Europe	21	20	23	26	25	25	22
Oceania	0	0	0	0	0	0	0
World	100	100	100	100	100	100	100

0 = Less than 0.5 percent.

1/ Totals may not add due to rounding.

Source: (5).

14, app. tables 11 and 12). Similarly, import values grew to \$5.3 billion and \$5.8 billion. With the exception of 1976-77, pesticide trade grew almost continually between 1970 and 1987. (These data largely reflect formulated products--that is, finished goods--and exclude trade in technical materials--the raw products--which, in the case of the United States, nearly doubles the value of pesticide exports.)

Western Europe has been the dominant pesticide exporter, accounting for between 65 and 70 percent of the value of all world exports (table 8). North America historically exported only 20 percent of the value of all pesticides. West Germany, the United Kingdom, the United States, Japan and the major port countries of Belgium and the Netherlands are the primary pesticide exporters.

Regional shares of pesticide imports are more equal than those for exports, although Western Europe accounts for about one-third

Table 5--Regional shares of world manufactured fertilizer imports by value, 1970-84 1/

Region	1970	1971	1972	1973	1974	1975	1976	1977
	<u>Percent</u>							
Africa	5	6	5	5	7	7	7	5
North and Central America	15	15	14	13	16	16	20	19
South America	8	6	8	9	14	9	8	9
Asia	32	31	28	31	31	37	23	28
Western Europe	28	31	32	30	24	23	32	30
Eastern Europe	10	10	11	10	8	7	9	8
Oceania	1	1	1	1	1	1	1	1
World	100	100	100	100	100	100	100	100

	1978	1979	1980	1981	1982	1983	1984
	<u>Percent</u>						
Africa	5	4	6	7	5	4	4
North and Central America	17	15	14	15	15	15	15
South America	8	9	10	7	6	4	4
Asia	32	34	34	37	35	38	43
Western Europe	30	32	29	26	30	31	27
Eastern Europe	7	6	5	7	7	7	6
Oceania	1	1	1	1	1	1	1
World	100	100	100	100	100	100	100

1/ Totals may not add due to rounding.  
Source: (5).

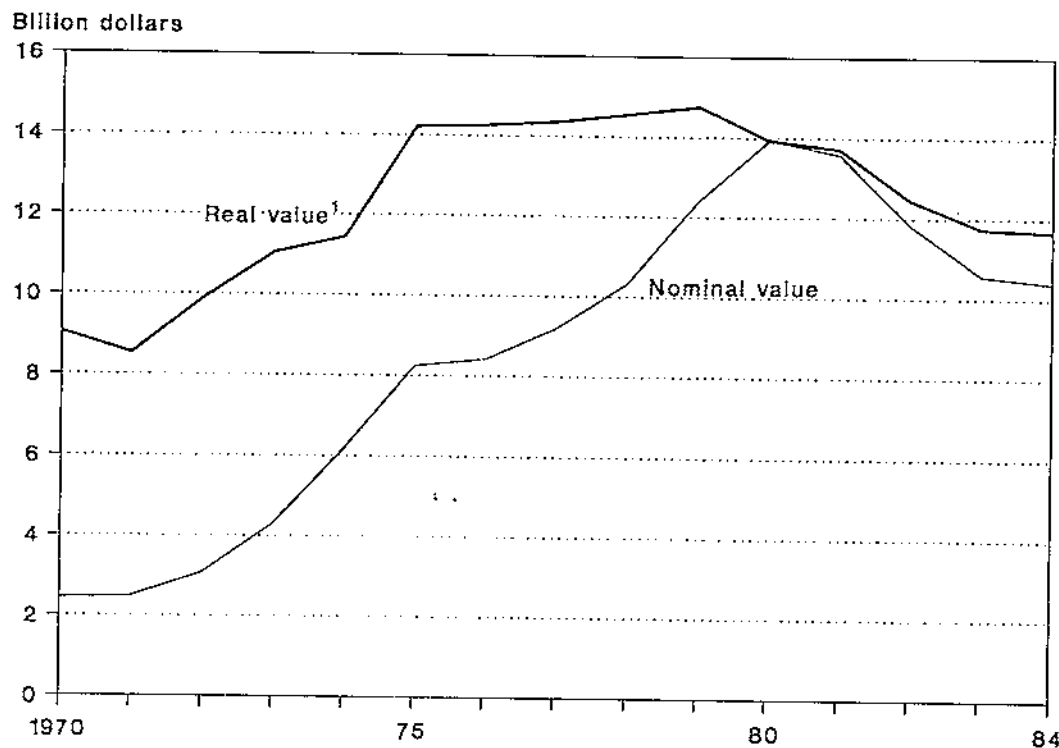
of the import value (table 9). North America and Eastern Europe currently import about 15 percent of all the traded pesticides, and Asia's share increased from 15 percent in 1975 to 20 percent in 1984. African, Asian, and Eastern European countries, such as Nigeria, China, Iran, and the USSR, are the primary net importers. The United States and France also are major pesticide importing countries.

#### International Input Trade Flows

Most major agricultural input exporting countries ship to numerous countries, while the minor exporting countries often have markets more regional in nature. Many input trade flows reflect the abundance or scarcity of specific minerals or of manufacturing capacity in the receiving country or region. Also, there are many bilateral trade relationships that have been established over a number of years or which reflect government decisions rather than economic criteria. Nevertheless, for most



Figure 13  
World export value of agricultural machinery, 1970-84



<sup>1</sup> Deflated by International Monetary Fund, Export Value Index.  
Source: Appendix table 9.

inputs, importing countries tend to have a variety of input sources to satisfy their domestic needs.

### Crude Fertilizer

Crude fertilizer, which is primarily phosphate rock used in the manufacture of phosphate fertilizer, is actively traded worldwide. Deposits of phosphate rock are located primarily in the United States, the USSR, Morocco, and Jordan. Several Oceanic islands (Nauru and Christmas Island) have deposits, and as might be expected, these countries have become major exporters to nearby Australia and New Zealand (app. table 13). Eastern European countries take over half of the USSR's crude fertilizer exports, with Western European countries receiving most of the remainder. Western Europe is not a major crude fertilizer exporter, but such product as does move between nations stays primarily on the European Continent. Within Asia, Jordan and Israel are the major crude fertilizer exporters. Jordan ships over two-thirds of its exports to other Asian countries and the rest to Eastern and Western Europe. Israel also ships to Asian countries but most of its product is bound for Western Europe. The United States has geographically diversified its crude fertilizer market, with one-fourth of its product going to Canada, one-fourth to Asia (primarily Japan and Korea), and one-third to Western Europe. Major African exporters, Morocco and

Table 6--Regional shares of world farm machinery exports by value, 1970-84 1/

Region	1970	1971	1972	1973	1974	1975	1976	1977
	<u>Percent</u>							
Africa	0	1	0	0	0	0	0	0
North and Central America	32	31	31	29	29	32	32	26
South America	0	0	0	1	1	1	1	1
Asia	3	4	4	4	7	7	5	6
Western Europe	53	53	52	53	50	48	49	51
Eastern Europe	10	11	11	11	13	11	13	14
Oceania	1	1	1	1	1	1	1	1
World	100	100	100	100	100	100	100	100
	<u>Percent</u>							
	1978	1979	1980	1981	1982	1983	1984	
Africa	0	0	0	0	0	0	0	
North and Central America	26	27	28	32	27	20	22	
South America	1	2	2	2	2	1	1	
Asia	8	7	7	8	8	12	11	
Western Europe	49	49	48	44	48	50	50	
Eastern Europe	16	14	14	13	14	17	16	
Oceania	1	1	1	1	1	1	1	
World	100	100	100	100	100	100	100	

0 = Less than 0.5 percent.

1/ Totals may not add due to rounding.

Source: (7).

Togo, send most of their product to Western Europe, some to Japan and Turkey, and the remainder to Eastern Europe.

### Manufactured Fertilizer

Manufactured fertilizer trade flows are often dictated by the availability of such natural resources as natural gas, phosphate rock, and potash, and appear with an established manufacturing infrastructure. Major North American manufactured fertilizer exporters are Canada and the United States. In 1980, Canada exported about two-thirds of the value of its fertilizer products to the United States, primarily potash and ammonia (app. table 14). The United States shipped fertilizer products to over 90 countries in 1980 with Brazil, India, China, and Western Europe the primary destinations.

Asia and Europe have also developed regional fertilizer markets. For example, Japan and South Korea ship primarily to other Asian

Table 7--Regional shares of world farm machinery imports by value, 1970-84 1/

Region	1970	1971	1972	1973	1974	1975	1976	1977
	<u>Percent</u>							
Africa	8	7	7	6	7	9	7	7
North and Central America	23	25	26	24	28	27	26	24
South America	7	6	7	5	6	7	5	5
Asia	9	9	8	7	8	9	11	10
Western Europe	35	31	33	37	35	31	33	36
Eastern Europe	15	19	17	18	15	13	15	15
Oceania	3	2	2	2	2	3	3	3
World	100	100	100	100	100	100	100	100
	<u>Percent</u>							
	1978	1979	1980	1981	1982	1983	1984	
Africa	7	5	9	11	8	8	9	
North and Central America	24	28	25	28	24	25	27	
South America	4	3	4	4	3	2	2	
Asia	10	8	7	8	9	10	8	
Western Europe	35	38	35	30	34	33	31	
Eastern Europe	16	16	16	16	17	19	19	
Oceania	3	2	3	4	5	3	4	
World	100	100	100	100	100	100	100	

1/ Totals may not add due to rounding.

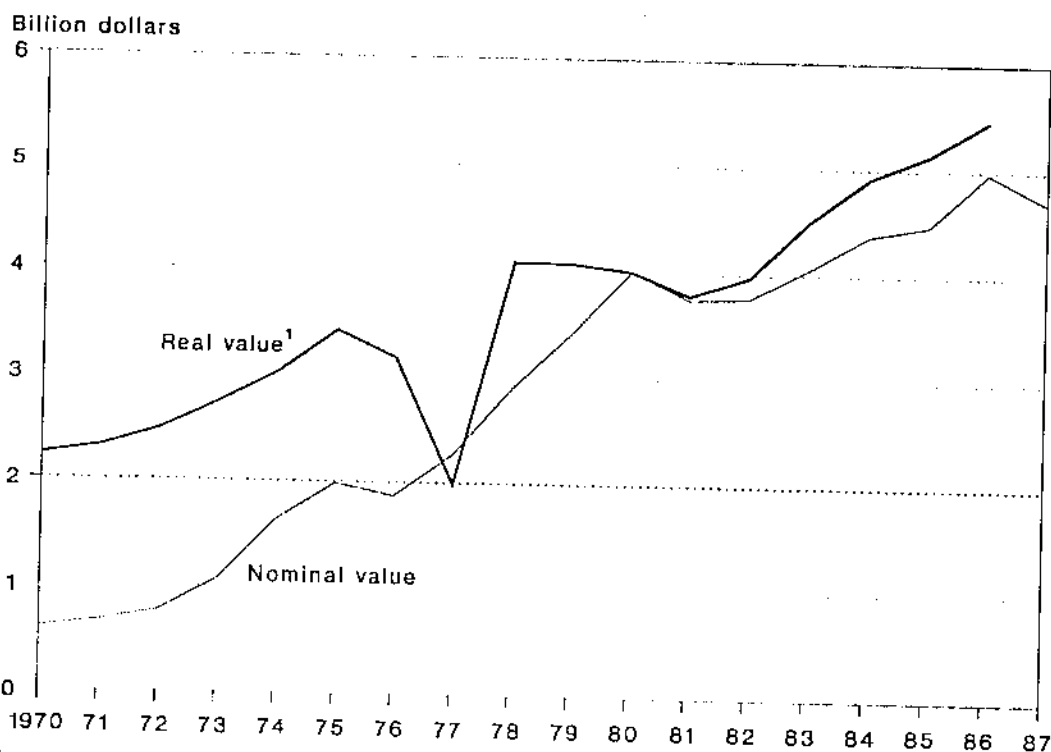
Source: (7).

countries. Israel, on the other hand, has established trade links with Western Europe and the United States. Western European countries tend to trade amongst themselves, but some countries, such as France and Italy, trade with several Asian countries as well. Eastern European countries also have formed fertilizer markets throughout Europe, but some other significant bilateral trade flows exist, such as between East Germany and Brazil. Only four countries, West Germany, the United Kingdom, Belgium, and the Netherlands ship manufactured fertilizer to over 100 countries. France and the United States, which ship to over 90 countries, have also established global trading networks. Exceptions to the regional trade flow tendency do exist. For example, Spain trades extensively with South America, while Italy exports to several Asian countries, such as Turkey and India.

#### Agricultural Machinery

The major developed economies, which lie primarily in North America and Western Europe, tend to trade between and within

Figure 14  
World export value of pesticides, 1970-87



these two continents and also with Japan. Both the United States and Canada ship over 50 percent of their farm machinery exports to other North and Central American countries, while most Western European countries, with the exception of the United Kingdom, ship about 60 percent of their farm machinery exports to nearby countries (app. table 15). In contrast, Japan ships less than 40 percent of its farm machinery exports to other Asian countries. Japanese exports depend heavily on the North American market. Similarly, Eastern Europe, with the exception of Romania, sends over 65 percent of its farm machinery exports to other Eastern European countries.

Even though the major farm machinery exporting countries ship the largest share of their exports to nearby markets, these countries together have over 100 trading partners, illustrating the global nature of the agricultural machinery industry. In general, only the larger developed countries have the specialized facilities needed to manufacture medium- and high-horsepower tractors and complex agricultural machinery.

### Pesticides

The largest pesticide exporting countries ship to a large number of countries, indicating the concentrated nature of the pesticide industry. The United States, Japan, and the larger industrialized countries of Western Europe had over 100 trading partners in 1980

Table 8--Regional shares of world pesticide exports by value,  
1970-84 1/

Region	1970	1971	1972	1973	1974	1975	1976	1977
	<u>Percent</u>							
Africa	2	1	2	1	2	2	1	2
North and Central America	18	18	14	18	18	20	21	20
South America	0	1	1	1	2	1	1	1
Asia	5	6	7	6	6	6	6	6
Western Europe	71	69	72	70	70	68	65	67
Eastern Europe	4	4	3	4	3	3	4	4
Oceania	1	1	0	0	0	0	0	0
World	100	100	100	100	100	100	100	100

	1978	1979	1980	1981	1982	1983	1984
	<u>Percent</u>						
Africa	1	1	1	1	1	1	1
North and Central America	18	17	16	16	18	17	18
South America	1	1	1	2	2	2	2
Asia	6	6	7	8	8	9	8
Western Europe	71	71	72	70	67	67	67
Eastern Europe	4	4	3	3	4	4	4
Oceania	0	0	0	0	0	0	0
World	100	100	100	100	100	100	100

0 = Less than 0.5 percent.

1/ Totals may not add due to rounding.

Source: (7).

(app. table 16). Pesticide manufacturing typically requires a sophisticated industrial infrastructure as well as a heavy commitment to research and development. Among the major exporters, only Belgium, France, and West Germany exported over 60 percent of their pesticides to nearby countries. The other major exporters tend to serve a wider geographic market, which is different from the other agricultural inputs, where most of the product is exported to regional consumers. This is particularly true of the United States, United Kingdom, Italy, Japan, Israel, and Switzerland.

#### U.S. Input Trade: Sources and Destinations

The United States is a major player in international input trade. Because of its large agricultural production sector, the United States is a major consumer (and importer) of agricultural inputs. Furthermore, because of its input manufacturing capacity, its

Table 9--Regional shares of world pesticide imports by value,  
1970-84 1/

Region	1970	1971	1972	1973	1974	1975	1976	1977
	<u>Percent</u>							
Africa	14	14	13	12	15	16	12	13
North and Central America	16	15	15	14	13	16	18	16
South America	7	7	9	10	9	8	8	8
Asia	18	17	14	15	15	15	15	15
Western Europe	31	31	32	34	33	28	29	32
Eastern Europe	13	14	14	14	14	16	17	15
Oceania	2	2	2	1	1	1	1	1
World	100	100	100	100	100	100	100	100

	1978	1979	1980	1981	1982	1983	1984
	<u>Percent</u>						
Africa	14	11	13	13	12	10	10
North and Central America	15	15	15	16	16	15	15
South America	7	5	4	4	4	4	4
Asia	14	18	16	17	18	20	21
Western Europe	36	39	37	35	35	34	34
Eastern Europe	13	12	14	13	14	15	15
Oceania	1	1	1	1	1	1	1
World	100	100	100	100	100	100	100

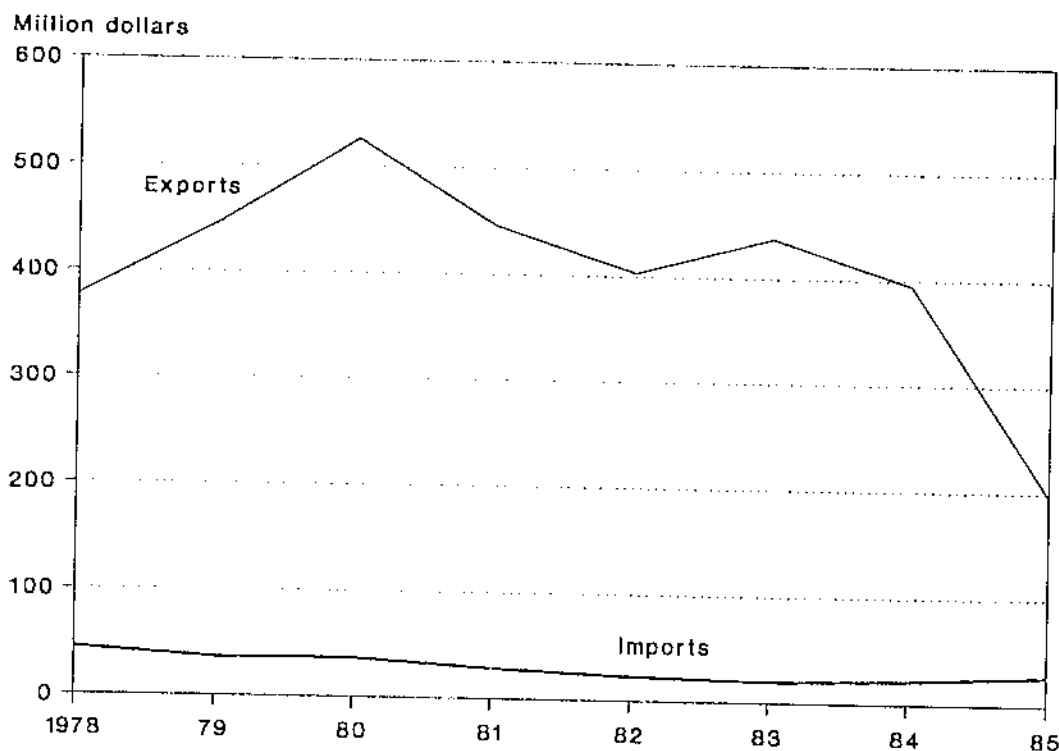
1/ Totals may not add due to rounding.  
Source: (7).

deposits of natural resources, and the extensive public and private research and development sector, the United States is also a major exporter of agricultural inputs. Overall, the United States has typically been a net exporter of agricultural inputs. However, the United States has now become a net importer of some inputs, among which are nitrogen fertilizers and farm machinery, and it remains the world's largest potash importer.

#### Crude Fertilizer

The United States has a substantial trade surplus in crude fertilizer. With the exception of 1985, exports have been close to or over \$400 million, while imports ranged from \$20 million to \$45 million between 1978 and 1985 (fig. 15, app. tables 17 and 18). (Detailed U.S. export value by country are not available for crude or manufactured fertilizer after 1985.) U.S. exports have been nearly evenly divided between North America, Asia, and Western Europe, with Canada, Japan, and South Korea the main

Figure 15  
U.S. export and import value of crude fertilizer, 1978-85



Source: Appendix table 17.

recipients of the trade (table 10). Import sources have shown considerable variability, with African and South American countries, especially Morocco, Togo, and Chile, the major alternative sources of crude fertilizers (table 11).

### Manufactured Fertilizer

U.S. manufactured fertilizer trade between 1980 and 1985 has produced a net positive trade balance ranging from \$1.7 billion to \$0.2 billion (fig. 16, app. tables 19 and 20). Volatility in the quantities, mix, and prices of traded products accounts for much of the variation.

Export markets for U.S. manufactured fertilizers such as urea, anhydrous ammonia, ammoniated phosphates, and phosphoric acid have shifted considerably (table 12). South America's and Western Europe's share of exports dropped from 25 percent of the total to 10 and 15 percent, respectively. At the same time, Asia and Eastern Europe were receiving greater shares. Brazil, Italy, and, to a lesser extent, France and West Germany have reduced their U.S. fertilizer imports. The USSR, China, Japan, and India have become major U.S. fertilizer markets in their place.

The bulk of U.S. manufactured fertilizer imports arises from nearby sources: Canada, Mexico, Trinidad, and Tobago. Over the 1978-87 period, these countries accounted for 66-83 percent of

Table 10--Regional shares of U.S. crude fertilizer exports by value, 1978-85 1/

Region	1978	1979	1980	1981	1982	1983	1984	1985
	<u>Percent</u>							
Africa	1	0	0	0	0	0	1	0
North and Central America	23	25	27	30	30	28	31	30
South America	4	4	2	2	2	1	1	1
Asia	31	29	26	27	31	31	29	31
Western Europe	32	30	32	35	30	29	24	27
Eastern Europe	10	10	9	3	5	8	11	6
Oceania	0	3	3	2	3	3	2	4
World	100	100	100	100	100	100	100	100

0 = Less than 0.5 percent.

1/ Totals may not add due to rounding.

Source: (4).

the value of such U.S. imports, with Canada by far the major source (table 13). Both Eastern and Western Europe have increased their share of U.S. imports, with the USSR, Italy, and the Netherlands accounting for most of the growth. Antidumping rulings have curtailed imports from East Germany and Romania since 1986.

### Agricultural Machinery

The value of U.S. farm machinery exports has declined almost steadily since peaking in 1981 (fig. 17, app. tables 21 and 22). Imports continued to increase over this time, leading to a negative trade balance in farm machinery during 1986 and 1987. North America, especially Canada, has been the major market for U.S. exports, but its share of the total has fallen from nearly 65 percent in 1978 to less than 50 percent in 1987 (table 14). Asia and Western Europe have replaced Canada's share, with Saudi Arabia (irrigation equipment), Japan, France, the United Kingdom, Belgium, and West Germany the largest markets. Also, until 1986, Australia had been a major recipient of U.S. farm machinery.

Canada has traditionally been the source of most U.S. farm machinery imports, but Canada's share has been declining with the emergence of Japan as a major producer of smaller tractors for the U.S. market (table 15). Canada's share of U.S. imports dropped from about 44 percent of the total to less than 30 percent, while Asia's share rose from 12 percent to 24 percent. The other major source of imports, Western Europe, has accounted for a steady 40-45 percent of all U.S. imports. Much of the latter trade, however, was between branch plants of U.S.-based companies. Japan and Western Europe have a very substantial positive net farm machinery trade with the United States.



Table 11--Regional shares of U.S. crude fertilizer imports by value, 1978-87 1/

Region	1978	1979	1980	1981	1982
	<u>Percent</u>				
Africa	48	55	32	0	0
North and Central America	7	5	2	3	6
South America	27	28	41	64	64
Asia	16	10	25	33	30
Western Europe	0	0	0	0	0
Eastern Europe	2	2	0	0	0
Oceania	0	0	0	0	0
World	100	100	100	100	100
	<u>Percent</u>				
	1983	1984	1985	1986	1987
Africa	0	0	3	47	52
North and Central America	3	4	3	2	2
South America	52	57	59	28	31
Asia	44	38	33	20	11
Western Europe	1	1	2	3	3
Eastern Europe	0	0	0	0	0
Oceania	0	0	0	0	0
World	100	100	100	100	100

0 = Less than 0.5 percent.

1/ Totals may not add due to rounding.

Source: (4).

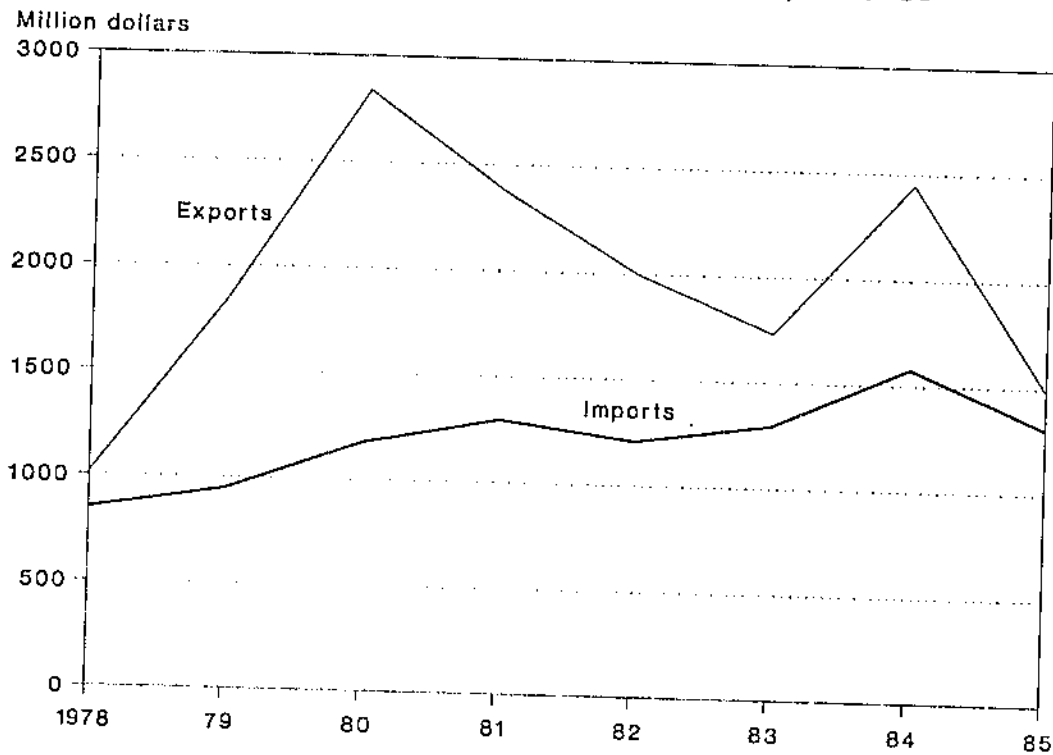
### Pesticides

The United States has continually enjoyed a positive net trade balance in pesticides of nearly \$1 billion between 1978 and 1987 (fig. 18, app. tables 23 and 24). Pesticide export values have risen over \$0.5 billion during that time, while imports have increased only \$0.3 billion.

As with many of the other inputs, pesticide exports have been concentrated in North America, Asia, and Western Europe (table 16). Canada, Japan, Belgium, the Netherlands, and Switzerland are the major pesticide importing countries. Since 1978, North America's share of pesticide exports has declined at the same time the Asian market has increased.

U.S. pesticide imports are dominated by Western Europe. Between 1978 and 1987, these countries accounted for 70-80 percent of the

Figure 16  
U.S. export and import value of manufactured fertilizer, 1978-85



Source: Appendix table 19.

Table 12--Regional shares of U.S. manufactured fertilizer exports by value, 1978-85 1/

Region	1978	1979	1980	1981	1982	1983	1984	1985
	<u>Percent</u>							
Africa	1	4	6	4	4	3	3	5
North and Central America	14	12	11	15	14	15	12	14
South America	21	26	25	16	12	8	12	10
Asia	31	23	33	32	36	37	47	43
Western Europe	30	26	21	22	16	18	14	15
Eastern Europe	1	6	1	10	16	15	9	8
Oceania	2	2	2	3	3	4	4	4
World	100	100	100	100	100	100	100	100

1/ Totals may not add due to rounding.  
Source: (4).

Table 13--Regional shares of U.S. manufactured fertilizer imports by value, 1978-87 1/

Region	1978	1979	1980	1981	1982
	<u>Percent</u>				
Africa	0	0	0	0	0
North and Central America	76	83	79	82	77
South America	1	1	0	1	1
Asia	3	3	3	4	5
Western Europe	16	8	9	6	9
Eastern Europe	4	6	9	7	9
Oceania	0	0	0	0	0
World	100	100	100	100	100
	<u>Percent</u>				
	1983	1984	1985	1986	1987
Africa	0	0	0	0	1
North and Central America	74	71	67	66	75
South America	2	2	1	1	1
Asia	4	3	4	4	5
Western Europe	7	7	11	11	10
Eastern Europe	12	17	17	18	8
Oceania	0	0	1	0	0
World	100	100	100	100	100

0 = Less than 0.5 percent.

1/ Totals may not add due to rounding.

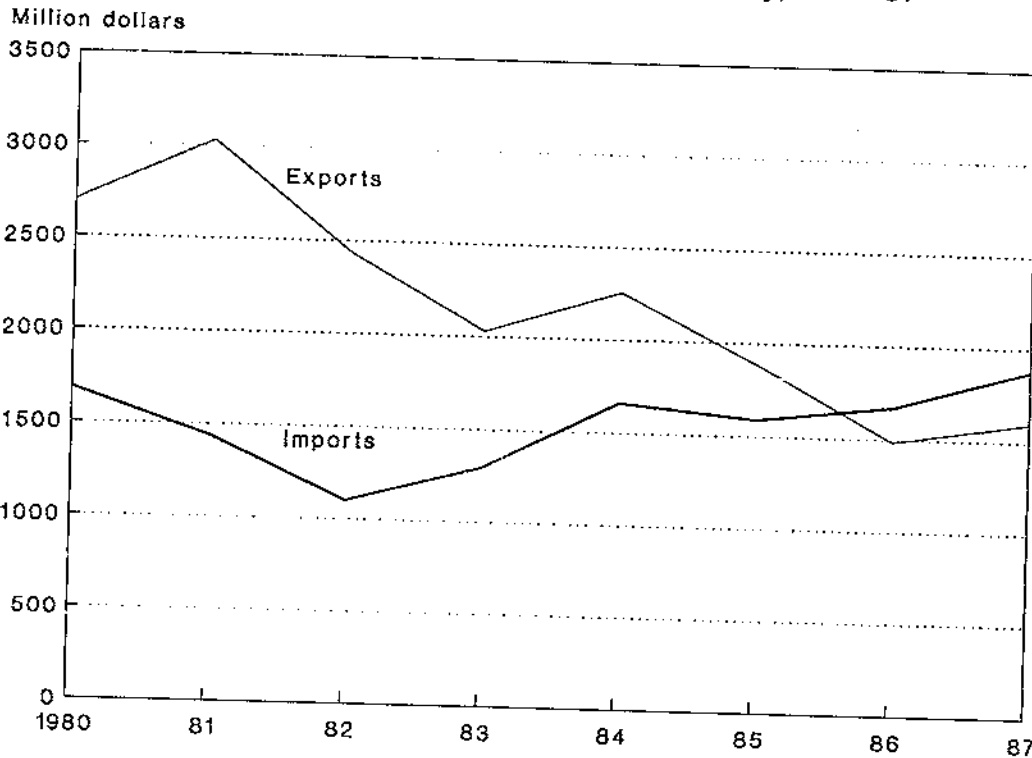
Source: (4).

value of all U.S. pesticide imports (table 17). The United Kingdom, West Germany, and Switzerland are the primary European sources of U.S.-imported material, but only West Germany and Italy have positive net trade balances with the United States in pesticides. Growth in import share has been the greatest for South America, where Brazil has been a major pesticide exporting country. Brazil's 1987 exports to the United States were exceeded only by West Germany and the United Kingdom.

#### Genetic Material

Trade in agricultural genetic material, such as live breeding stock, semen, and seeds, is another agricultural input in which the United States has a positive trade balance (fig. 19). These inputs embody a significant amount of public and private sector research and development activity. Improved genetic material represents a tradeable commodity and can be used to transfer

Figure 17  
U.S. export and import value of agricultural machinery, 1980-87



Source: Appendix table 21.

technology to other countries. While genetic material represents a growing export for the United States, the United States is also a significant importer.

#### Live Breeding Stock

Live breeding stock exports, which include beef and dairy cows and bulls, have shown considerable variation over the last 10 years, ranging from \$18 million in 1982 to \$103 million in 1985 (app. table 25). Regional shares of these exports have also varied, with the largest shares alternating between North America and Asia (table 18). Mexico, South Korea, Japan, and, in recent years, Taiwan have acquired large shares of U.S. breeding stock exports.

Imports of breeding stock have been fairly modest compared with exports, with the value of imports ranging from about 5 percent of the value of exports in 1985 to around 30 percent in 1983 (table 19, app. table 26). Except for 1984 and 1985, nearly all imports originated in Canada. In 1984 and 1985, France exported between \$0.5 and \$0.9 million worth of live breeding stock to the United States.

#### Poultry Breeding Stock

The U.S. exports of live chicken breeder stock have ranged from between \$30 million and \$50 million annually, with the exception

Table 14--Regional shares of U.S. farm machinery exports by value, 1978-87 1/

Region	1978	1979	1980	1981	1982
	<u>Percent</u>				
Africa	6	3	4	7	6
North and Central America	64	58	57	58	49
South America	7	7	8	7	7
Asia	5	7	6	6	11
Western Europe	11	18	16	14	17
Eastern Europe	1	1	1	2	1
Oceania	6	6	7	7	9
World	100	100	100	100	100
	<u>Percent</u>				
	1983	1984	1985	1986	1987
Africa	6	5	5	5	4
North and Central America	47	48	57	52	49
South America	4	4	6	9	9
Asia	20	16	9	10	12
Western Europe	17	15	13	19	21
Eastern Europe	1	1	2	2	1
Oceania	5	10	8	3	3
World	100	100	100	100	100

1/ Totals may not add due to rounding.

Source: (4).

of 1987. In 1987, only \$20 million in breeder stock was exported. Exports are widely distributed with approximately one-third going to Asia and one-fifth each to South America and Western Europe (table 20, app. table 27). The major importing countries are Canada, Mexico, Brazil, and Japan.

Canada is the only significant source of baby chick imports, and during 1986 and 1987, the United States had a negative trade balance with Canada for this input. Between 1978 and 1987, Canadian imports of baby chicks grew from \$2.7 million to over \$8.3 million.

#### Bull Semen

A specialized export market in another form of genetic material, bull semen, tripled between 1978 and 1987, rising from \$12 million to \$36 million (app. table 28). Over the last 10 years, Western Europe has imported about 50 percent of the value of all U.S. bull semen exports (table 21). South America is the next

Table 15--Regional shares of U.S. farm machinery imports by value, 1980-87 1/

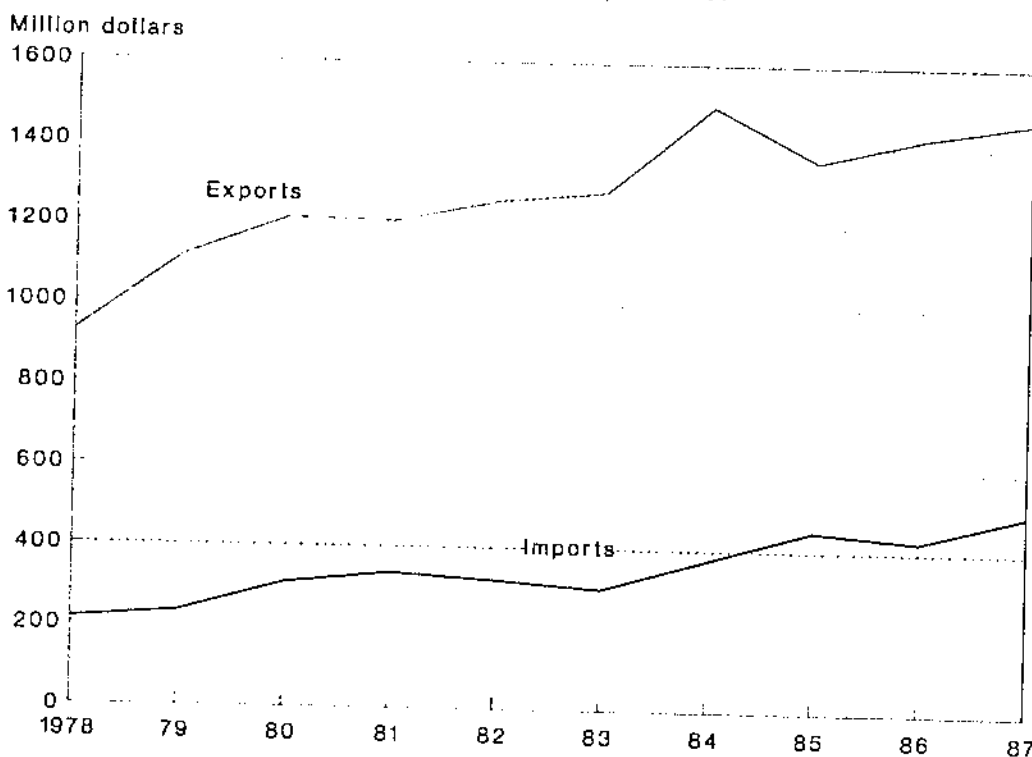
Region	1980	1981	1982	1983	1984	1985	1986	1987
	<u>Percent</u>							
Africa	0	0	0	0	0	0	0	0
North and Central America	44	42	38	32	31	28	24	28
South America	0	1	0	1	1	1	1	1
Asia	12	14	17	17	20	24	27	24
Western Europe	42	40	41	49	46	45	47	44
Eastern Europe	2	2	2	1	1	1	1	1
Oceania	1	1	1	1	1	1	1	1
World	100	100	100	100	100	100	100	100

0 = Less than 0.5 percent.

1/ Totals may not add due to rounding.

Source: (4).

Figure 18  
U.S. export and import value of pesticides, 1978-87



Source: Appendix table 23.

Table 16--Regional shares of U.S. pesticide exports by value,  
1978-87 1/

Region	1978	1979	1980	1981	1982
	<u>Percent</u>				
Africa	4	4	4	4	3
North and Central America	24	21	21	23	22
South America	18	16	16	15	12
Asia	20	22	23	23	23
Western Europe	31	34	32	31	35
Eastern Europe	0	0	0	0	0
Oceania	3	4	4	3	4
World	100	100	100	100	100
	<u>Percent</u>				
	1983	1984	1985	1986	1987
Africa	3	4	3	4	3
North and Central America	23	22	22	17	17
South America	13	13	12	16	15
Asia	23	22	23	23	25
Western Europe	32	33	36	35	34
Eastern Europe	0	0	1	1	1
Oceania	6	5	4	4	4
World	100	100	100	100	100

0 = Less than 0.5 percent.

1/ Totals may not add due to rounding.

Source: (4).

largest market, followed by North America. West Germany, Italy, the Netherlands, and more recently France, Brazil, and Venezuela are the major recipients of this input.<sup>2/</sup> U.S. bull semen imports are valued at only about \$2 million, although 1987 imports approached \$4 million due to growth in Canadian, Australian, and United Kingdom imports (table 22, app. table 29).

#### Seeds

The United States has historically exported approximately three times in value more seeds than it has imported (app. tables 30 and 31). Between 1982 and 1987, the United States had a positive

<sup>2/</sup> Another form of genetic material trade is embryos. Embryo trade was first recorded in 1987, when embryos valued at about \$3 million were exported.

Table 17--Regional shares of U.S. pesticide imports by value,  
1978-87 1/

Region	1978	1979	1980	1981	1982
	<u>Percent</u>				
Africa	4	5	7	2	5
North and Central America	3	4	3	4	3
South America	1	1	1	1	3
Asia	12	14	13	17	13
Western Europe	80	76	76	74	75
Eastern Europe	0	0	0	1	1
Oceania	0	0	0	0	0
World	100	100	100	100	100
	<u>Percent</u>				
	1983	1984	1985	1986	1987
Africa	3	3	3	3	3
North and Central America	4	6	5	5	7
South America	7	5	6	12	12
Asia	13	10	8	10	11
Western Europe	72	76	78	70	68
Eastern Europe	0	0	0	0	0
Oceania	0	0	0	0	1
World	100	100	100	100	100

0 = Less than 0.5 percent.

1/ Totals may not add due to rounding.

Source: (4).

trade balance for seeds of over \$200 million. Western Europe, Asia, and North America are the major destinations of U.S. seed exports, accounting for nearly 80 percent of the value of these exports (table 23). Italy, France, and the Netherlands are the major Western European importers of U.S. seed. Japan, Saudi Arabia, and Canada are also major importers.

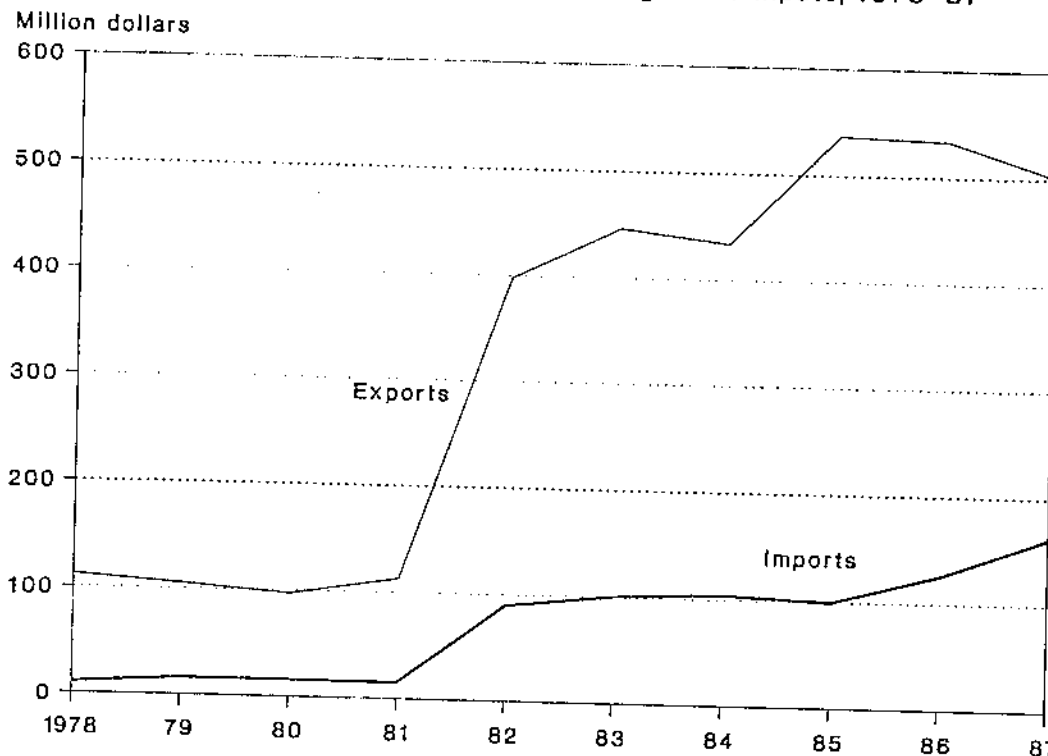
North American countries, especially Canada, have accounted for 40-50 percent of the value of all U.S. seed imports (table 24). Asia and Western Europe each provide around 20 percent of the value of all seed imported to the United States; the Netherlands, Japan, and Taiwan are the major sources.

#### Implications

The implications of global interdependence of the input industries for U.S. agriculture can be described in three general



Figure 19  
 U.S. export and import value of agricultural genetic inputs, 1978-87



Source: Appendix tables 25, 27, 28, 30.

categories. First, international shifts in demand for agricultural goods and agricultural inputs can affect input prices paid by U.S. farmers. Second, U.S. farmers now depend on other countries for a larger share of some agricultural inputs, such as farm machinery and potash and nitrogen fertilizer. Third, the flow of U.S. agricultural inputs, and the embodied new technology, to countries currently importing U.S. agricultural products or competing with the United States for other global markets may affect our agricultural trade balance (1). However, these effects are not necessarily detrimental to the interest of the United States or to U.S. farmers. As new technology is developed, U.S. farmers are often the first producers to whom these products become available. As an employer and generator of income, the U.S. input production sector is highly beneficial to the U.S. economy. The adoption of modern agricultural inputs in developing countries can lead to greater production and income levels, stimulating demand for imports of value-added processed foods or the establishment of a livestock sector which requires significant new imports of raw agricultural products (3, 8).

Furthermore, international technology transfer does not flow in only one direction. U.S. farmers continue to benefit from genetic materials, pesticides, and farm machinery developed in other intensive agricultural areas of the world.

Table 18--Regional shares of U.S. live breeding stock exports by value, 1978-87 1/ 2/

Region	1978	1979	1980	1981	1982
	<u>Percent</u>				
Africa	2	0	3	5	5
North and Central America	31	38	52	58	34
South America	9	8	12	15	16
Asia	50	47	24	18	45
Western Europe	5	6	9	1	0
Eastern Europe	3	0	0	3	0
Oceania	0	0	0	0	0
World	100	100	100	100	100
	<u>Percent</u>				
	1983	1984	1985	1986	1987
Africa	3	2	0	0	4
North and Central America	17	51	76	69	36
South America	16	20	9	15	22
Asia	63	28	12	14	29
Western Europe	0	0	0	1	9
Eastern Europe	0	0	0	0	0
Oceania	1	0	2	0	0
World	100	100	100	100	100

0 = Less than 0.5 percent.

1/ Beef and dairy cows and bulls.

2/ Totals may not add due to rounding.

Source: (4).

Table 19--Regional shares of U.S. live breeding stock imports by value, 1973-87 1/ 2/

Region	1978	1979	1980	1981	1982
	<u>Percent</u>				
North and Central America	98	100	100	99	100
Western Europe	2	0	0	1	0
World	100	100	100	100	100
	<hr/>				
	1983	1984	1985	1986	1987
	<u>Percent</u>				
North and Central America	97	86	90	99	100
Western Europe	3	14	10	1	0
World	100	100	100	100	100

0 = Less than 0.5 percent.

1/ Beef and dairy cows and bulls.

2/ Totals may not add due to rounding.

Source: (4).

Table 20--Regional shares of U.S. live breeder chicken exports by value, 1978-87 1/

Region	1978	1979	1980	1981	1982
	<u>Percent</u>				
Africa	1	1	1	1	2
North and Central America	31	34	35	36	34
South America	18	19	24	25	24
Asia	32	29	25	24	22
Western Europe	16	15	14	14	17
Eastern Europe	1	2	1	0	1
Oceania	0	0	0	0	0
World	100	100	100	100	100
	<u>Percent</u>				
	1983	1984	1985	1986	1987
Africa	2	2	1	2	1
North and Central America	34	40	35	33	36
South America	20	7	19	16	20
Asia	25	30	28	29	36
Western Europe	18	20	17	18	7
Eastern Europe	1	1	0	2	0
Oceania	0	0	0	0	0
World	100	100	100	100	100

0 = Less than 0.5 percent.

1/ Totals may not add due to rounding.

Source: (4).

Table 21--Regional shares of U.S. bull semen exports by value,  
1978-87 1/

Region	1978	1979	1980	1981	1982
	<u>Percent</u>				
Africa	1	1	1	3	4
North and Central America	15	19	14	16	13
South America	24	28	33	21	15
Asia	7	4	2	4	5
Western Europe	49	42	46	53	61
Eastern Europe	4	7	3	4	1
Oceania	0	0	0	0	0
World	100	100	100	100	100
	<u>Percent</u>				
	1983	1984	1985	1986	1987
Africa	5	6	4	2	2
North and Central America	10	12	13	12	8
South America	17	20	20	25	21
Asia	5	4	9	10	11
Western Europe	62	53	50	43	52
Eastern Europe	2	4	4	7	4
Oceania	0	0	0	1	2
World	100	100	100	100	100

0 = Less than 0.5 percent.

1/ Totals may not add due to rounding.

Source: (4).

Table 22--Regional shares of U.S. bull semen imports by value,  
1980-87 1/

Region	1980	1981	1982	1983	1984	1985	1986	1987
	<u>Percent</u>							
North and Central America	98	94	99	96	99	97	97	90
Western Europe	2	2	1	1	1	1	3	4
Oceania	0	4	0	3	0	2	0	6
World	100	100	100	100	100	100	100	100

0 = Less than 0.5 percent.

1/ Totals may not add due to rounding.

Source: (4).

Table 23--Regional shares of U.S. exports of seeds for planting  
by value, 1982-87 1/

Region	1982	1983	1984	1985	1986	1987
	<u>Percent</u>					
Africa	4	4	5	3	3	3
North and Central America	30	33	31	25	21	25
South America	7	8	9	7	9	8
Asia	21	21	27	22	24	23
Western Europe	35	30	26	38	36	40
Eastern Europe	1	1	1	3	5	0
Oceania	2	3	2	2	2	2
World	100	100	100	100	100	100

0 = Less than 0.5 percent.

1/ Totals may not add due to rounding.

Source: (4).

Table 24--Regional shares of U.S. imports of seeds for planting  
by value, 1982-87 1/

Region	1982	1983	1984	1985	1986	1987
	<u>Percent</u>					
Africa	7	6	6	6	4	4
North and Central America	39	52	37	38	43	44
South America	4	4	10	9	7	6
Asia	22	19	21	20	22	19
Western Europe	19	14	17	21	19	19
Eastern Europe	7	0	7	2	0	1
Oceania	2	3	2	3	4	7
World	100	100	100	100	100	100

0 = Less than 0.5 percent.

1/ Totals may not add due to rounding.

Source: (4).

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Appendix table 1--World cropland area by commodity, 1969-85 1/

Year	Barley	Corn	Cotton	Oats	Rough rice	Rye	Soybeans	Wheat	Total
Million hectares									
1969/70	70	102	33	30	130	19	28	215	627
1970/71	69	105	32	31	130	19	29	204	618
1971/72	72	111	33	30	132	19	30	212	638
1972/73	77	107	33	30	130	17	33	209	636
1973/74	81	112	33	31	133	15	38	216	600
1974/75	82	114	33	30	138	18	38	220	672
1975/76	85	116	30	30	142	15	41	226	685
1976/77	86	118	31	28	142	16	39	232	693
1977/78	87	121	33	30	143	14	45	226	699
1978/79	85	125	32	28	145	15	49	226	705
1979/80	86	127	32	27	143	13	47	228	703
1980/81	81	132	32	26	144	15	50	237	717
1981/82	84	132	33	27	145	14	50	239	725
1982/83	79	124	32	27	141	17	52	238	710
1983/84	80	119	31	27	145	17	50	230	700
1984/85	79	128	34	26	144	17	53	231	713
1985/86	79	129	32	26	143	16	51	230	706

1/ Totals may not add due to rounding.  
Source: (5).

Appendix table 2--World crop production by commodity, 1969-85 1/

Year	Barley	Corn	Cotton	Oats	Rough rice	Rye	Soybeans	Wheat	Total
Million metric tons									
1969/70	117	258	11	52	287	28	40	287	1,081
1970/71	118	252	11	51	293	25	42	288	1,079
1971/72	136	292	12	58	296	32	44	341	1,211
1972/73	139	286	13	51	286	28	47	334	1,184
1973/74	158	315	14	54	324	29	57	368	1,319
1974/75	160	283	14	50	330	33	51	350	1,272
1975/76	144	322	12	47	352	24	67	350	1,318
1976/77	178	336	13	49	348	29	59	413	1,426
1977/78	165	346	14	52	362	23	75	382	1,417
1978/79	184	383	13	51	385	31	80	439	1,567
1979/80	161	423	14	45	377	22	77	422	1,542
1980/81	163	407	14	45	397	25	81	441	1,573
1981/82	156	437	15	45	412	24	86	448	1,626
1982/83	165	438	15	48	420	30	93	479	1,688
1983/84	169	346	15	45	452	31	82	491	1,631
1984/85	173	457	19	46	468	33	92	515	1,804
1985/86	176	480	17	48	464	31	95	503	1,813

1/ Totals may not add due to rounding.  
Source: (5).

Appendix table 3--World yields by commodity, 1969-85 1/

Year	Barley	Corn	Cotton	Oats	Rough rice	Rye	Soybeans	Wheat	Total
	<u>Metric tons/hectare</u>								
1969/70	1.7	2.5	0.3	1.7	2.2	1.5	1.4	1.3	1.7
1970/71	1.7	2.4	.3	1.6	2.3	1.4	1.4	1.4	1.7
1971/72	1.9	2.6	.4	1.9	2.2	1.7	1.4	1.6	1.9
1972/73	1.8	2.7	.4	1.7	2.2	1.7	1.5	1.6	1.9
1973/74	2.0	2.8	.4	1.7	2.4	1.9	1.5	1.7	2.0
1974/75	2.0	2.5	.4	1.7	2.4	1.8	1.3	1.6	1.9
1975/76	1.7	2.8	.4	1.6	2.5	1.6	1.6	1.5	1.9
1976/77	2.1	2.8	.4	1.7	2.5	1.6	1.6	1.5	1.9
1977/78	1.9	2.9	.4	1.7	2.5	1.7	1.7	1.7	2.0
1978/79	2.2	3.1	.4	1.8	2.7	2.0	1.6	1.9	2.2
1979/80	1.9	3.3	.4	1.7	2.8	1.6	1.6	1.9	2.2
1980/81	2.0	3.1	.4	1.7	2.8	1.6	1.6	1.9	2.2
1981/82	1.9	3.3	.5	1.7	2.8	1.7	1.7	1.9	2.2
1982/83	2.1	3.5	.5	1.8	3.0	1.8	1.8	2.0	2.4
1983/84	2.1	2.9	.5	1.7	3.1	1.8	1.6	2.1	2.3
1984/85	2.2	3.6	.6	2.8	3.2	2.0	1.7	2.2	2.5
1985/86	2.2	3.7	.5	1.8	3.2	1.9	1.8	2.2	2.6

Source: (5).

Appendix table 4--World fertilizer consumption by major regions, 1970-83 1/

Region/country	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84
	Million metric tons													
Africa	1.6	1.9	2.1	2.1	2.2	2.4	2.5	2.6	2.6	2.8	3.3	3.6	3.5	3.4
Egypt	.4	.4	.4	.4	.4	.5	.5	.5	.6	.6	.7	.7	.8	.9
South Africa	.6	.6	.7	.7	.7	.8	.8	.9	.9	1.0	1.1	1.2	1.1	.9
Others	.7	.9	.9	1.0	1.0	1.1	1.2	1.1	1.1	1.2	1.6	1.6	1.5	1.6
North and Central America	17.6	17.7	18.7	20.3	18.8	22.0	23.4	22.3	24.3	24.8	25.6	24.1	21.2	24.6
United States	15.5	15.6	16.3	17.5	15.9	18.9	20.1	18.7	20.5	20.9	21.5	19.4	16.4	19.9
Canada	.8	.9	1.0	1.2	1.2	1.3	1.3	1.6	1.8	1.8	1.9	1.9	2.0	2.3
Mexico	.5	.6	.7	.8	.9	1.1	1.1	1.1	1.1	1.1	1.2	1.6	1.8	1.4
Others	.7	.7	.6	.8	.8	.7	.8	.9	1.0	.9	1.0	1.1	1.0	1.0
South America	1.7	1.8	2.4	2.6	2.7	2.7	3.4	4.2	4.2	4.7	5.3	3.7	3.7	3.2
Brazil	1.0	1.1	1.6	1.7	1.8	2.0	2.5	3.2	3.2	3.6	4.2	2.8	2.7	2.3
Colombia	.1	.2	.2	.3	.3	.2	.2	.3	.3	.3	.3	.3	.3	.3
Others	.5	.5	.6	.6	.7	.5	.7	.7	.7	.8	.8	.7	.6	.6
Asia	11.6	12.4	14.1	15.8	14.9	16.3	17.6	21.8	25.0	28.0	30.7	31.3	33.2	37.0
China	4.4	4.6	5.2	6.4	5.6	6.9	6.4	9.1	10.9	13.1	15.3	15.2	16.0	18.2
India	1.8	2.4	2.6	2.5	2.7	2.5	3.4	4.1	4.5	5.0	5.2	5.7	5.9	6.6
Japan	2.1	1.9	2.1	2.2	2.1	1.8	2.1	2.1	2.2	2.3	1.8	1.9	2.0	2.1
Turkey	.4	.5	.6	.7	.5	.9	1.2	1.3	1.5	1.3	1.5	1.3	1.5	1.5
Others	2.8	3.0	3.5	3.9	4.1	4.3	4.6	5.2	5.9	6.3	6.8	7.3	7.9	8.5
Western Europe	17.4	18.2	18.7	19.5	17.6	17.8	19.0	19.6	21.0	21.8	20.8	20.4	20.9	21.3
France	4.7	5.0	5.3	5.8	4.7	4.7	5.1	5.2	5.6	5.9	5.6	5.6	5.6	5.8
West Germany	3.2	3.3	3.2	3.2	3.2	3.1	3.4	3.4	3.4	3.6	3.5	3.1	3.2	3.1
Italy	1.3	1.5	1.5	1.4	1.3	1.5	1.4	1.8	2.2	2.4	2.1	2.1	2.0	2.1
Spain	1.2	1.4	1.4	1.5	1.5	1.4	1.7	1.4	1.6	1.7	1.7	1.4	1.5	1.5
United Kingdom	1.9	1.9	1.7	1.9	1.7	1.8	1.9	2.0	2.1	2.2	2.1	2.3	2.5	2.6
Others	5.1	5.2	5.5	5.7	5.2	5.3	5.4	5.7	6.0	6.0	5.8	5.9	6.0	6.2
Eastern Europe	17.8	19.5	20.8	22.7	24.5	27.9	28.1	28.4	29.3	28.3	29.2	30.2	30.5	34.0
USSR	10.3	11.3	12.4	13.5	14.7	17.2	17.7	18.0	18.4	17.4	18.8	19.2	20.1	22.9
East Germany	1.5	1.6	1.6	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.6	1.7	1.4	1.5
Hungary	.8	1.0	1.0	1.2	1.3	1.5	1.4	1.5	1.5	1.5	1.4	1.5	1.4	1.6
Romania	.6	.6	.6	.9	.9	1.2	1.1	1.1	1.1	1.4	1.2	1.6	1.4	1.7
Poland	2.6	2.9	3.0	3.3	3.5	3.7	3.6	3.6	3.6	3.6	3.5	3.3	3.2	3.4
Czechoslovakia	1.3	1.4	1.4	1.4	1.5	1.7	1.7	1.6	1.7	1.7	1.7	1.7	1.7	1.8
Others	.7	.7	.7	.7	.6	.7	.7	.8	.8	.9	.9	1.1	1.1	1.1
Oceania	1.4	1.6	1.9	2.2	1.3	1.3	1.5	1.6	1.7	1.8	1.7	1.6	1.6	1.7
Australia	1.0	1.1	1.3	1.5	.9	.7	1.0	1.0	1.1	1.2	1.2	1.1	1.1	1.1
New Zealand	.4	.5	.5	.7	.5	.5	.5	.6	.6	.5	.5	.5	.5	.5
World	69.1	73.1	78.5	85.2	82.0	90.4	95.5	100.4	108.1	112.2	116.5	114.8	114.6	125.2

1/ Totals may not add due to rounding.  
Source: (Z).

Appendix table 5--World export value of crude fertilizer by major regions, 1970-84 1/

Region/country	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
	Million dollars														
Africa	168	186	208	285	1,429	1,349	760	701	715	734	1,056	1,004	797	676	801
Morocco	114	126	144	195	939	847	496	469	489	482	751	743	573	472	550
Togo	13	17	19	28	144	81	55	77	94	102	135	104	78	69	105
Senegal	12	14	18	22	104	104	65	73	61	73	78	61	60	49	59
Others	29	29	26	40	243	316	143	82	71	77	93	95	86	85	87
North and Central America	95	98	112	117	263	469	335	371	367	432	509	420	384	423	392
United States	91	96	109	114	258	466	330	366	367	432	509	420	384	423	392
Canada	3	2	3	2	4	3	5	5	4	2	0	0	0	3	0
Mexico	*	*	*	*	*	*	*	*	*	7	0	0	1	0	0
Others	1	1	1	1	*	*	*	*	*	*	*	*	*	*	0
South America	18	24	20	25	45	45	33	42	48	43	38	35	29	30	32
Chile	18	24	20	24	38	44	32	41	48	42	37	34	28	30	32
Peru	*	*	*	1	*	1	1	1	0	*	*	*	1	*	*
Colombia	0	0	*	*	1	0	0	0	0	0	*	*	*	*	*
Brazil	*	0	*	1	1	*	0	0	0	0	*	*	*	*	*
Others	*	*	*	*	5	1	*	*	*	*	0	*	*	*	*
Asia	16	15	21	27	140	152	123	116	123	147	224	273	261	268	291
Jordan	6	6	10	12	61	61	58	53	63	87	158	168	162	142	154
Israel	5	4	5	3	21	14	13	14	15	22	35	65	68	87	89
Syria	0	0	1	3	22	15	11	15	23	32	23	33	21	27	40
China	0	0	0	0	0	0	0	0	0	*	1	*	*	*	*
India	0	0	0	0	0	0	*	0	*	0	*	0	0	0	0
Others	5	6	6	9	36	62	41	35	22	6	7	7	10	11	9
Western Europe	5	5	5	9	19	15	14	21	22	26	31	27	30	28	26
Belgium/Luxembourg	1	1	1	2	3	3	2	4	4	5	6	5	6	5	5
Sweden	*	*	*	*	1	2	1	1	2	2	3	6	5	4	4
Netherlands	1	1	1	2	7	3	5	8	7	7	9	5	4	5	4
France	1	1	1	2	2	2	2	3	4	6	6	4	5	4	3
Others	2	2	2	3	5	6	5	6	5	6	7	7	10	9	10
Eastern Europe	158	181	187	231	421	599	384	439	372	363	604	691	616	541	603
USSR	158	181	187	231	421	599	384	439	372	363	604	691	616	541	603
Others	*	0	0	0	0	0	0	0	0	0	0	*	*	*	0
Oceania	48	47	47	77	92	131	105	109	133	130	161	152	116	119	113
Nauru	28	26	19	39	37	54	38	52	60	60	98	81	57	71	58
Christmas Island	13	13	18	25	28	40	37	37	41	46	62	70	57	45	53
Australia	*	*	*	*	*	2	9	3	10	4	*	1	2	4	1
Others	7	8	10	12	27	35	21	17	22	20	*	*	*	*	*
World	508	557	600	772	2,408	2,760	1,754	1,800	1,791	1,876	2,623	2,603	2,234	2,088	2,257

\* = Less than \$500,000.

1/ Totals may not add due to rounding.

Source: (7).

Appendix table 6--World import value of crude fertilizer by major regions, 1970-84 1/

Region/country	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
	Million dollars														
Africa	8	9	8	11	25	43	40	7	13	24	29	28	22	16	15
South Africa	3	6	5	7	12	23	15	2	9	4	10	10	7	5	6
Cameroon	*	*	*	*	*	*	*	2	1	1	1	0	*	6	5
Nigeria	1	2	1	2	5	6	13	1	*	15	8	7	3	1	1
Others	4	1	1	2	8	14	11	2	3	4	10	11	12	4	3
North and Central America	30	38	37	42	113	157	123	141	184	164	226	210	159	153	168
Canada	14	17	18	23	41	84	55	56	72	85	113	111	82	83	93
Mexico	7	9	10	12	44	43	53	60	65	42	73	67	51	48	50
United States	9	11	7	6	25	28	13	23	45	36	37	28	23	20	22
Others	*	1	1	1	3	3	2	2	2	1	2	4	2	3	3
South America	11	39	50	26	107	80	83	82	64	61	75	51	29	8	7
Colombia	*	*	*	*	3	3	1	3	3	2	3	3	4	3	3
Venezuela	0	0	0	*	5	*	*	5	3	5	5	3	4	2	3
Uruguay	0	2	3	3	12	7	2	4	3	7	7	3	2	1	1
Brazil	8	36	46	21	80	65	77	68	52	44	58	38	17	2	*
Others	3	1	2	3	8	5	3	3	2	3	3	5	2	*	*
Asia	130	134	130	171	442	515	369	395	373	456	561	605	487	468	507
Japan	69	64	58	74	219	214	138	128	127	152	193	172	152	155	150
South Korea	8	8	8	10	25	53	47	56	71	95	83	91	104	55	78
India	14	15	15	20	58	39	27	50	42	68	73	97	67	62	70
China	25	25	26	34	50	75	76	69	42	34	52	41	39	36	44
Others	15	22	24	32	91	134	82	92	91	107	160	203	126	161	165
Western Europe	297	314	336	445	1,349	1,324	944	945	948	1,090	1,513	1,339	1,180	1,076	1,010
France	58	65	70	96	334	243	194	192	198	235	328	284	239	205	209
Spain	23	26	30	36	70	81	75	126	132	140	169	155	154	140	124
Belgium/Luxembourg	25	31	36	47	132	131	87	90	89	101	148	151	122	109	115
Others	191	193	199	267	813	869	588	538	530	614	868	749	665	622	561
Eastern Europe	111	128	143	162	369	532	456	468	438	467	558	507	412	377	400
Poland	26	31	42	38	115	175	117	117	108	118	146	141	125	101	135
Romania	13	20	18	23	77	88	97	105	90	102	142	148	112	123	122
East Germany	20	22	22	27	31	76	69	61	50	54	68	70	55	47	48
Others	53	55	63	74	146	193	172	185	190	193	202	148	120	106	96
Oceania	51	45	44	54	80	148	122	108	125	168	157	195	199	148	122
Australia	32	23	22	30	52	102	68	49	63	95	89	119	142	103	78
New Zealand	19	23	22	24	27	46	54	59	62	73	67	76	57	45	43
Others	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
World	639	707	748	912	2,485	2,799	2,137	2,146	2,145	2,429	3,118	2,934	2,488	2,247	2,229

\* = Less than \$500,000.

1/ Totals may not add due to rounding.

Source: (Z).

Appendix table 7--World export value of manufactured fertilizer by major regions, 1970-84 1/

Region/country	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
	Million dollars														
Africa	39	55	54	86	166	123	85	102	123	176	252	299	307	398	434
Tunisia	16	19	20	29	78	42	30	54	63	91	165	196	177	156	172
Morocco	7	11	14	21	32	26	17	24	32	54	38	56	78	130	137
South Africa	5	10	5	17	18	24	10	2	23	17	19	29	17	41	45
Others	11	15	15	20	38	31	28	21	5	15	30	19	35	71	79
North and Central America	412	450	547	722	1,302	1,571	1,213	1,367	1,717	2,302	3,401	2,910	2,251	2,268	3,062
United States	178	191	299	407	815	1,084	613	703	1,037	1,406	2,268	1,736	1,388	1,278	1,815
Canada	212	238	214	283	431	449	555	620	639	843	1,073	1,120	829	941	1,181
Mexico	8	10	16	15	21	2	3	9	7	13	12	5	2	23	38
Others	15	11	18	18	34	37	42	34	34	40	47	48	31	26	27
South America	*	1	2	4	18	15	11	10	9	72	64	70	76	111	124
Brazil	*	*	1	2	1	3	1	*	2	4	3	4	9	37	44
Venezuela	0	*	*	0	9	2	5	7	2	19	27	43	31	38	44
Chile	0	0	0	0	0	1	1	2	1	44	18	16	32	33	33
Others	*	1	1	2	7	9	4	2	3	5	17	7	3	3	4
Asia	107	119	165	398	733	926	354	566	845	1,068	1,516	1,032	976	914	1,095
South Korea	6	8	9	5	0	*	12	71	162	223	344	187	208	194	244
Israel	25	30	30	34	67	72	51	76	91	121	200	167	133	142	171
Japan	52	49	58	241	457	601	156	204	255	284	332	306	180	103	150
China	1	1	2	5	3	0	*	4	8	9	*	1	4	2	7
India	0	*	*	1	0	0	*	0	0	0	2	*	0	0	0
Others	23	32	67	111	206	253	135	209	328	432	637	371	450	473	523
Western Europe	584	530	653	1,092	2,257	2,159	1,363	1,790	2,322	2,702	3,029	2,807	2,502	2,560	2,772
Netherlands	67	69	144	245	475	478	338	404	547	648	736	728	669	630	719
West Germany	132	133	156	251	431	406	263	325	450	535	632	580	475	507	575
Belgium/Luxembourg	155	170	126	265	430	458	396	470	592	648	764	681	587	538	512
France	71	74	86	113	272	315	150	251	221	252	287	263	231	225	227
Others	158	85	142	218	649	502	217	341	512	619	610	556	540	660	739
Eastern Europe	200	341	364	488	995	1,232	1,051	1,148	1,317	1,572	2,497	2,542	2,071	2,094	2,149
USSR	52	44	42	50	207	230	164	206	271	289	406	525	538	558	587
East Germany	82	88	96	130	231	251	273	258	282	358	627	628	469	467	476
Romania	21	40	54	59	59	257	164	210	287	369	521	524	377	374	378
Others	45	169	173	248	498	494	450	475	477	555	943	865	687	695	709
Oceania	1	*	2	3	3	4	5	1	2	3	8	7	6	5	8
Australia	1	*	2	3	3	4	4	*	1	2	6	6	5	4	8
New Zealand	*	*	*	*	*	1	*	*	1	1	2	1	1	1	*
Others	0	0	0	0	0	0	0	0	*	0	0	0	*	*	*
World	1,343	1,496	1,788	2,793	5,473	6,030	4,082	4,983	6,335	7,895	10,766	9,669	8,189	8,346	9,644

\* = Less than \$500,000.

1/ Totals may not add due to rounding.

Source: (7).

Appendix table 8--World import value of manufactured fertilizer by major regions, 1970-84 1/

Region/country	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
	Million dollars														
Africa	81	109	117	156	367	479	319	281	326	382	676	760	502	433	485
Tunisia	1	4	2	6	18	18	7	5	8	16	19	22	21	5	12
Morocco	3	6	7	12	38	41	26	25	29	50	57	49	54	38	43
South Africa	2	2	11	4	18	13	8	*	13	17	53	102	78	32	36
Others	74	96	96	134	293	407	278	250	276	299	546	587	348	357	395
North and Central America	256	275	320	396	859	1,003	918	1,066	1,158	1,265	1,515	1,675	1,488	1,519	1,686
United States	192	205	232	280	560	557	588	696	743	818	979	1,102	963	997	1,142
Canada	13	17	14	18	32	53	58	64	83	115	115	131	116	150	159
Mexico	6	6	13	13	23	76	64	42	66	75	68	99	129	61	65
Others	45	47	61	84	244	318	208	264	266	257	353	343	280	301	319
South America	143	107	177	269	750	586	343	508	567	754	1,166	748	517	349	478
Brazil	71	55	123	167	490	350	248	360	369	523	778	436	297	170	245
Venezuela	12	8	4	5	29	30	26	39	59	56	117	86	18	3	25
Chile	21	12	12	19	78	32	12	21	22	41	78	62	19	30	32
Others	39	32	39	78	153	174	58	88	117	134	205	164	183	147	177
Asia	552	580	633	935	1,649	2,386	1,068	1,613	2,144	2,959	3,831	4,017	3,434	3,810	5,044
South Korea	4	7	4	8	53	140	23	23	28	35	37	41	62	32	49
Israel	1	2	2	4	2	4	1	2	2	2	6	6	7	6	7
Japan	50	62	59	79	132	154	119	134	148	183	278	252	258	259	259
China	229	187	191	205	178	169	206	443	594	669	885	810	1,275	1,421	1,714
India	64	101	101	179	342	745	163	250	407	450	1,125	650	285	361	1,263
Others	204	220	275	461	942	1,174	556	762	965	1,620	1,968	2,258	1,548	1,731	1,752
Western Europe	480	587	719	909	1,273	1,453	1,449	1,697	2,001	2,763	3,234	2,805	2,950	3,049	3,091
Netherlands	25	23	32	41	57	48	46	87	97	109	120	111	139	167	162
West Germany	34	55	78	99	129	177	244	316	362	459	496	482	579	553	496
Belgium/Luxembourg	46	59	54	81	112	130	132	179	222	249	299	237	242	244	259
France	110	156	183	251	341	362	378	395	417	615	853	663	662	660	650
Others	265	295	372	435	634	736	649	719	904	1,332	1,466	1,314	1,327	1,427	1,523
Eastern Europe	168	187	257	305	457	463	424	445	493	487	605	778	669	668	647
USSR	0	0	16	5	23	27	4	3	6	12	51	43	24	20	15
East Germany	21	24	45	66	60	50	13	22	21	13	23	12	40	44	48
Romania	2	2	4	4	5	10	14	16	15	23	36	52	57	54	58
Others	145	161	192	230	369	376	393	404	450	439	496	670	549	550	526
Oceania	21	20	31	41	49	57	41	64	64	79	91	130	129	147	172
Australia	8	7	7	8	10	18	11	24	19	28	36	57	67	84	114
New Zealand	11	11	22	29	33	29	23	31	34	38	37	55	48	40	42
Others	2	2	3	4	7	10	6	9	11	12	17	18	14	23	17
World	1,700	1,865	2,254	3,011	5,404	6,427	4,561	5,673	6,753	8,688	11,118	10,913	9,689	9,966	11,603

\* = Less than \$500,000.

1/ Totals may not add due to rounding.

Source: (?).

Appendix table 9--World export value of farm machinery by major regions, 1970-84 1/

Region/country	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
	Million dollars														
Africa	10	13	13	15	19	25	26	31	23	23	27	21	11	9	10
North and Central America	784	764	963	1,265	1,797	2,637	2,653	2,405	2,673	3,352	3,930	4,283	3,084	2,128	2,253
United States	628	597	750	987	1,407	2,106	2,122	1,894	2,173	2,657	3,191	3,560	2,528	1,638	1,790
Canada	154	167	212	277	387	526	527	503	492	684	724	712	544	479	452
Mexico	*	1	1	1	3	4	3	6	6	9	9	9	10	10	10
Others	1	*	*	*	1	1	1	2	2	1	5	2	2	1	1
South America	7	8	13	32	66	77	53	109	140	192	228	253	197	91	136
Brazil	2	2	3	9	23	33	22	71	98	139	201	233	152	85	127
Argentina	5	6	9	22	41	41	28	34	36	44	18	14	37	2	5
Others	*	1	1	1	3	2	3	4	6	9	8	6	8	4	4
Asia	73	96	121	189	403	547	463	529	817	913	984	1,136	1,000	1,219	1,180
Japan	70	93	115	184	392	535	450	515	791	883	931	1,083	951	1,161	1,115
Hong Kong	*	*	*	*	1	1	1	1	1	1	1	2	2	2	1
India	1	1	1	1	3	4	3	4	6	5	5	8	9	9	10
Singapore	0	0	0	0	0	0	0	0	4	6	10	6	6	4	4
Others	2	3	5	4	8	8	9	9	15	19	38	37	32	42	50
Western Europe	1,301	1,302	1,609	2,300	3,067	3,939	4,088	4,720	5,022	6,063	6,712	5,980	5,722	5,299	5,111
West Germany	317	306	418	632	927	1,056	1,155	1,289	1,407	1,695	1,841	1,656	1,711	1,688	1,522
United Kingdom	386	431	478	543	622	908	897	1,069	1,002	1,217	1,410	1,177	967	808	876
Italy	151	121	118	279	354	483	477	585	715	910	1,084	989	993	922	828
France	142	133	174	240	308	450	411	487	543	592	620	584	588	572	595
Belgium/Luxembourg	93	88	120	161	244	305	370	424	396	483	433	329	276	250	259
Netherlands	40	45	61	97	128	147	166	196	209	213	265	251	247	236	238
Others	170	179	240	348	484	589	612	669	750	953	1,059	994	940	821	794
Eastern Europe	254	274	326	475	791	945	1,069	1,329	1,602	1,796	1,977	1,791	1,712	1,757	1,631
USSR	149	156	179	260	498	592	688	830	895	985	1,180	1,058	1,020	996	895
Czechoslovakia	60	70	80	116	152	179	208	281	338	396	372	397	384	434	431
Hungary	20	20	40	71	86	108	115	158	172	217	205	166	159	190	189
Others	26	28	27	28	55	66	58	61	198	199	220	169	149	136	115
Oceania	15	16	23	28	32	76	66	66	56	63	73	116	97	68	63
Australia	13	13	20	28	28	68	59	56	43	47	50	91	72	47	38
New Zealand	2	3	3	*	4	8	7	10	13	16	23	25	24	21	25
Others	0	0	0	0	0	0	0	*	*	*	*	*	1	*	*
World	2,445	2,473	3,067	4,305	6,176	8,245	8,418	9,189	10,334	12,401	13,931	13,580	11,823	10,571	10,384

\* = Less than \$500,000.

1/ Totals may not add due to rounding.

Source: (7).



Appendix table 10--World import value of farm machinery by major regions, 1970-84 1/

Region/country	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
	Million dollars														
Africa	196	202	243	278	423	745	590	683	790	648	1,206	1,360	1,007	865	1,004
South Africa	86	87	89	88	147	276	172	151	160	133	375	507	238	141	280
Nigeria	9	11	14	13	17	96	98	115	116	84	298	197	165	129	141
Algeria	28	9	28	38	59	78	31	35	78	40	65	129	99	105	95
Others	73	95	113	138	200	296	289	382	436	391	468	527	505	489	488
North and Central America	576	667	889	1,087	1,676	2,157	2,158	2,161	2,580	3,451	3,360	3,483	2,911	2,756	3,117
Canada	217	300	407	502	746	994	1,062	1,015	1,016	1,442	1,459	1,651	1,315	1,017	1,070
United States	254	269	368	462	743	872	852	930	1,080	1,490	1,445	1,280	1,042	1,196	1,442
Mexico	60	49	59	64	102	177	135	79	264	288	229	323	351	350	367
Others	44	50	56	58	84	114	109	138	220	231	226	229	204	193	237
South America	164	164	222	224	360	575	385	440	417	394	490	462	392	278	259
Brazil	88	91	143	127	215	260	128	69	48	39	43	30	24	12	5
Venezuela	23	24	25	25	44	146	133	197	128	84	91	128	141	55	49
Argentina	12	13	10	8	10	19	11	44	42	71	113	62	19	18	11
Others	42	35	44	64	90	150	113	130	199	200	243	242	209	194	195
Asia	222	248	266	297	456	717	901	923	1,081	933	954	976	1,065	1,088	871
Saudi Arabia	5	6	4	5	19	40	74	65	99	103	173	268	340	386	270
Israel	13	17	18	21	31	52	44	33	43	46	60	45	58	82	52
Pakistan	20	14	9	7	20	39	58	95	96	110	134	95	166	155	164
Hong Kong	1	1	1	2	1	3	2	3	3	3	3	4	4	3	3
India	26	41	24	21	11	8	24	10	20	13	5	4	5	6	6
Singapore	0	0	0	0	0	0	0	0	13	13	17	18	19	10	10
Others	157	168	209	241	373	574	699	717	806	646	562	543	474	447	366
Western Europe	865	850	1,107	1,674	2,102	2,490	2,769	3,285	3,770	4,587	4,647	3,785	4,033	3,759	3,564
France	197	189	280	458	518	562	584	616	810	938	1,026	921	1,027	914	843
United Kingdom	49	58	82	134	192	225	257	315	377	512	480	440	564	568	512
West Germany	91	83	102	170	181	246	275	314	411	474	488	346	357	375	320
Netherlands	52	44	65	102	127	146	188	241	290	292	265	194	233	241	234
Belgium/Luxembourg	41	33	49	74	92	113	133	176	220	273	234	175	189	152	157
Others	435	443	530	738	993	1,199	1,332	1,622	1,661	2,098	2,155	1,710	1,662	1,508	1,499
Eastern Europe	386	508	576	819	883	1,029	1,235	1,375	1,736	1,900	2,119	1,946	1,967	2,147	2,182
USSR	207	238	323	454	408	492	648	772	927	1,063	1,243	1,199	1,298	1,492	1,541
Czechoslovakia	88	107	141	214	256	287	290	248	246	214	328	278	276	312	359
Hungary	59	133	76	90	157	199	207	235	285	271	183	180	200	187	129
Others	32	29	36	60	62	52	89	120	278	351	365	290	193	155	153
Oceania	84	61	66	100	113	231	256	307	296	281	425	487	542	342	401
Australia	50	28	34	61	60	166	191	226	214	207	309	380	445	256	318
New Zealand	22	24	24	32	43	48	48	65	63	51	88	82	73	63	59
Others	11	9	8	7	9	17	17	15	19	23	28	25	23	23	24
World	2,492	2,700	3,370	4,479	6,013	7,943	8,294	9,174	10,669	12,195	13,201	12,500	11,915	11,235	11,398

1/ Totals may not add due to rounding.

Source: (7).

Appendix table 11--World export value of pesticides by major regions, 1970-84 1/

Region/country	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Million dollars															
Africa	10	10	12	16	26	32	27	37	38	36	55	38	29	28	28
South Africa	5	5	6	7	10	12	9	13	15	14	20	21	15	12	12
Ivory Coast	1	1	2	3	5	10	9	9	11	9	20	7	4	6	6
Kenya	3	2	3	5	7	7	4	9	8	7	9	5	6	5	5
Others	1	1	1	1	4	4	5	5	4	6	6	5	5	5	5
North and Central America	110	123	108	189	294	395	397	449	508	571	626	617	688	697	782
United States	102	114	97	172	266	355	351	399	448	519	555	547	609	631	708
Guatemala	1	2	2	3	5	7	8	10	17	14	23	28	30	31	33
Canada	3	3	3	6	7	16	15	11	7	10	15	17	19	15	18
Mexico	1	*	1	1	1	2	2	2	4	5	6	2	3	3	3
Others	3	4	6	7	14	15	22	27	33	24	28	23	28	17	20
South America	1	3	8	13	26	20	17	16	27	43	55	58	68	75	78
Brazil	*	1	2	3	7	6	5	5	10	22	27	32	43	45	47
Colombia	*	1	3	7	16	12	9	5	11	14	21	21	21	25	25
Argentina	*	*	1	1	1	1	1	3	3	3	2	2	1	1	2
Others	*	1	1	1	2	1	2	2	3	4	4	3	3	4	4
Asia	28	41	56	64	97	110	119	130	168	208	268	283	310	365	358
Japan	18	26	35	40	59	70	81	80	100	120	141	149	185	244	216
Hong Kong	1	2	3	4	7	6	6	8	15	19	33	36	31	31	37
Israel	5	7	10	12	22	27	17	23	28	35	41	34	38	34	35
Singapore	2	1	2	2	3	3	4	5	7	18	31	39	32	28	34
China	0	0	0	0	0	0	0	0	0	1	4	2	2	2	2
India	1	*	*	*	*	1	2	1	2	2	2	4	4	4	4
Others	1	5	7	6	7	4	9	12	15	14	17	19	18	22	30
Western Europe	427	464	556	747	1,136	1,354	1,220	1,533	2,047	2,422	2,889	2,622	2,530	2,712	2,951
West Germany	148	151	184	269	412	466	447	543	662	747	795	754	736	784	837
United Kingdom	63	80	84	103	142	191	172	257	333	424	491	511	478	505	563
Belgium/Luxembourg	18	15	22	34	61	53	58	88	152	235	384	264	242	238	255
Netherlands	33	44	46	70	92	99	109	126	151	142	205	151	167	199	231
Italy	16	17	25	27	61	71	45	53	90	89	121	110	114	134	132
Others	148	157	196	243	368	474	389	467	659	785	893	832	792	852	932
Eastern Europe	23	25	27	38	51	67	84	99	106	138	109	123	138	170	167
Hungary	4	4	4	13	13	13	28	39	49	86	52	59	68	97	96
USSR	4	5	6	7	12	18	13	21	21	20	26	34	40	42	38
Romania	0	0	0	0	7	8	9	10	10	11	11	12	14	15	16
Others	15	16	17	18	20	28	33	30	26	21	20	19	17	17	17
Oceania	4	4	2	3	2	8	9	8	7	8	10	11	9	7	11
Australia	4	4	2	2	2	4	5	5	6	5	7	8	5	4	6
New Zealand	*	*	*	1	1	4	4	3	1	2	3	3	3	3	5
Others	0	0	0	0	0	0	*	*	*	*	*	*	*	*	*
World	603	671	769	1,069	1,633	1,986	1,872	2,272	2,901	3,425	4,011	3,752	3,772	4,055	4,375

\* = Less than \$500,000.

1/ Totals may not add due to rounding.

Source: (7).

Appendix table 12--World import value of pesticides by major regions, 1970-84 1/

Region/country	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
	Million dollars														
Africa	91	99	107	141	251	353	264	320	433	414	569	568	515	477	495
Nigeria	9	11	10	10	17	34	35	36	78	59	139	88	90	95	100
Egypt	15	17	24	31	55	85	36	50	74	58	43	78	86	59	60
Sudan	7	11	9	11	20	34	19	24	22	25	40	47	50	52	53
Others	60	60	64	88	159	200	175	210	260	271	347	355	289	272	282
North and Central America	105	102	121	162	226	357	393	387	487	572	676	698	696	708	769
United States	11	20	25	36	43	101	129	101	165	194	266	284	265	251	308
Canada	20	23	31	50	75	94	99	105	127	158	182	152	199	202	194
Costa Rica	5	6	7	9	12	15	16	23	26	32	35	35	35	43	45
Mexico	4	7	7	7	10	11	10	17	11	13	20	18	19	20	22
Others	65	46	50	60	85	136	138	141	157	174	173	209	177	192	200
South America	44	48	74	117	152	173	176	189	221	174	180	164	170	182	199
Argentina	6	6	8	8	17	15	17	21	19	36	44	40	49	68	75
Colombia	1	3	4	5	7	7	8	15	24	16	19	21	29	30	31
Ecuador	3	2	2	3	5	13	12	9	11	15	18	20	25	26	27
Brazil	19	20	40	76	94	101	109	108	125	53	31	8	8	5	6
Others	15	17	20	26	28	36	30	37	42	54	68	75	59	53	61
Asia	117	120	115	175	260	330	321	374	436	667	722	719	759	933	1,078
China	0	0	0	0	0	0	0	0	0	105	115	132	146	311	375
Iran	9	10	9	13	30	54	41	63	59	96	79	85	100	133	137
Saudi Arabia	1	2	3	3	3	10	13	4	21	36	47	55	54	56	56
Kong Kong	3	4	3	5	8	7	5	8	17	20	22	30	32	32	40
Singapore	4	3	3	4	6	6	6	6	12	29	32	44	28	22	31
India	7	7	9	12	19	28	10	14	21	25	34	12	15	20	25
Others	97	97	90	141	199	232	252	286	317	385	436	414	411	383	445
Western Europe	207	214	256	394	561	627	611	768	1,132	1,478	1,667	1,513	1,517	1,547	1,727
France	47	46	59	99	158	156	149	174	262	336	407	424	433	391	417
United Kingdom	14	17	21	26	47	51	52	75	135	250	244	188	175	208	210
West Germany	20	22	26	41	55	71	68	89	143	185	223	185	177	176	197
Belgium/Luxembourg	14	14	16	26	42	50	47	63	140	156	144	116	109	92	190
Netherlands	20	27	31	48	57	67	82	98	118	109	118	106	110	134	149
Others	91	88	102	154	202	232	214	269	334	443	531	495	512	546	564
Eastern Europe	86	96	107	160	232	355	355	353	406	466	610	568	591	682	742
USSR	48	50	50	73	94	147	133	145	176	214	371	337	334	405	481
Czechoslovakia	13	14	23	34	32	40	47	48	52	56	55	55	62	71	75
Hungary	18	25	25	34	52	73	94	73	101	119	81	83	77	75	70
Others	7	7	9	20	54	94	81	87	77	76	103	93	119	131	117
Oceania	12	11	14	14	16	25	21	26	27	36	45	39	43	39	50
Australia	6	5	6	6	6	13	10	13	13	17	22	15	20	19	27
New Zealand	4	5	6	6	6	6	6	7	7	8	11	13	12	10	13
Others	2	2	2	2	4	6	5	6	7	10	12	12	11	10	10
World	662	691	792	1,163	1,697	2,220	2,141	2,416	3,142	3,806	4,469	4,269	4,290	4,568	5,060

1/ Totals may not add due to rounding.  
Source: (Z).

Appendix table 13--Destination of crude fertilizer exports from major exporting countries, 1980

Exporting countries	Importing countries											
	Africa				North and Central America				South America			
	South Africa	Nigeria	Libya	Others	Canada	Mexico	United States	Others	Brazil	Uruguay	Venezuela	Others
	Percent											
Africa:												
Algeria	*	*	*	*	*	*	*	1.66	*	*	*	*
Morocco	*	*	*	*	*	4.75	1.36	*	2.47	0.02	0.34	*
Senegal	*	*	*	0.97	*	*	*	*	*	*	*	*
Togo	*	0.38	0.19	1.23	*	*	*	*	.36	.79	.37	*
Tunisia	*	*	*	*	*	*	*	*	3.34	3.24	*	0.01
North and Central America:												
Mexico 1/	NA	NA	*	*	*	--	.30	.96	*	*	*	*
United States	*	*	*	*	24.16	.74	--	.04	.96	.20	.06	.46
South America:												
Brazil	*	*	*	*	*	*	*	*	--	*	*	99.97
Asia:												
China 1/	NA	NA	*	*	*	NA	.46	*	*	*	*	*
Hong Kong	*	*	*	*	*	*	*	*	*	*	*	*
India 1/	NA	NA	*	*	*	NA	*	*	*	*	*	*
Israel	*	*	*	1.45	*	*	1.19	*	11.30	*	*	*
Jordan	*	*	*	*	*	*	*	*	*	*	*	*
Singapore	*	*	*	*	*	*	*	*	*	*	*	*
Syria 1/	NA	NA	*	*	*	NA	*	*	*	*	*	*
Western Europe:												
Belgium/Luxembourg	*	*	*	.46	*	*	*	*	*	*	*	*
France	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	*	*	*	*	*	*	*	.01	*	*	.01	*
Eastern Europe:												
USSR 1/	NA	NA	*	*	*	NA	*	*	*	*	*	*
Oceania:												
Christmas Island	NA	NA	*	*	*	NA	*	*	*	*	*	*
Nauru	NA	NA	*	*	*	NA	*	*	*	*	*	*
	1,000 dollars											
Total imports (UNTDs) 2/	NA	NA	3,991	4,887	130,446	NA	41,787	1,247	57,672	6,799	4,741	3,358
Total imports (FAO) 3/	10,401	7,800	3,991	4/ 6,885	113,489	73,276	36,691	2,293	57,830	6,800	4,741	4/ 2,704

See footnotes at end of table.

Continued--

Appendix table 13--Destination of crude fertilizer exports from major exporting countries, 1980--Continued

Exporting countries	Importing countries							
	Asia							
	Japan	South Korea	India	China	Turkey	Singapore	Hong Kong	Others
	<u>Percent</u>							
Africa:								
Algeria	*	*	*	*	*	*	*	10.79
Morocco	3.94	*	2.26	0.97	1.31	*	*	1.49
Senegal	6.42	0.19	7.61	1.50	*	*	*	5.37
Togo	*	*	*	*	1.51	*	*	7.01
Tunisia	*	*	*	2.63	18.10	*	*	*
North and Central America:								
Mexico 1/	*	*	NA	NA	*	*	*	*
United States	11.35	11.98	1.92	*	*	*	*	1.57
South America:								
Brazil	*	*	*	*	*	*	*	*
Asia:								
China 1/	1.40	*	NA	--	*	12.78	21.02	43.07
Hong Kong	*	*	*	100.00	*	*	--	*
India 1/	4.70	.05	--	NA	*	62.42	*	31.86
Israel	*	*	*	*	3.48	*	*	.13
Jordan	7.78	*	17.03	4.48	11.65	*	*	25.34
Singapore	*	*	*	*	*	*	*	98.01
Syria 1/	*	*	NA	NA	*	--	1.98	*
Western Europe:								
Belgium/Luxembourg	*	*	*	*	*	*	*	.04
France	.78	*	*	*	*	.09	.53	13.57
Netherlands	*	*	*	*	*	*	*	1.32
Eastern Europe:								
USSR 1/	*	*	NA	NA	*	*	*	*
Oceania:								
Christmas Island	*	*	NA	NA	*	1.59	*	12.75
Nauru	7.76	5.46	NA	NA	*	*	*	*
	<u>1,000 dollars</u>							
Total imports (UNTDS) 2/	186,932	113,204	NA	NA	42,109	1,848	218	90,654
Total imports (FAO) 3/	192,543	82,506	70,010	52,290	42,006	1,848	219	4/ 113,343

See footnotes at end of table.

Continued--

Appendix table 13--Destination of crude fertilizer exports from major exporting countries, 1980--Continued

Exporting countries	Importing countries									
	Western Europe									
	France	Spain	West Germany	Belgium/Luxembourg	Netherlands	United Kingdom	Yugoslavia	Italy	Others	
	<u>Percent</u>									
Africa:										
Algeria	22.35	*	0.64	*	*	*	*	*	*	30.53
Morocco	14.39	13.99	2.06	9.38	5.82	5.29	2.39	4.50		6.87
Senegal	12.65	.46	6.30	*	.03	27.40	2.75	.82		27.53
Togo	25.08	4.63	3.74	9.98	20.08	*	12.60	4.62		2.70
Tunisia	32.18	*	.88	2.14	*	2.31	*	1.03		11.84
North and Central America:										
Mexico 1/	*	*	*	*	98.74	*	*	*	*	*
United States	6.20	.27	5.98	5.83	5.17	2.44	*	2.04		4.63
South America:										
Brazil	.03	*	*	*	*	*	*	*	*	*
Asia:										
China 1/	*	*	19.07	*	*	*	*	*	*	*
Hong Kong	*	*	*	*	*	*	*	*	*	2.20
India 1/	*	*	*	*	*	*	*	*	*	*
Israel	3.63	.01	4.39	8.28	*	*	*	*	*	*
Jordan	*	*	*	*	*	1.42	4.90	16.44		27.96
Singapore	*	*	*	*	*	*	6.17	4.25		*
Syria 1/	*	*	9.38	*	*	*	*	*	*	*
Western Europe:										
Belgium/Luxembourg	29.64	*	34.03	--	11.61	.06	*	23.44		.72
France	--	1.63	4.69	26.86	5.01	20.52	.15	3.75		21.36
Netherlands	4.00	*	51.71	40.51	--	.14	*	.05		2.25
Eastern Europe:										
USSR 1/	*	*	17.44	4.35	*	*	7.10	.17		18.20
Oceania:										
Christmas Island	*	*	*	*	*	*	*	*	*	*
Nauru	*	*	*	*	*	*	*	*	*	*
	<u>1,000 dollars</u>									
Total imports (UNTDS) 2/	328,388	167,865	158,376	147,965	137,118	118,224	103,636	108,520	222,631	
Total imports (FAO) 3/	327,922	168,503	158,557	148,146	137,287	118,559	113,348	102,320	237,214	

See footnotes at end of table.

Continued--

Appendix table 13--Destination of crude fertilizer exports from major exporting countries, 1980--Continued

Exporting countries	Importing countries								Total export value	Total number of trading partners
	Eastern Europe				Oceania					
	Poland	Romania	Czechoslovakia	Others	Australia	New Zealand	Others	Total 5/		
	-----Percent-----								1,000 dollars	Number
Africa:										
Algeria	10.03	*	3.93	20.07	*	*	*	100	25,417	11
Morocco	5.73	5.48	1.69	2.82	0.18	*	*	100	750,517	34
Senegal	*	*	*	*	*	*	*	100	77,887	16
Togo	4.23	*	.50	*	*	*	*	100	135,060	23
Tunisia	9.61	1.36	4.44	6.90	*	*	*	100	54,518	16
North and Central America:										
Mexico 1/	*	NA	*	NA	*	*	*	100	4/ 1,284	3
United States	6.23	3.40	*	*	3.23	0.15	*	100	508,524	43
South America:										
Brazil	*	*	*	*	*	*	*	100	412	3
Asia:										
China 1/	*	NA	*	NA	*	*	*	100	4/ 572	7
Hong Kong	*	*	*	*	*	*	*	100	17	1
India 1/	*	NA	*	NA	*	.90	*	100	4/ 261	6
Israel	*	15.42	*	*	*	*	*	100	35,584	18
Jordan	7.27	10.01	1.80	2.37	*	*	*	100	157,793	19
Singapore	*	*	*	*	*	*	*	100	3,023	9
Syria 1/	30.86	NA	*	NA	*	*	0.01	100	4/ 1,482	4
Western Europe:										
Belgium/Luxembourg	*	*	*	*	*	*	*	100	6,324	11
France	*	*	.04	*	*	*	*	100	5,975	28
Netherlands	*	*	*	*	*	*	*	100	8,715	13
Eastern Europe:										
USSR 1/	28.38	NA	24.36	NA	*	*	*	100	4/ 170,162	13
Oceania:										
Christmas Island	*	NA	*	*	34.12	51.54	*	100	83,907	4
Nauru	*	NA	*	*	60.30	26.48	*	100	127,983	4
	-----1,000 dollars-----									
Total imports (UNFDS) 2/	146,303	NA	113,076	NA	125,719	80,278	161	--	--	--
Total imports (FAO) 3/	146,018	142,000	113,076	158,006	89,410	67,037	198	--	--	--
Total selected exports									6/ 2,162,817	

\* = Less than 0.005 percent. NA = Not available. -- = Not applicable. 1/ Export estimates are from reports of importing countries. 2/ (4). 3/ (7). 4/ Excludes countries not reporting to the United Nations Trade Data System in 1980. 5/ May not add to 100 because of rounding. 6/ Includes \$7.4 million exported by South Africa.

Appendix table 14--Destination of manufactured fertilizer exports from major exporting countries, 1980

Exporting countries	Importing countries									
	Nigeria	Morocco	South Africa	Kenya	Egypt	Libya	Ethiopia	Sudan	Zimbabwe	Others
	<u>Percent</u>									
Africa:										
Morocco	*	--	*	*	7.85	*	*	*	*	0.76
Senegal	3.67	*	*	*	*	*	*	*	*	71.94
Tunisia	*	*	*	*	2.28	*	*	*	*	11.61
North and Central America:										
Canada	*	*	0.50	*	*	*	*	*	*	*
Mexico 1/	NA	*	NA	*	*	*	*	*	*	*
United States	*	*	1.01	0.29	*	0.20	0.81	*	NA	*
South America:										
Brazil	*	*	*	*	*	*	*	*	*	2.90
Asia:										
China 1/	NA	*	NA	*	*	*	*	*	*	11.69
India 1/	NA	*	NA	*	*	*	*	*	NA	1.18
Iraq 1/	NA	*	NA	.36	*	*	*	*	NA	*
Israel	2.38	*	NA	*	*	*	*	*	NA	*
Japan	*	*	7.58	.20	*	*	*	*	NA	1.20
South Korea	1.20	*	*	*	.02	.02	*	*	*	1.42
Kuwait	*	*	*	1.54	*	*	*	0.34	*	.35
Qatar 1/	NA	*	*	*	*	*	*	*	*	*
Saudi Arabia	*	*	NA	*	*	*	*	11.85	*	.74
Singapore	*	*	*	*	*	*	.43	*	NA	*
Western Europe:										
Belgium/Luxembourg	.58	0.41	.34	.43	.40	.01	.03	*	*	2.51
Finland	*	*	*	*	*	*	*	*	*	*
France	.10	4.16	.14	.15	.02	.11	*	*	*	*
Italy	.45	*	2.77	.38	.39	.84	*	.01	*	8.08
Netherlands	1.62	.18	.44	1.15	*	*	*	*	*	4.53
Spain	*	3.21	*	*	*	*	*	1.00	0.41	5.49
United Kingdom	1.93	.02	.76	.58	.61	.04	*	*	*	15.00
West Germany	.01	.07	1.27	.42	.49	*	*	.35	*	2.17
Yugoslavia	16.36	.06	*	*	*	*	.11	.01	*	.68
Eastern Europe:										
Bulgaria 1/	NA	20.47	NA	*	15.70	*	5.12	*	NA	10.32
East Germany 1/	NA	1.65	NA	*	*	*	*	*	NA	.52
Hungary	1.58	*	*	*	*	0.56	.39	*	*	4.01
Romania 1/	NA	2.79	NA	*	6.77	3.44	*	*	NA	9.44
USSR 1/	NA	1.50	NA	*	1.06	*	*	*	NA	.23
	<u>1,000 dollars</u>									
Total imports (UNTDS) 2/	NA	57,348	NA	42,785	34,514	34,065	32,835	31,860	NA	211,065
Total imports (FAO) 3/	74,500	57,348	53,374	42,459	36,238	34,067	32,835	31,860	22,339	294,136

See footnotes at end of table.

Continued--



Appendix table 14--Destination of manufactured fertilizer exports from major exporting countries, 1980--Continued

Exporting countries	Importing countries										
	North and Central America							South America			
	United States	Canada	Cuba	Mexico	Guatemala	Dominican Republic	Others	Brazil	Venezuela	Chile	Others
	Percent										
Africa:											
Morocco	*	*	10.89	*	*	*	*	*	*	*	*
Senegal	*	*	*	*	*	*	*	*	*	*	*
Tunisia	*	*	1.71	*	*	*	*	*	*	*	*
North and Central America:											
Canada	67.77	--	*	0.35	*	*	*	6.53	*	0.29	0.03
Mexico 1/	35.88	*	NA	--	7.25	*	9.92	*	*	NA	10.72
United States	--	4.47	*	3.48	1.17	1.92	2.92	14.09	1.96	2.11	4.51
South America:											
Brazil	*	*	*	*	*	*	*	--	*	*	88.31
Asia:											
China 1/	.14	*	NA	NA	*	*	*	*	*	NA	*
India 1/	*	*	NA	NA	*	*	*	*	*	NA	*
Iraq 1/	*	*	NA	NA	*	*	*	*	*	NA	*
Israel	19.43	.01	*	*	*	*	*	5.98	*	*	.36
Japan	.09	*	*	*	*	*	.28	.13	*	.02	.45
South Korea	*	*	NA	*	*	*	*	*	*	.06	*
Kuwait	*	*	*	*	*	*	*	*	*	*	*
Qatar 1/	*	*	NA	NA	*	*	*	*	*	NA	*
Saudi Arabia	1.16	*	*	*	*	*	*	*	*	*	*
Singapore	*	*	*	*	*	*	*	*	*	*	*
Western Europe:											
Belgium/Luxembourg	.71	.08	.04	*	.17	*	.39	.97	.44	.22	.28
Finland	*	*	2.92	*	*	*	6.71	*	26.40	*	*
France	.01	*	*	*	*	*	.17	.02	1.32	1.18	.83
Italy	*	*	*	*	*	*	.53	1.75	4.51	.01	*
Netherlands	4.08	.01	.14	*	.34	*	1.09	4.74	.35	.08	.32
Spain	1.39	*	*	.91	*	*	1.48	5.57	4.28	*	2.72
United Kingdom	.20	.15	.05	*	*	.02	1.86	3.01	.22	*	.22
West Germany	1.30	.01	.11	.01	.34	.13	.86	4.46	.01	.03	1.03
Yugoslavia	*	*	*	*	*	*	*	*	1.84	*	1.18
Eastern Europe:											
Bulgaria 1/	*	*	NA	NA	*	*	*	*	*	NA	9.99
East Germany 1/	1.60	*	NA	NA	*	*	.01	23.52	*	NA	5.39
Hungary	*	*	*	*	*	*	1.72	*	*	*	2.29
Romania 1/	3.29	*	NA	NA	*	*	*	4.68	*	NA	*
USSR 1/	.65	*	NA	NA	*	*	*	1.46	*	NA	.31
	1,000 dollars										
Total imports (UNTD5) 2/	1,133,581	98,261	NA	NA	43,124	37,402	156,409	778,009	117,390	65,780	202,061
Total imports (FAO) 3/	978,623	115,306	112,690	68,147	43,124	37,401	160,097	777,850	117,390	77,800	210,941

See footnotes at end of table.

Continued--

Appendix table 14--Destination of manufactured fertilizer exports from major exporting countries, 1980--Continued

Exporting countries	Importing countries										
	Asia										
	India	China	Turkey	Japan	Pakistan	Iran	Malaysia	Philippines	Singapore	Hong Kong	Others
	<u>Percent</u>										
Africa:											
Morocco	*	*	*	*	*	*	*	*	*	*	*
Senegal	*	2.20	*	*	*	*	*	*	*	*	39.06
Tunisia	*	6.32	3.00	*	*	3.75	0.37	*	*	*	19.36
North and Central America:											
Canada											
Mexico 1/	4.59	3.91	*	5.05	*	*	.01	0.50	2.24	*	4.38
United States	NA	NA	*	*	*	NA	*	*	*	*	*
	10.92	6.74	3.62	3.34	5.13	*	.42	.71	.47	*	4.48
South America:											
Brazil	*	*	*	*	*	*	*	*	*	*	*
Asia:											
China 1/	NA	--	*	7.08	.04	NA	2.38	*	.83	5.75	82.60
India 1/	--	NA	*	6.26	*	NA	-.07	*	7.77	*	1.34
Iraq 1/	NA	NA	*	*	93.17	NA	*	*	*	*	5.63
Israel	*	*	.02	4.69	*	*	*	*	*	*	3.77
Japan	.03	67.14	*	--	1.87	*	2.39	1.81	5.61	1.10	19.37
South Korea	3.24	*	20.01	4.08	*	*	2.57	25.77	.57	4.62	28.74
Kuwait	14.67	29.72	*	*	*	21.47	*	*	2.74	*	21.55
Qatar 1/	NA	NA	*	*	24.60	NA	57.69	15.90	*	*	1.81
Saudi Arabia	14.46	6.57	*	*	47.86	*	*	*	*	*	27.35
Singapore	*	6.46	*	*	.02	*	64.17	2.49	*	.03	26.32
Western Europe:											
Belgium/Luxembourg	1.24	1.71	1.31	1.40	.20	*	.03	.07	1.40	.11	2.30
Finland	5.46	29.58	*	1.85	6.46	.07	*	.01	*	*	1.04
France	2.15	5.77	.28	*	10.33	*	.07	.01	*	*	2.87
Italy	18.97	21.33	14.14	.55	*	.03	1.59	.79	*	.04	8.50
Netherlands	13.04	5.65	1.32	*	3.99	.01	.19	*	*	*	3.13
Spain	*	4.96	12.03	*	*	*	.43	*	*	*	6.89
United Kingdom	*	*	*	.04	*	.08	.12	.01	.17	*	1.23
West Germany	7.28	3.68	.17	2.32	.59	.04	2.42	.01	4.37	.17	3.84
Yugoslavia	*	*	33.39	*	*	*	*	*	1.77	.28	*
Eastern Europe:											
Bulgaria 1/	NA	NA	2.01	*	19.61	NA	*	*	*	*	6.65
East Germany 1/	NA	NA	*	2.79	*	NA	*	*	*	*	.73
Hungary	*	1.59	19.85	*	11.30	*	.64	1.45	*	*	*
Romania 1/	NA	NA	20.42	*	6.96	NA	*	*	*	.15	*
USSR 1/	NA	NA	2.56	6.65	1.99	NA	2.95	*	.24	*	13.90
							4.70	4.52	.75	*	.84
	<u>1,000 dollars</u>										
Total imports (UNTDS) 2/	658,430	NA	391,489	279,138	395,996	NA	186,695	153,680	103,051	20,501	533,114
Total imports (FAO) 3/	1,125,300	884,820	391,489	277,939	269,807	215,300	186,695	153,680	103,051	20,548	664,847

See footnotes at end of table.

Continued--

Appendix table 14--Destination of manufactured fertilizer exports from major exporting countries, 1980--Continued

Exporting countries	Importing countries								
	Western Europe								
	France	West Germany	Italy	Belgium/ Luxembourg	United Kingdom	Ireland	Denmark	Netherlands	Others
	<u>Percent</u>								
Africa:									
Morocco	1.72	*	*	4.20	2.23	*	*	*	0.01
Senegal	19.36	*	0.01	*	2.71	*	*	*	.12
Tunisia	12.83	5.77	18.76	2.82	5.61	1.92	*	3.84	5.70
North and Central America:									
Canada	*	.01	.12	1.10	.03	*	0.21	.03	*
Mexico 1/	*	*	36.24	*	*	*	*	*	*
United States	3.33	2.16	5.03	5.78	.12	.21	.25	.04	3.04
South America:									
Brazil	.01	*	*	*	*	*	*	*	*
Asia:									
China 1/	*	*	*	*	*	*	*	*	*
India 1/	*	*	*	*	84.08	*	*	*	.13
Iraq 1/	*	*	*	*	*	*	*	*	*
Israel	9.58	4.78	9.68	.21	8.77	*	.06	8.55	6.72
Japan	.01	.02	.02	*	.02	*	*	.04	*
South Korea	*	*	*	*	*	*	*	*	*
Kuwait	*	*	*	*	*	*	*	*	*
Qatar 1/	*	*	*	*	*	*	*	*	*
Saudi Arabia	*	*	*	*	2.18	*	*	*	*
Singapore	*	*	*	*	*	*	*	*	*
Western Europe:									
Belgium/Luxembourg	48.86	16.34	.55	--	4.33	.54	1.21	5.61	3.86
Finland	.47	*	*	1.87	2.40	1.03	*	*	7.97
France	--	18.83	6.73	10.67	2.08	4.78	.14	3.53	15.00
Italy	2.85	3.99	*	.20	.99	.15	*	.47	7.68
Netherlands	23.90	11.90	.05	3.93	4.88	1.88	.24	--	2.74
Spain	1.69	4.27	3.98	.59	4.80	4.38	*	1.47	17.80
United Kingdom	3.11	9.20	.22	6.29	*	42.20	.16	10.91	9.17
West Germany	8.34	*	5.27	23.62	2.35	2.90	3.52	4.95	13.64
Yugoslavia	.01	2.25	4.41	*	*	*	*	*	.30
Eastern Europe:									
Bulgaria 1/	.05	*	1.41	*	*	*	*	*	8.67
East Germany 1/	1.64	*	3.87	4.39	8.50	1.12	2.00	1.97	18.65
Hungary	3.95	14.35	3.75	*	.88	*	*	2.68	22.82
Romania 1/	6.49	6.30	.20	*	.47	*	*	*	9.55
USSR 1/	1.82	1.82	5.20	4.54	.56	*	.51	1.49	12.00
	<u>1,000 dollars</u>								
Total imports (UNTDS) 2/	852,519	493,938	346,127	298,319	209,077	149,427	137,181	137,118	592,984
Total imports (FAO) 3/	852,346	495,623	347,103	298,686	209,298	149,626	137,382	120,313	622,405

See footnotes at end of table.

Continued--

Appendix table 14--Destination of manufactured fertilizer exports from major exporting countries, 1980--Continued

Exporting countries	Importing countries								Total export value	Total number of trading partners
	Eastern Europe				Oceania			Total 4/		
	Poland	Hungary	Czechoslovakia	Others	New Zealand	Australia	Others			
	-----Percent-----								1,000 dollars	Number
Africa:										
Morocco	*	*	*	33.28	*	*	*	100	38,187	11
Senegal	*	*	*	*	*	*	*	100	28,027	14
Tunisia	*	0.08	1.83	.01	*	*	*	100	164,502	24
North and Central America:										
Canada	*	.02	*	*	0.23	1.81	*	100	1,071,326	48
Mexico 1/	*	*	*	NA	*	*	*	100	5/ 9,714	6
United States	*	*	*	.44	1.04	.68	*	100	2,264,632	98
South America:										
Brazil	*	*	*	*	*	*	*	100	2,760	4
Asia:										
China 1/	*	*	*	NA	*	*	*	100	5/ 1,168	9
India 1/	*	*	*	NA	*	*	*	100	5/ 1,052	9
Iraq 1/	*	*	*	NA	*	*	*	100	5/ 76,420	6
Israel	*	*	*	.17	*	*	*	100	199,914	39
Japan	*	*	*	*	1.41	.03	*	100	328,244	54
South Korea	*	*	*	*	.33	.48	2.44	100	343,639	23
Kuwait	*	*	*	*	*	*	.69	100	91,352	13
Qatar 1/	*	*	*	NA	*	*	*	100	5/ 17,364	7
Saudia Arabia	*	*	*	*	*	*	*	100	80,053	14
Singapore	*	*	*	*	*	*	.51	100	92,296	17
Western Europe:										
Belgium/Luxembourg	0.11	.02	*	.04	.06	.10	.07	100	763,049	118
Finland	*	*	*	5.73	*	*	*	100	52,702	21
France	*	*	*	.14	*	.01	.33	100	286,382	92
Italy	*	1.13	.17	.12	*	*	*	100	261,728	59
Netherlands	*	.22	.13	.67	.02	.14	.04	100	735,271	112
Spain	*	*	*	*	*	*	*	100	114,411	41
United Kingdom	*	*	*	*	.25	.14	.01	100	121,562	108
West Germany	.53	.75	.01	.01	.07	.17	.10	100	629,679	120
Yugoslavia	*	29.28	7.66	2.95	*	*	*	100	140,192	14
Eastern Europe:										
Bulgaria 1/	*	*	*	NA	*	*	*	100	5/ 37,790	17
East Germany 1/	11.03	5.12	3.19	NA	*	*	*	100	5/ 327,899	38
Hungary	1.34	--	*	5.04	*	*	*	100	110,048	29
Romania 1/	*	2.11	*	NA	*	*	*	100	5/ 180,240	26
USSR 1/	25.90	8.90	11.85	NA	*	*	*	100	5/ 216,756	30
	-----1,000 dollars-----									
Total imports (UNTD5) 2/	174,774	154,218	98,180	NA	51,320	44,529	11,505	--	--	--
Total imports (FAO) 3/	174,542	154,216	115,244	161,383	37,495	36,440	16,766	--	--	--
Total selected exports									9,088,359	

\* = Less than 0.005 percent. NA = Not available. -- = Not applicable. 1/ Export estimates are from reports of importing countries. 2/ (4). 3/ (7).  
 4/ May not add to 100 because of rounding. 5/ Excludes countries not reporting to the UN Trade Data System in 1980.

Appendix table 15--Destination of agricultural machinery exports from major exporting countries, 1980

Exporting countries	Importing countries									
	Africa		North and Central America				South America			Eastern Europe
	South Africa	Others	Canada	United States	Mexico	Others	Brazil	Venezuela	Others	Others
	<u>Percent</u>									
North and Central America:										
Canada	0.82	0.49	--	89.86	0.67	0.21	0.03	0.02	0.46	0.09
Mexico 1/	NA	*	0.06	68.99	--	26.16	.06	.74	2.20	NA
United States	2.40	4.62	37.17	--	12.14	2.73	.83	2.04	5.94	1.98
South America:										
Brazil	8.90	9.48	.02	.37	1.20	8.43	--	5.56	51.90	*
Asia:										
China 1/	NA	51.74	*	2.70	NA	.22	*	.15	.04	NA
Hong Kong	*	*	*	*	*	*	*	*	*	*
India 1/	NA	60.48	*	15.32	NA	*	*	*	*	NA
Japan	1.31	5.38	2.95	24.34	3.29	.91	.05	.07	2.26	4.42
Singapore	*	.24	*	3.21	*	*	*	*	.18	*
Western Europe:										
Belgium/Luxembourg	4.05	1.44	.02	.53	5.36	.10	1.78	.64	.12	.63
France	2.40	14.39	.40	2.83	.40	.55	.01	.61	.60	3.15
West Germany	3.37	6.34	2.63	10.37	.25	.26	.03	.19	1.79	1.88
Italy	6.58	7.44	.71	2.97	.08	.43	.15	1.24	1.57	1.16
Netherlands	1.13	3.81	1.11	5.01	.25	.03	.15	.17	.67	1.60
United Kingdom	6.71	8.65	2.31	12.09	.76	.74	.04	.42	1.60	.42
Eastern Europe:										
Czechoslovakia	*	2.15	*	*	.02	1.22	*	*	3.11	63.56
Romania 1/	NA	7.61	4.35	15.57	NA	*	*	*	4.03	2/ 16.20
USSR 1/	NA	2.39	2.15	.54	NA	.04	*	*	.37	3/ 78.58
	<u>1,000 dollars</u>									
Total imports (UNTDS) 4/	NA	5/ 423,438	1,453,615	1,490,923	NA	152,052	44,026	91,059	4/ 323,395	NA
Total imports (FAO) 6/	375,061	831,244	1,459,287	1,445,000	229,191	226,185	43,324	91,058	356,005	2,119,166

See footnotes at end of table.

Continued--

Appendix table 15--Destination of agricultural machinery exports from major exporting countries, 1980--Continued

Exporting countries	Importing countries							
	Asia							
	Pakistan	Japan	China	Hong Kong	India	Iran	Singapore	Others
	<u>Percent</u>							
North and Central America:								
Canada	*	0.34	0.05	*				
Mexico 1/	*	*	NA	*	0.01	0.05	0.01	0.48
United States	0.03	1.52	.31	0.11	NA	NA	*	.02
					.19	*	.88	7.14
South America:								
Brazil	.02	6.80	*	*	*	*	.10	4.50
Asia:								
China 1/	2.21	.09	--	5.84	NA	NA	.53	35.40
Hong Kong	*	*	100.00	--	*	*	*	*
India 1/	*	*	NA	*	--	NA	.18	17.73
Japan	.27	--	.80	.16	1.18	.32	3.56	29.44
Singapore	.01	*	*	.29	1.78	11.92	--	76.07
Western Europe:								
Belgium/Luxembourg	*	.65	*	.02	*	.09	.02	2.87
France	.05	.87	.01	*	.04	.12	.02	2.71
West Germany	.02	.94	.02	*	.06	.21	.16	6.57
Italy	3.13	.73	.01	*	.01	.87	.02	6.13
Netherlands	.03	1.48	.01	*	.07	.58	.03	8.09
United Kingdom	2.87	2.88	.01	.03	.75	2.08	.48	12.19
Eastern Europe:								
Czechoslovakia	*	*	*	*	.55	*	*	12.21
Romania 1/	*	*	NA	*	NA	NA	*	15.30
USSR 1/	7.25	.03	NA	*	NA	NA	*	1.06
					<u>1,000 dollars</u>			
Total imports (UNTS) 4/	113,661	158,019	NA	3,389	NA	NA	17,187	5/ 635,552
Total imports (FAO) 6/	133,576	160,580	NA	3,396	4,895	NA	17,179	634,312

See footnotes at end of table.

Continued--

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Appendix table 15--Destination of agricultural machinery exports from major exporting countries, 1980--Continued

Exporting countries	Importing countries								
	Western Europe								
	France	United Kingdom	West Germany	Italy	Portugal	Finland	Netherlands	Belgium/ Luxembourg	Others
	Percent								
North and Central America:									
Canada	0.63	1.41	0.22	0.11	0.01	0.03	0.18	0.19	0.29
Mexico 1/	1.70	.06	*	*	*	*	*	*	*
United States	3.12	1.57	.63	.63	.12	.10	.60	1.45	.43
South America:									
Brazil	.01	.04	.01	*	.01	*	*	.93	.34
Asia:									
China 1/	*	.71	*	.02	*	*	.05	*	.13
Hong Kong	*	*	*	*	*	*	*	*	*
India 1/	*	.53	*	*	*	*	*	*	*
Japan	4.50	1.20	1.25	.43	1.41	.10	5.58	*	*
Singapore	*	.08	*	.52	*	*	.22	2.00	2.04
								.66	.03
Western Europe:									
Belgium/Luxembourg	26.53	10.76	7.03	10.33	2.06	.66	9.53	--	9.53
France	--	13.75	16.45	9.98	1.30	2.82	3.17	--	14.79
West Germany	18.64	6.74	--	5.43	.47	1.48	6.02	6.55	21.06
Italy	19.43	1.86	10.84	--	3.79	.96	1.78	2.39	22.57
Netherlands	15.46	12.09	19.64	3.50	.39	.32	--	7.24	13.54
United Kingdom	4.16	--	2.45	1.54	1.66	4.98	2.26	.86	19.09
Eastern Europe:									
Czechoslovakia	1.90	1.30	.65	.27	.35	1.21	.26	.41	8.67
Romania 1/	5.12	2.23	.34	3.08	2.59	.04	.67	.15	15.90
USSR 1/	.81	.06	.02	.47	.16	.84	.07	.03	4.81
	1,000 dollars								
Total imports (UNTDS) 4/	1,024,516	478,890	490,607	323,128	125,464	199,979	264,345	233,649	1,440,433
Total imports (FAO) 6/	1,025,510	479,820	488,100	324,480	164,218	199,799	264,670	233,936	1,466,524

See footnotes at end of table.

Continued--

Appendix table 15--Destination of agricultural machinery exports from major exporting countries, 1980--Continued

Exporting countries	Importing countries			Total export value	Total number of partners
	Oceania		Total 6/		
	Australia	Others			1,000 dollars
	-----Percent-----				
North and Central America:					
Canada	3.30	0.04	100		
Mexico 1/	*	*	100	724,432	107
United States	7.56	.66	100	4/ 5,847	20
				3,103,616	145
South America:					
Brazil	1.37	.01	100	201,477	69
Asia:					
China 1/	*	.18	100	4/ 4,522	31
Hong Kong	*	*	100	2	1
India 1/	*	*	100	4/ 4,349	26
Japan	2.88	3.23	100	922,612	136
Singapore	.48	4.57	100	9,801	33
Western Europe:					
Belgium/Luxembourg	3.84	.28	100	432,691	104
France	1.10	.91	100	620,087	135
West Germany	1.91	.20	100	1,839,181	140
Italy	2.67	.55	100	1,078,371	139
Netherlands	.94	2.66	100	265,044	120
United Kingdom	4.18	1.80	100	1,409,897	164
Eastern Europe:					
Czechoslovakia	.91	.63	100	366,527	37
Romania 1/	3.98	2.85	100	4/ 77,001	41
USSR 1/	.19	.12	100	4/ 320,333	43
	-----1,000 dollars-----				
Total imports (UNTDS) 2/	381,742	103,691	--	--	--
Total imports (FAO) 3/	308,932	116,027	--	--	--
Total selected exports					7/ 13,930,762

\* = Less than 0.005 percent. NA = Not available. -- = Not applicable. 1/ Export estimates are from reports of importing countries. 2/ (4). 3/ (7). 4/ Excludes countries not reporting to the United Nations Trade Data System in 1980. 5/ Excludes exports from East Germany and Bulgaria. 6/ May not add to 100 because of rounding. 7/ Includes \$12.8 million exported by Republic of South Africa.



Appendix table 16--Destination of pesticides from major exporting countries, 1980

Exporting countries	Importing countries												
	Africa							North and Central America					
	Nigeria	South Africa	Egypt	Sudan	Kenya	Cameroon	Others	United States	Canada	Costa Rica	Cuba	Mexico	Others
	Percent												
Africa:													
Ivory Coast 1/ Kenya	*	NA	*	*	*	19.08	78.66	*	*	*	NA	NA	*
	*	0.24	*	1.55	--	*	93.84	*	0.49	*	*	*	*
North and Central America:													
Canada	NA	NA	*	*	*	.02	.16	43.36	--	*	NA	NA	4.33
Costa Rica	*	*	*	*	*	*	*	.38	*	--	*	*	96.58
Guatemala	*	*	*	*	*	*	*	*	*	*	23.45	*	3.87
Mexico 1/ United States	NA	NA	*	*	*	*	*	64.89	*	1.70	NA	--	20.04
	0.14	1.17	0.24	.85	0.79	.07	.48	--	12.38	1.17	*	2.44	5.06
South America:													
Argentina	*	10.06	*	*	*	*	*	13.83	*	*	*	3.41	19.69
Brazil	.01	2.81	*	*	1.54	*	10.66	6.14	.55	4.54	*	.76	.51
Colombia	*	*	*	*	*	*	.60	43.99	*	.91	*	*	20.73
Asia:													
China 1/ Hong Kong	NA	NA	*	*	*	.33	4.88	.02	*	*	NA	NA	.17
Israel	40.85	.67	*	*	*	*	17.18	3.73	*	*	*	*	8.92
Japan	.94	8.88	*	*	.57	3.14	11.66	3.78	*	.07	*	*	.97
Singapore	3.56	.27	2.00	.32	.11	.04	1.51	16.99	.26	.11	2.16	.93	.97
	1.82	*	*	*	*	*	.33	.49	*	*	*	.20	*
Western Europe:													
Belgium/Luxembourg	1.51	3.42	.07	.05	.36	.06	1.60	.28	1.89	*	*	.01	.13
France	.17	1.25	1.25	2.61	.20	1.39	8.71	.72	.39	.06	.26	.01	2.46
West Germany	.61	1.38	.72	.13	.79	.15	3.85	2.56	.33	.20	1.74	.28	1.51
Greece	.41	*	*	*	*	.37	2.08	*	*	*	*	*	*
Italy	.09	1.54	3.59	4.40	.37	.05	4.50	4.79	.06	*	.45	.05	.11
Netherlands	8.13	.80	.93	.10	.24	.61	5.92	4.89	1.35	.17	.73	.05	.52
Switzerland	1.08	.77	2.47	2.16	.58	3.00	10.47	.34	3.26	.27	7.00	.11	3.63
United Kingdom	8.03	3.24	4.38	1.61	.40	.08	5.31	6.18	2.92	.08	1.41	.11	2.06
Eastern Europe:													
Hungary	*	*	*	*	*	*	*	*	*	*	NA	NA	.46
Romania 1/ USSR 1/	NA	NA	*	*	*	*	.02	42.26	*	*	NA	NA	*
	*	NA	*	*	*	.02	1.49	*	*	*	NA	NA	*
	1,000 dollars												
Total imports (UNTDS) 2/	NA	NA	43,446	39,807	29,288	24,676	120,223	275,797	182,084	35,287	NA	NA	139,878
Total imports (FAO) 3/	139,224	68,043	43,459	39,807	29,005	28,734	212,930	266,243	182,084	35,287	30,463	19,741	142,416

See footnotes at end of table.

Continued--

Appendix table 16--Destination of pesticides from major exporting countries, 1980--Continued

Exporting countries	Importing countries									
	South America					Eastern Europe				
	Argentina	Brazil	Chile	Colombia	Others	USSR	Hungary	Poland	Czechoslovakia	Others
	<u>Percent</u>									
Africa:										
Ivory Coast 1/	*	*	NA	*	*	NA	NA	*	*	NA
Kenya	*	*	NA	*	*	*	*	*	*	*
North and Central America:										
Canada	1.59	*	NA	*	4.03	NA	NA	*	NA	NA
Costa Rica	*	*	*	0.69	2.35	*	*	*	*	*
Guatemala	*	*	0.76	2.61	.40	*	*	*	*	*
Mexico 1/	3.47	0.41	NA	1.48	4.80	NA	NA	*	NA	*
United States	1.46	8.61	.44	2.42	3.45	*	*	0.05	0.04	0.04
South America:										
Argentina	--	1.45	15.10	*	35.73	*	*	*	*	*
Brazil	18.69	--	1.19	.92	11.23	*	*	*	*	*
Colombia	*	*	.95	--	30.72	*	*	*	*	*
Asia:										
China 1/	*	.05	NA	*	*	NA	NA	*	NA	NA
Hong Kong	*	*	*	*	.62	*	*	*	*	*
Israel	4.35	.35	1.22	*	1.78	*	*	*	*	20.40
Japan	3.03	1.89	.17	.92	.87	8.05	1.86	.25	.05	.66
Singapore	.29	*	*	*	*	*	*	*	*	*
Western Europe:										
Belgium/Luxembourg	.44	.08	*	*	.04	19.70	.35	.05	.15	5.24
France	.16	.63	.04	.02	.51	6.03	1.53	1.26	.45	2.28
West Germany	.57	.43	.63	.44	1.67	3.39	.78	2.03	.93	1.50
Greece	.03	*	*	*	*	*	*	*	*	11.10
Italy	1.13	.54	.59	.01	.48	11.49	1.24	.15	.26	4.24
Netherlands	.71	.19	.23	.15	1.30	.06	1.71	.12	.08	2.21
Switzerland	.32	.19	.33	.02	1.81	9.52	1.08	.98	1.90	1.95
United Kingdom	.51	.46	.12	.08	.92	.27	.33	.57	.34	1.23
Eastern Europe:										
Hungary	1.36	*	NA	*	*	NA	--	4.79	NA	NA
Romania 1/	*	*	NA	*	*	NA	NA	14.57	NA	NA
USSR 1/	*	*	NA	*	*	--	NA	97.31	NA	NA
	<u>1,000 dollars</u>									
Total imports (UNTDs) 2/	43,643	30,992	NA	19,403	69,556	NA	NA	64,513	NA	NA
Total imports (FAO) 3/	43,643	30,991	10,000	19,403	65,822	370,718	80,595	64,429	54,876	39,000

See footnotes at end of table.

Continued--

Appendix table 16--Destination of pesticides from major exporting countries, 1980--Continued

Exporting countries	Importing countries									
	Asia									
	China	Japan	Iran	Thailand	Malaysia	Saudi Arabia	India	Singapore	Hong Kong	Others
	<u>Percent</u>									
Africa:										
Ivory Coast 1/	NA	*	NA	*	*	*	NA	*	*	*
Kenya	*	0.78	*	*	*	*	0.88	*	*	*
North and Central America:										
Canada	*	.71	*	4.78	1.62	*	8.59	0.68	*	0.30
Costa Rica	*	*	*	*	*	*	*	*	*	*
Guatemala	*	*	*	*	*	*	*	*	*	*
Mexico 1/	NA	*	NA	2.31	.68	*	NA	*	*	*
United States	2.64	7.33	0.01	1.03	.62	0.87	5.99	.04	2.31	1.45
South America:										
Argentina	*	*	*	.73	*	*	*	*	*	*
Brazil	*	.55	*	1.71	.67	*	.69	2.46	*	7.02
Colombia	*	*	*	*	*	*	*	*	*	*
Asia:										
China 1/	--	*	NA	3.31	7.24	.87	NA	5.83	48.09	25.04
Hong Kong	*	*	*	.31	*	*	*	1.68	--	1.19
Israel	*	.03	*	3.60	*	*	.27	2.93	.35	3.13
Japan	5.03	--	.57	.98	.72	.70	.02	1.04	.84	29.99
Singapore	3.44	.27	*	6.49	60.18	.31	8.43	--	.18	15.15
Western Europe:										
Belgium/Luxembourg	.14	*	1.59	.02	*	*	.87	.02	.01	.02
France	.40	3.03	.58	.66	.09	.05	.19	.01	4.85	.04
West Germany	*	1.26	3.20	.92	.28	.35	.25	.06	4.38	.11
Greece	*	*	65.10	*	*	.19	.08	18.91	*	*
Italy	1.73	3.41	1.97	.87	.06	.56	.15	.25	7.92	.01
Netherlands	*	2.01	2.31	.36	.24	1.02	.06	6.71	.11	.07
Switzerland	.02	1.38	3.58	1.24	.14	.23	.03	7.25	.28	.01
United Kingdom	.01	2.38	.90	1.43	.60	.35	11.32	4.19	.16	.32
Eastern Europe:										
Hungary	NA	*	NA	4.36	*	.48	1.25	.09	NA	*
Romania 1/	NA	*	NA	39.92	1.50	*	NA	*	*	*
USSR 1/	NA	*	NA	*	*	*	NA	*	.10	*
	<u>1,000 dollars</u>									
Total imports (UNTDs) 2/	NA	92,426	NA	65,811	42,234	35,685	NA	31,670	22,446	243,391
Total imports (FAO) 3/	115,049	90,685	79,352	65,820	42,234	35,676	33,924	31,652	22,491	194,417

See footnotes at end of table.

Continued--

Appendix table 16--Destination of pesticides from major exporting countries, 1980--Continued

Exporting countries	Importing countries								
	Western Europe								
	France	United Kingdom	West Germany	Italy	Belgium/Luxembourg	Netherlands	Spain	Denmark	Others
	Percent								
Africa:									
Ivory Coast 1/	*	*	*	*	*	2.26	*	*	*
Kenya	*	*	*	0.19	*	.59	*	*	1.66
North and Central America:									
Canada	7.55	2.58	0.21	*	8.04	8.60	0.13	0.16	1.66
Costa Rica	*	*	*	*	*	*	*	*	*
Guatemala	1.69	*	*	*	*	*	*	*	*
Mexico 1/	*	.20	*	*	*	*	*	*	*
United States	4.42	2.46	3.28	1.03	10.71	1.71	.54	.04	9.18
South America:									
Argentina	*	*	*	*	*	*	*	*	*
Brazil	.05	*	*	*	*	*	*	*	*
Colombia	.09	*	*	.12	2.83	1.29	.66	*	15.51
Asia:									
China 1/	.17	.57	*	1.14	*	*	*	*	*
Hong Kong	*	2.22	2.85	*	*	*	*	*	.02
Israel	2.63	1.61	9.43	4.82	1.51	2.76	2.86	.53	5.02
Japan	.96	1.31	6.05	1.09	.02	.75	.47	.37	1.03
Singapore	*	.48	*	*	.18	.18	*	*	*
Western Europe:									
Belgium/Luxembourg	17.93	18.43	9.21	3.04	--	4.19	1.92	2.05	5.46
France	--	7.95	16.08	6.83	7.58	2.75	2.48	1.53	18.31
West Germany	25.88	6.10	--	7.60	3.08	4.94	1.60	2.56	11.43
Greece	.65	.01	.02	.84	*	.07	.02	*	.26
Italy	14.37	6.33	5.71	--	2.79	1.09	2.77	.44	10.14
Netherlands	9.86	10.00	7.05	7.56	8.74	--	2.36	1.62	3.37
Switzerland	1.76	4.88	12.13	5.31	.87	1.25	.42	.48	4.95
United Kingdom	8.15	--	4.30	1.96	2.85	4.65	2.00	1.64	10.53
Eastern Europe:									
Hungary	1.46	*	*	*	*	*	*	*	*
Romania 1/	*	*	*	*	*	*	.18	*	79.81
USSR 1/	*	*	*	*	*	*	*	*	1.73
					1.08	*	*	*	NA
	1,000 dollars								
Total imports (UNTDS) 2/	406,594	242,993	223,965	157,566	143,914	117,604	61,675	60,951	220,736
Total imports (FAO) 3/	407,276	243,551	222,964	158,242	144,091	117,750	61,675	60,933	250,405

See footnotes at end of table.

Continued--

Appendix table 16--Destination of pesticides from major exporting countries, 1980--Continued

Exporting countries	Importing countries			Total export value	Total number of trading partners
	Oceania				
	Australia	Others	Total 4/		
	-----Percent-----			1,000 dollars	Number
Africa					
Ivory Coast 1/	*	*	100	5/ 7,337	12
Kenya	*	*	100	6,495	25
North and Central America					
Canada 1/	0.85	0.04	100	5/ 15,729	37
Costa Rica	*	*	100	10,709	11
Guatemala	*	*	100	23,052	19
Mexico 1/	*	*	100	5/ 3,764	21
United States	2.50	1.29	100	1,077,298	131
South America					
Argentina	*	*	100	2,457	12
Brazil	6.63	.38	100	27,320	44
Columbia	*	*	100	21,068	22
Asia					
China 1/	.16	2.11	100	5/ 10,994	43
Hong Kong	4.47	15.20	100	2,027	28
Israel	.38	.65	100	41,121	62
Japan	.54	.59	100	140,247	141
Singapore	.04	1.52	100	30,542	38
Western Europe:					
Belgium/Luxembourg	.04	.11	100	383,235	106
France	.20	.43	100	419,012	140
West Germany	.02	*	100	794,660	120
Greece	*	*	100	40,715	29
Italy	.53	.05	100	119,961	111
Netherlands	.33	.18	100	205,039	138
Switzerland	.15	.09	100	316,605	129
United Kingdom	.95	.67	100	490,969	156
Eastern Europe					
Hungary 1/	5.16	.62	100	5/ 3,139	12
Romania 1/	*	*	100	5/ 2,610	5
USSR 1/	*	*	100	5/ 1,000	5
	-----1,000 dollars-----				
Total imports (UNTDS) 2/	23,978	NA	--	--	--
Total imports (FAO) 3/	21,941	21,936	--	--	--
Total selected exports				6/ 4,221,636	

\* = Less than 0.005 percent. NA = Not available. -- = Not applicable. 1/ Export estimates are from reports of importing countries. 2/ (4). 3/ (7). 4/ May not add to 100 because of rounding. 5/ Excludes countries not reporting to the United Nations Trade Data System in 1980. 6/ Includes \$20.5 million for Republic of South Africa.

Appendix table 17--U.S. export value of crude fertilizer by major world regions, 1978-85 1/

Region/country	1978	1979	1980	1981	1982	1983	1984	1985
	<u>Million dollars</u>							
Africa	3.2	1.0	0.1	0.3	0.3	0.4	4.8	0.1
North and Central America	85.2	109.5	140.9	133.0	119.2	123.1	124.1	58.3
Canada	73.2	97.9	128.6	112.2	96.2	107.7	107.7	53.1
Mexico	10.5	10.0	10.0	17.8	21.3	12.9	13.8	2.4
Others	1.6	1.6	2.4	3.0	1.7	2.6	2.5	2.8
South America	14.9	18.1	11.4	10.9	7.3	2.7	3.6	2.3
Brazil	10.9	13.3	5.6	6.2	4.1	.1	.9	.4
Colombia	2.4	1.8	2.5	2.5	2.4	2.0	1.8	1.3
Venezuela	*	.7	1.7	.1	.1	.1	.4	.3
Others	1.6	2.2	1.8	2.2	.7	.5	.5	.4
Asia	115.8	131.1	137.9	122.5	125.7	137.4	116.1	61.2
Hong Kong	*	*	*	*	.1	.1	*	*
India	7.0	8.7	9.8	11.9	9.7	14.8	10.0	7.7
Japan	46.6	55.7	57.7	61.3	49.8	63.2	50.8	27.3
South Korea	45.7	56.7	61.3	36.8	58.0	52.3	47.1	24.9
Others	16.4	10.1	9.0	12.4	8.1	1.3	*	0.1
Western Europe	121.7	132.2	169.0	155.3	119.3	126.1	95.6	53.7
Belgium/Luxembourg	20.5	25.4	29.7	36.0	16.9	16.0	17.5	9.6
France	26.5	27.8	31.5	29.4	24.6	26.4	23.9	13.0
West Germany	20.9	26.5	30.5	17.6	23.3	24.4	16.8	11.5
Italy	7.2	9.3	10.4	7.6	4.1	6.9	2.6	1.6
Netherlands	20.1	17.1	26.4	29.6	23.9	28.0	19.0	10.7
United Kingdom	12.2	10.8	12.7	.8	2.5	4.4	.9	*
Others	14.4	15.3	27.9	34.3	23.8	20.2	15.1	7.2
Eastern Europe	36.5	43.2	49.0	13.1	21.4	33.7	43.0	12.7
Poland	25.4	21.4	31.7	6.7	15.7	22.2	25.6	8.7
Romania	11.0	21.8	17.3	6.4	5.2	11.5	17.4	4.1
Others	*	*	*	*	.5	*	*	*
Oceania	.1	11.2	17.6	10.8	10.2	14.0	7.8	8.4
Australia	*	8.6	16.8	5.6	7.3	10.5	6.2	3.8
New Zealand	*	2.6	.7	5.1	2.8	3.6	1.6	4.6
World	377.3	446.3	525.9	445.9	403.4	437.5	395.0	196.5

\* = Less than \$50,000.

1/ Totals may not add due to rounding.

Source: (11).

Appendix table 18--U.S. import value of crude fertilizer by major world regions, 1978-87 1/

Region/country	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
	Million dollars									
Africa	21.5	20.2	11.7	*	*	*	*	1.0	21.5	18.3
Morocco	21.5	20.2	11.7	*	*	*	*	*	.8	1.8
Togo	*	*	*	*	*	*	*	1.0	20.8	16.5
Others	*	*	*	*	*	*	*	*	*	*
North and Central America	3.0	1.8	.8	6.8	1.5	0.5	1.0	.7	.8	.9
Canada	.1	.3	.2	.3	.2	.3	.7	.6	.5	.7
Mexico	*	*	*	.4	1.0	*	.1	*	.0	.0
Netherland Antilles	2.9	1.4	.6	.2	.3	.2	.1	.1	.2	.2
Others	*	.1	*	*	*	*	*	*	*	*
South America	11.9	10.1	15.1	18.4	14.7	10.5	12.7	16.0	13.0	10.9
Brazil	*	*	*	*	*	.3	.4	*	*	*
Chile	11.8	10.0	15.1	18.3	14.7	10.2	12.2	16.0	13.0	10.9
Others	.1	*	*	.1	*	*	*	*	*	*
Asia	7.4	3.6	9.3	9.4	6.9	8.8	8.5	9.0	9.2	3.8
China	*	*	*	*	*	*	*	*	*	*
India	*	*	*	*	*	*	*	*	*	*
Israel	7.3	3.6	9.2	9.3	6.8	8.7	8.5	9.0	9.1	3.7
Others	*	*	.1	.1	*	.1	*	*	*	.1
Western Europe	.1	.1	.1	.1	.1	.2	.1	.6	1.4	1.2
France	*	*	*	*	*	*	*	*	.1	*
Others	.1	.1	.1	.1	.1	.2	.1	.6	1.4	1.2
Eastern Europe	.9	.7	*	*	*	*	*	*	*	*
Oceania	*	*	*	*	*	*	*	*	*	*
World	44.7	36.5	36.9	28.8	23.1	20.0	22.3	27.3	45.9	35.1

\* = Less than \$50,000.

1/ Totals may not add due to rounding.

Source: (12).

Appendix table 19--U.S. export value of manufactured fertilizer by major world regions, 1978-85 1/

Region/country	1978	1979	1980	1981	1982	1983	1984	1985
	Million dollars							
Africa	13.8	80.1	169.7	84.6	75.9	54.9	65.4	78.9
Morocco	.8	10.1	16.4	*	6.0	2.5	22.0	36.2
South Africa	2.4	6.3	29.3	27.4	22.5	10.6	4.1	3.1
Tunisia	2.0	2.3	6.9	2.8	11.9	11.9	1.9	12.8
Others	8.6	61.5	117.1	54.4	35.4	29.8	37.4	26.7
North and Central America	140.4	221.3	325.9	349.8	283.6	259.4	281.9	208.8
Canada	60.4	104.6	103.1	136.8	115.7	135.4	140.2	95.7
Costa Rica	11.1	10.4	13.9	10.0	9.8	8.4	9.2	6.0
Dominican Republic	9.4	22.6	43.3	23.3	20.2	17.0	18.0	12.8
El Salvador	12.9	16.1	12.8	21.3	3.7	7.2	6.1	21.3
Guatemala	3.0	12.6	26.5	24.6	6.9	14.1	10.3	6.9
Mexico	33.2	36.4	87.9	104.7	103.1	58.4	80.0	57.3
Others	10.3	18.6	38.3	29.0	24.2	18.9	18.2	8.8
South America	208.7	473.6	722.0	370.5	231.2	131.6	299.6	154.8
Argentina	9.2	24.9	29.7	20.9	19.1	13.0	18.2	11.5
Brazil	160.4	342.2	500.7	218.7	117.8	31.1	136.8	59.1
Chile	9.5	33.2	53.6	38.8	10.9	24.9	41.7	26.0
Colombia	11.8	21.4	35.8	32.5	28.4	31.3	38.7	26.3
Peru	4.7	7.7	11.3	10.7	8.2	8.9	10.9	4.8
Venezuela	1.9	22.5	51.7	19.4	23.4	11.4	29.0	14.7
Others	11.2	21.7	39.2	29.5	23.2	11.1	24.2	12.2
Asia	314.3	430.0	944.2	764.9	719.9	646.0	1,140.1	635.2
China	38.7	44.6	152.6	131.0	147.0	167.7	267.3	127.3
India	116.2	187.6	296.8	275.9	156.9	60.5	327.8	265.1
Japan	33.0	46.9	79.1	68.8	96.0	110.4	122.3	56.4
South Korea	.7	.2	.2	4.3	34.8	35.2	63.8	34.8
Pakistan	20.5	13.7	116.1	11.1	62.2	64.2	48.7	23.1
Singapore	4.0	10.7	10.7	4.1	7.0	12.7	5.2	.1
Taiwan	4.7	1.0	14.7	14.9	36.0	66.9	125.5	26.4
Turkey	36.1	55.6	149.0	88.9	48.8	27.6	47.3	25.5
Others	60.3	69.6	125.1	166.2	131.1	100.8	132.1	76.6
Western Europe	307.0	485.3	596.5	519.4	322.4	311.4	349.1	224.6
Belgium/Luxembourg	86.4	127.9	200.0	177.0	145.3	165.9	197.6	122.4
Finland	*	11.9	26.1	10.7	2.8	*	*	*
France	37.5	47.0	77.9	24.8	28.5	15.1	9.0	21.5
West Germany	29.7	14.1	61.7	61.7	25.9	29.8	31.4	15.1
Ireland	15.1	16.7	4.8	19.6	10.2	10.1	10.7	6.4
Italy	103.6	176.7	114.0	102.4	43.9	37.6	55.0	20.5
Netherlands	7.1	29.0	28.6	42.0	14.6	0.3	5.9	11.9
Spain	4.1	28.4	46.8	17.8	7.0	19.4	2.0	11.0
Yugoslavia	11.8	5.9	8.4	26.2	20.3	11.7	17.2	10.9
Others	11.5	27.6	28.1	37.2	23.7	21.6	20.3	4.8
Eastern Europe	8.5	119.2	36.6	227.0	312.9	253.4	219.1	120.1
Bulgaria	*	*	11.0	31.6	12.5	10.6	11.8	*
Czechoslovakia	2.7	10.5	1.1	*	*	15.6	13.5	9.2
USSR	*	93.7	17.4	166.0	272.0	220.7	186.4	110.2
Others	5.8	15.0	7.2	29.3	28.4	6.5	7.4	.7
Oceania	21.6	37.3	44.4	64.8	53.1	76.1	92.8	62.1
Australia	12.4	18.5	20.7	38.4	31.6	48.7	70.3	50.7
New Zealand	9.1	18.8	23.6	26.4	21.4	27.2	22.4	11.4
Others	*	.1	*	.1	.2	.2	.2	*
World	1,014.2	1,846.7	2,839.4	2,381.1	1,999.0	1,732.8	2,447.9	1,484.3

\* = Less than \$50,000.

1/ Totals may not add due to rounding.

Source: (11).



Appendix table 20--U.S. import value of manufactured fertilizer by major world regions, 1978-87 1/

Region/country	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
	<u>Million dollars</u>									
Africa	2.6	0.1	*	0.1	*	0.1	1.7	1.2	0.1	7.5
North and Central America	645.0	786.0	930.6	1,067.5	926.3	964.7	125.2	874.8	729.1	749.2
Canada	580.7	710.7	836.2	952.1	801.2	809.0	935.3	774.1	670.4	684.8
Mexico	30.0	36.6	48.6	65.1	75.6	77.5	55.0	21.9	8.7	10.0
Trinidad and Tobago	29.4	38.0	43.9	47.8	43.5	67.2	128.3	76.7	45.4	54.0
Others	5.0	1.6	1.9	2.5	6.0	10.9	6.6	2.0	4.5	1.4
South America	4.8	5.0	5.5	7.6	7.3	28.8	32.1	10.0	8.3	9.6
Brazil	.2	.5	.4	.5	.2	5.4	11.2	.8	.1	.5
Chile	3.4	4.5	4.4	5.0	2.4	3.9	3.7	3.0	1.6	1.4
Venezuela	*	*	.6	1.2	4.6	18.5	17.1	6.1	6.3	7.7
Others	1.2	.1	*	.9	*	1.1	.1	*	.3	*
Asia	23.1	25.0	34.5	57.5	62.9	55.4	44.0	51.5	39.2	45.7
Israel	18.4	21.4	31.7	45.4	58.0	42.2	39.3	31.7	18.8	19.1
Japan	4.5	3.2	2.7	4.0	4.9	4.2	4.8	5.6	2.6	3.5
Others	.2	.5	.2	8.1	*	9.0	*	14.2	17.8	23.1
Western Europe	138.1	72.1	100.4	80.0	105.4	92.6	103.0	137.8	123.4	100.3
Belgium/Luxembourg	6.2	2.2	4.2	8.7	5.5	7.9	14.0	6.1	6.8	4.8
France	3.1	.4	.8	2.0	*	*	*	.2	*	*
West Germany	6.3	2.9	13.9	9.1	10.1	15.3	21.5	18.3	16.8	19.1
Italy	9.2	*	*	*	*	*	6.2	27.7	31.7	18.9
Netherlands	93.5	50.8	62.0	37.0	60.8	45.0	37.2	53.8	43.7	28.1
Norway	12.8	11.5	14.4	16.3	19.1	19.8	21.5	20.5	21.2	19.8
Others	7.1	4.2	5.0	6.9	9.8	4.6	2.6	11.2	3.2	9.6
Eastern Europe	34.8	60.3	106.2	85.5	108.9	153.7	269.7	224.9	202.7	78.5
East Germany	6.9	3.2	3.7	4.2	5.1	8.6	15.1	6.5	24.3	14.4
Romania	*	*	5.3	2.9	*	16.4	61.3	45.0	37.6	.5
USSR	27.9	57.1	97.2	78.4	103.8	128.8	193.3	173.4	139.3	59.5
Others	*	*	*	*	*	*	*	*	1.4	4.1
Oceania	*	*	*	.1	*	1.8	2.8	7.8	5.1	3.3
World	848.5	948.5	1,177.2	1,298.2	1,210.8	1,297.1	1,578.5	1,308.0	1,107.9	994.1

\* = Less than \$50,000.

1/ Totals may not add due to rounding.

Source: (12).

Appendix table 21--U.S. export value of farm machinery by major world regions, 1978-87 1/

Region/country	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
	Million dollars									
Africa	72.1	74.5	99.6	197.4	136.0	113.1	118.6	99.2	69.8	67.6
Egypt	12.9	5.0	5.2	28.8	17.2	13.9	11.6	22.5	15.9	10.3
Libya	19.7	18.3	7.4	16.0	2.7	3.3	19.7	14.8	1.2	*
South Africa	17.8	21.4	47.9	94.9	65.6	65.6	57.0	59.5	29.3	25.0
Others	21.8	29.9	39.1	57.6	50.5	30.3	30.3	2.5	23.4	32.3
North and Central America	799.9	1,113.6	1,550.7	1,769.3	1,203.6	947.0	1,072.2	1,072.6	779.3	778.8
Canada	658.1	1,014.7	1,077.0	1,386.0	1,004.2	855.5	895.0	796.6	652.3	647.7
Mexico	103.5	244.5	394.8	321.2	146.3	50.0	127.9	235.1	85.4	76.0
Others	38.3	54.4	79.0	62.2	53.0	41.5	49.3	40.9	41.6	55.1
South America	88.2	157.0	229.3	219.8	171.0	77.7	97.2	112.7	129.8	148.8
Argentina	4.2	21.2	42.6	27.8	10.5	9.8	10.1	5.3	4.7	15.9
Brazil	1.2	24.1	36.6	30.8	19.7	9.1	16.4	17.6	18.4	22.5
Colombia	11.9	11.8	19.5	20.2	19.8	17.2	16.4	12.2	12.4	18.3
Venezuela	53.8	57.8	73.4	85.0	85.0	21.2	24.3	45.3	60.3	60.6
Others	17.1	42.1	57.1	56.1	36.1	20.5	30.0	32.3	33.9	31.5
Asia	59.0	162.2	165.9	174.2	260.4	410.7	371.9	173.4	146.7	198.6
China	1.1	3.0	11.7	2.9	2.2	1.8	16.9	6.6	12.0	9.1
India	.5	3.4	3.9	2.8	2.1	4.0	3.0	.8	1.8	1.0
Israel	10.4	18.3	14.1	15.4	15.9	16.0	16.9	13.8	7.3	7.4
Japan	16.3	38.5	33.0	21.8	19.8	19.8	16.3	38.5	33.0	21.8
Saudi Arabia	3.8	13.1	21.8	46.7	138.3	295.1	250.7	92.1	69.5	111.8
Others	26.9	86.0	81.4	84.6	82.2	74.0	68.1	21.6	23.1	47.4
Western Europe	135.5	395.4	432.2	411.8	410.5	346.1	349.4	251.6	283.5	340.6
Belgium/Luxembourg	9.5	93.8	84.8	106.9	66.3	5.0	53.8	23.6	40.8	49.8
France	43.9	90.3	111.1	96.2	119.3	97.6	89.4	60.2	68.4	95.5
West Germany	16.5	67.5	78.4	60.7	89.1	76.4	66.9	57.1	51.9	54.8
Italy	6.1	9.6	15.3	13.4	9.1	6.6	8.6	7.6	13.1	14.2
Netherlands	7.9	11.4	11.3	10.3	14.0	10.0	7.5	6.9	12.2	11.7
United Kingdom	13.0	66.8	66.1	77.2	72.2	65.6	68.1	53.2	53.3	61.8
Others	38.7	56.0	65.0	47.1	40.4	34.9	55.1	43.0	43.9	52.9
Eastern Europe	15.5	22.9	25.4	49.5	30.9	30.4	24.9	29.6	25.9	10.1
Hungary	12.9	8.1	11.5	11.8	7.4	13.2	11.0	12.7	13.1	8.2
USSR	1.9	10.5	10.3	36.5	19.8	16.1	12.5	15.6	10.7	1.0
Others	.8	4.3	3.6	1.2	3.6	1.2	1.4	1.2	2.1	.8
Oceania	72.1	129.1	196.6	211.4	230.3	104.7	220.9	146.2	51.0	51.3
Australia	68.1	119.2	183.0	200.5	218.7	97.9	214.2	141.8	47.5	48.6
New Zealand	3.6	8.9	11.7	9.1	9.2	5.5	5.4	3.7	2.7	2.1
Others	.3	1.1	1.8	1.7	2.4	1.4	1.3	.8	.8	.7
World	1,242.2	2,254.8	2,699.6	3,033.4	2,442.7	2,029.8	2,255.1	1,885.3	1,486.1	1,595.8

\* = Less than \$50,000.

1/ Totals may not add due to rounding.

Source: (11).

Appendix table 22--U.S. import value of farm machinery by major world regions, 1980-87 1/

Region/country	1980	1981	1982	1983	1984	1985	1986	1987
	Million dollars							
Africa	5.2	2.4	0.3	0.4	0.7	1.3	1.5	0.9
South Africa	5.2	2.4	.2	.4	.6	.8	1.2	.8
Others	*	*	*	*	*	.5	.3	.1
North and Central America	744.0	606.3	424.0	417.0	512.1	443.2	394.7	533.7
Canada	734.0	595.8	412.3	397.4	500.8	433.6	386.8	521.1
Mexico	9.1	9.7	11.4	18.6	10.1	8.2	6.3	11.5
Others	1.0	.9	.3	1.0	1.2	1.4	1.7	1.2
South America	1.1	7.5	4.8	7.0	11.9	12.6	11.3	19.4
Brazil	1.0	1.0	4.8	6.5	11.4	12.3	10.9	18.3
Others	.1	6.5	*	.5	.5	.3	.4	1.1
Asia	196.4	206.6	184.2	214.6	324.2	375.8	443.3	449.8
China	.1	.1	1.4	2.1	3.2	2.6	3.0	5.4
India	.5	.7	.7	.2	.3	.2	.2	.4
Israel	3.5	2.8	2.7	3.1	4.4	7.7	7.6	8.5
Japan	189.4	198.8	175.8	203.8	309.9	357.0	419.2	418.0
Others	3.0	4.3	3.6	5.3	6.4	8.3	13.4	17.4
Western Europe	700.7	575.7	449.2	629.6	771.0	722.1	789.4	831.1
Belgium/Luxembourg	67.2	50.5	25.7	23.7	27.7	29.4	42.7	46.0
France	51.5	41.8	30.2	41.4	72.5	68.9	65.4	67.3
West Germany	236.7	197.2	169.2	249.6	225.7	224.7	255.8	247.8
Italy	93.3	100.7	95.5	100.4	152.9	123.3	119.3	129.4
Netherlands	15.4	14.0	14.3	33.6	48.0	39.3	38.6	39.5
Spain	5.6	3.6	6.5	3.3	7.2	4.0	6.1	6.3
United Kingdom	216.0	155.4	94.2	163.9	217.1	207.7	235.7	258.5
Others	15.0	12.5	13.6	13.8	19.9	24.8	25.8	36.5
Eastern Europe	26.9	25.3	25.5	12.2	24.2	17.9	15.3	22.2
Czechoslovakia	*	.2	1.1	1.8	5.8	5.9	6.2	3.9
Hungary	10.2	9.3	7.6	2.4	11.7	5.4	1.8	5.8
Romania	11.6	12.6	15.4	6.1	4.7	4.4	1.9	5.3
Others	5.2	3.1	1.5	1.9	2.1	2.1	5.3	7.1
Oceania	11.1	16.8	14.9	15.4	16.2	16.6	15.3	19.8
Australia	4.4	7.7	4.9	3.3	4.7	5.6	6.3	8.0
New Zealand	6.7	9.2	10.0	12.1	11.4	11.0	8.6	11.8
World	1,685.6	1,440.7	1,102.8	1,296.1	1,660.2	1,589.5	1,670.8	1,877.1

\* = Less than \$50,000.

1/ Totals may not add due to rounding.

Source: (12).

Appendix table 23--U.S. export value of pesticides by major world regions, 1978-87 1/

Region/country	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
	Million dollars									
Africa	41.5	41.1	43.2	46.1	41.9	39.5	57.4	38.7	54.5	50.9
Egypt	4.4	2.8	2.7	2.2	4.2	2.2	7.1	6.5	9.8	11.0
South Africa	14.8	14.5	14.4	25.3	20.5	16.0	19.7	19.7	23.9	23.6
Others	22.4	23.8	26.0	18.6	17.1	21.3	30.6	12.6	20.8	16.3
North and Central America	222.0	232.6	257.3	281.2	282.0	288.7	328.8	295.3	246.4	246.2
Canada	108.9	123.7	143.5	140.4	162.6	178.4	196.9	172.7	131.5	140.7
Costa Rica	15.0	12.4	13.7	19.2	20.3	18.9	16.8	21.0	19.3	20.7
Guatemala	20.0	22.8	24.0	29.3	20.2	17.4	19.5	14.8	13.7	10.1
Honduras	9.6	14.2	10.9	16.1	15.2	9.0	12.8	8.0	9.7	9.4
Mexico	28.1	34.0	30.7	37.0	27.1	26.3	34.9	45.7	42.2	37.6
Nicaragua	16.1	4.5	11.4	12.2	9.6	13.2	18.3	3.7	.1	*
Others	24.4	21.1	23.1	26.9	27.1	25.5	29.6	29.4	29.8	27.8
South America	165.6	178.0	197.0	176.4	156.5	170.3	194.0	163.0	226.6	224.8
Argentina	20.4	28.7	19.0	20.9	18.4	26.7	32.6	22.0	36.5	31.5
Brazil	91.0	91.2	101.8	70.0	58.9	70.9	56.5	48.1	81.7	69.4
Colombia	24.0	20.4	30.2	30.9	34.6	37.6	48.1	37.0	47.2	51.2
Venezuela	18.3	19.1	22.8	26.4	20.9	17.1	32.3	29.2	32.3	38.9
Others	11.9	18.6	23.2	28.4	23.6	17.9	24.6	26.8	28.9	33.9
Asia	182.9	241.6	281.2	276.2	284.5	292.4	336.4	311.1	324.9	372.2
China	10.3	19.4	32.2	28.5	28.2	36.9	36.8	13.2	12.1	13.3
Hong Kong	9.2	10.2	10.6	8.7	8.9	11.2	19.2	15.1	10.7	33.4
India	14.2	12.0	27.5	11.2	10.0	6.9	11.0	9.9	4.4	6.8
Indonesia	6.5	13.5	17.0	16.9	21.6	14.1	14.7	14.4	18.0	16.6
Japan	61.0	82.3	95.3	100.5	103.5	106.4	125.0	126.0	147.2	145.3
South Korea	8.9	18.4	17.2	24.0	24.4	18.0	19.1	13.5	21.2	20.9
Malaysia	15.4	6.9	7.4	3.7	14.6	18.7	23.0	25.1	20.1	24.8
Singapore	3.3	17.3	18.3	33.1	19.8	19.3	27.6	29.6	21.6	23.4
Taiwan	11.7	11.8	11.6	10.9	14.6	20.7	18.0	20.2	23.2	24.6
Thailand	14.1	15.0	13.6	12.4	9.9	9.4	18.4	17.4	17.4	24.7
Others	28.4	34.8	30.5	26.3	29.0	30.9	23.7	26.7	29.1	38.4
Western Europe	285.0	375.3	386.5	375.6	441.2	414.8	498.9	488.7	501.4	494.0
Belgium/Luxembourg	110.3	132.2	116.5	87.6	95.1	80.7	103.9	108.6	150.4	154.0
France	18.0	31.0	49.9	42.5	34.9	32.6	31.4	39.9	47.1	50.8
West Germany	21.1	35.0	36.9	45.6	74.4	45.0	63.3	76.0	39.8	33.3
Italy	9.2	13.1	12.4	15.8	15.0	17.3	16.0	19.9	30.4	23.0
Netherlands	37.1	29.5	27.3	34.3	39.3	58.1	92.5	67.0	98.7	72.3
Switzerland	44.4	62.0	89.8	92.1	117.1	102.0	104.5	78.7	60.2	96.5
United Kingdom	24.4	35.1	27.9	26.1	33.0	41.5	50.9	56.1	37.6	34.8
Others	20.5	37.4	25.7	31.8	32.5	37.5	36.4	42.6	37.3	29.3
Eastern Europe	1.9	2.7	2.3	5.5	4.8	3.5	2.7	8.1	13.0	10.3
Bulgaria	.2	.2	.1	.3	.1	.3	1.6	4.0	4.1	5.3
USSR	.4	*	*	3.0	.2	1.0	1.8	3.9	3.0	6.7
Romania	.6	.1	.3	2.8	2.4	.8	*	1.4	5.5	2.3
Others	1.2	2.4	1.9	2.4	2.3	2.4	1.1	2.8	3.4	2.7
Oceania	28.5	42.1	42.9	40.3	45.8	70.6	76.5	53.8	53.9	62.1
Australia	21.5	31.9	28.2	25.9	32.8	51.5	57.8	43.3	43.7	51.7
New Zealand	6.6	9.7	14.2	14.1	12.5	18.8	18.5	10.4	10.1	9.8
Others	.4	.4	.5	.4	.6	.3	.1	.1	.2	.6
World	927.9	1,113.3	1,210.3	1,204.4	1,256.9	1,280.7	1,496.5	1,362.7	1,423.7	1,467.1

\* = Less than \$50,000.

1/ Totals may not add due to rounding.

Source: (11).

Appendix table 24--U.S. import value of pesticides by major world regions, 1978-87 1/

Region/country	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
	<u>Million dollars</u>									
Africa	7.6	12.6	21.3	6.7	16.3	10.1	11.6	13.8	13.2	12.5
Kenya	4.9	7.9	16.5	6.0	13.8	8.2	9.7	9.7	8.9	8.4
Others	2.8	4.6	4.8	.7	2.5	1.9	1.8	4.1	4.3	4.1
North and Central America	6.7	8.3	10.0	13.8	9.0	12.5	20.9	22.4	20.3	32.4
Canada	4.1	5.7	6.9	11.2	7.9	10.3	18.6	17.1	14.3	20.2
Mexico	2.2	2.6	2.4	2.6	.8	2.2	2.1	2.7	3.1	8.0
Others	.4	*	.6	*	.3	*	.1	2.5	2.9	4.1
South America	3.2	2.1	2.6	4.7	10.9	20.8	19.7	26.6	50.1	58.1
Argentina	1.2	1.6	.7	.5	2.5	2.5	2.4	3.7	3.5	5.3
Brazil	.1	.1	1.0	3.3	7.1	15.7	16.2	22.3	45.7	50.6
Colombia	1.6	*	.2	.3	.5	2.0	.7	.3	.6	2.0
Others	.3	.4	.7	.7	.7	.5	.5	.4	.3	.2
Asia	25.4	32.6	39.0	58.3	40.0	40.2	38.6	37.7	43.4	54.2
China	*	*	*	.5	2.3	3.3	2.4	2.8	3.5	3.3
India	*	*	.1	*	*	*	.1	.9	.1	*
Israel	6.6	5.0	6.0	8.9	9.2	10.6	20.3	16.7	19.3	28.7
Japan	18.5	27.4	32.9	48.8	8.1	25.9	15.3	14.9	17.9	18.2
Others	.3	.2	.1	.1	.5	.3	.4	2.3	2.6	4.0
Western Europe	170.9	177.7	233.6	249.5	241.4	215.2	285.0	349.2	300.1	336.0
Belgium/Luxembourg	22.7	16.8	13.2	12.9	16.0	7.6	17.0	21.4	20.1	23.5
Denmark	1.0	2.0	3.9	7.7	8.3	9.3	9.5	10.6	20.2	32.6
France	5.2	6.9	7.1	10.9	8.5	9.8	13.6	17.4	20.0	35.3
West Germany	79.2	65.8	81.7	69.6	66.0	56.2	82.4	104.3	71.8	81.4
Italy	13.4	14.3	14.3	15.9	18.3	18.7	21.2	22.5	36.8	29.8
Netherlands	5.5	6.7	11.1	15.0	11.8	17.1	18.4	26.4	22.8	21.5
Switzerland	30.3	47.6	65.5	79.5	82.4	63.2	73.7	94.8	39.3	35.0
United Kingdom	13.4	17.3	35.4	36.3	25.8	30.7	45.5	48.9	63.9	70.6
Others	.4	.3	1.3	1.7	4.2	2.7	3.7	3.1	5.2	6.3
Eastern Europe	.2	.4	1.0	1.8	2.0	1.4	.1	*	.2	*
Oceania	.1	.4	.3	.1	.3	.7	.3	.8	.5	3.2
World	214.0	234.0	307.9	335.0	319.7	300.8	376.2	450.5	427.8	496.4

\* = Less than \$50,000.

1/ Totals may not add due to rounding.

Source: (12).

Appendix table 25--U.S. export value of live breeding stock by major world regions, 1978-87 1/ 2/

Region/country	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
	Million dollars									
Africa	1.5	*	1.0	2.0	1.7	1.3	0.7	0.1	0.2	2.7
South Africa	*	*	.3	.9	1.2	.6	.5	.1	.1	.2
Others	1.5	*	.7	1.1	.5	.6	.2	*	.2	2.6
North and Central America	21.2	19.6	17.3	22.7	12.7	6.1	21.1	78.0	61.0	26.4
Canada	1.9	3.0	5.5	3.7	3.2	3.2	2.4	2.1	21.6	4.1
Honduras	.1	.3	.1	.4	*	*	.6	.9	.8	2.5
Mexico	16.5	14.7	9.4	17.2	8.2	2.4	17.3	72.2	37.7	18.8
Others	2.7	1.6	2.3	1.4	1.3	.5	.9	2.8	1.0	1.1
South America	5.8	4.3	4.0	5.7	6.1	5.8	8.1	9.8	13.5	15.7
Argentina	1.0	.2	1.0	.8	.1	.2	.1	.3	.4	.4
Brazil	1.2	1.7	.4	.2	.1	.3	*	.1	.7	2.1
Colombia	2.5	1.3	.9	.9	1.4	1.5	1.7	.4	1.2	2.2
Venezuela	.4	.3	.4	1.0	2.4	3.1	6.0	6.0	6.7	4.8
Others	.6	.9	1.3	2.7	2.1	.7	.3	3.0	4.4	6.3
Asia	34.2	24.3	8.0	6.8	16.7	23.2	11.5	12.1	12.7	20.7
China	*	*	*	*	*	*	*	1.8	1.4	*
Iraq	.1	*	*	*	*	*	*	*	*	5.0
Japan	6.1	8.9	5.3	2.7	4.0	1.1	1.8	1.0	2.2	5.2
South Korea	15.5	14.1	2.5	1.7	9.2	19.3	4.9	2.0	*	.4
Saudi Arabia	.4	.9	*	2.3	2.6	2.4	3.9	1.5	2.4	.5
Taiwan	*	*	.1	.1	.3	.4	.8	5.7	6.5	4.2
Others	12.2	.4	.1	*	.6	*	*	.1	.3	5.4
Western Europe	3.3	3.1	3.0	.4	*	*	.1	.2	.6	6.8
Eastern Europe	1.5	.1	*	1.3	*	*	*	*	*	*
Oceania	*	*	*	*	*	.3	.2	2.5	*	*
World	68.0	51.6	33.3	38.9	18.4	36.6	41.6	102.7	88.1	72.4

\* = Less than \$50,000.

1/ Totals may not add due to rounding.

2/ Beef and dairy bulls and cows.

Source: (11).

Appendix table 26--U.S. import value of live breeding stock by major world regions, 1978-87 1/ 2/

Region/country	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
	1,000 dollars									
North and Central America	7,857	12,739	11,052	10,732	8,926	11,107	6,049	5,197	3,949	4,618
Canada	7,857	12,699	10,983	10,732	8,926	11,083	6,045	5,191	3,949	4,614
Mexico	0	40	69	0	0	24	4	6	0	4
Western Europe	186	47	12	58	36	307	982	599	21	2
France	6	0	0	10	0	280	850	517	0	0
West Germany	0	0	0	0	0	13	0	0	0	0
Ireland	172	47	12	37	0	9	49	74	0	0
Switzerland	8	0	0	0	36	0	0	0	0	0
United Kingdom	0	0	0	11	0	4	83	8	21	2
Oceania	0	0	0	3	0	0	17	0	0	0
Australia	0	0	0	0	0	0	17	0	0	0
New Zealand	0	0	0	3	0	0	0	0	0	0
World	8,043	12,786	11,064	10,793	8,962	11,413	7,048	5,796	3,970	4,621

1/ Totals may not add due to rounding.

2/ Beef and dairy bulls and cows.

Source: (12).

Appendix table 27--U.S. export value of live breeder chicken stock by major world regions, 1978-87 1/

Region/country	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
	Million dollars									
Africa	0.4	0.4	0.5	0.7	1.2	0.9	0.8	0.7	1.0	0.2
North and Central America	10.1	12.7	15.3	19.0	17.5	18.7	18.7	18.5	15.3	7.0
Canada	4.6	4.7	5.4	6.6	9.8	10.2	9.1	8.1	6.0	2.6
Mexico	2.3	4.0	4.5	6.7	3.4	4.1	4.9	5.3	4.0	2.0
Others	3.2	4.1	5.5	5.8	4.3	4.4	4.7	5.1	5.3	2.4
South America	5.8	7.2	10.6	13.4	12.5	11.3	3.3	9.8	7.4	4.0
Argentina	.1	.5	1.2	1.2	.9	1.1	*	.3	.9	.4
Brazil	2.1	2.5	4.5	6.5	5.8	4.2	.3	4.2	2.1	1.5
Colombia	.7	.6	.9	1.1	1.1	1.2	1.4	1.0	1.5	.3
Venezuela	1.6	1.6	1.8	2.6	2.3	2.6	.3	2.1	.2	.8
Others	1.3	2.0	2.2	2.0	2.4	2.2	1.4	2.2	2.6	1.0
Asia	10.4	10.6	11.0	12.7	11.3	13.8	14.2	14.5	13.7	7.0
China	*	*	*	.1	.1	.1	.1	1.1	1.3	.6
India	*	.1	.2	.3	.1	*	*	*	*	*
Indonesia	.7	.7	1.7	2.0	1.4	1.8	2.5	1.9	1.9	.9
Japan	3.9	3.7	3.4	4.0	3.5	4.4	4.1	4.8	3.3	2.4
South Korea	1.1	1.0	.4	.4	.6	1.2	.9	.9	1.3	.7
Philippines	.7	.8	.8	1.2	1.7	1.9	1.6	1.5	1.3	1.1
Thailand	1.0	1.6	1.8	2.0	1.8	1.9	2.2	2.0	2.2	.4
Others	3.0	2.7	2.8	2.8	2.1	2.5	2.8	2.3	2.4	1.0
Western Europe	5.0	5.4	6.2	7.7	8.8	10.1	9.2	8.7	8.6	1.3
France	1.1	1.1	.8	1.2	1.4	1.1	.8	.9	.8	.1
Italy	.9	.3	.5	.5	.8	1.0	1.3	1.1	1.4	*
Netherlands	.3	.5	.7	1.0	1.2	2.3	1.7	1.9	2.5	.5
Spain	1.6	1.8	2.0	2.2	3.0	2.2	2.0	2.2	2.2	.2
Others	1.1	1.8	2.3	2.8	2.4	3.5	3.4	2.5	1.8	.5
Eastern Europe	.5	.7	.3	.1	.4	.5	.6	*	.8	*
Oceania	*	*	*	*	*	*	*	.2	*	*
World	32.2	37.0	44.0	53.5	51.6	55.3	45.8	52.4	46.9	19.6

\* = Less than \$50,000.

1/ Totals may not add due to rounding.

Source: (11).



Appendix table 28--U.S. export value of bull semen by major world regions, 1978-87 1/

Region/country	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
	Million dollars									
Africa	0.1	0.2	0.2	0.6	1.0	1.2	1.6	0.8	0.6	0.7
South Africa	.1	.1	.2	.5	.7	.9	1.0	.5	.5	.5
Others	*	.1	.1	.1	.3	.3	.6	.3	.1	.2
North and Central America	1.8	3.0	2.8	3.2	3.2	2.4	2.9	3.1	3.4	2.8
Canada	.4	1.5	1.3	1.4	1.2	1.0	1.0	.7	1.2	.8
Mexico	.8	1.0	.8	1.4	1.2	.8	1.3	1.9	1.6	1.5
Others	.6	.6	.6	.5	.7	.7	.6	.5	.6	.5
South America	2.9	4.5	6.6	4.3	3.6	4.4	5.0	4.6	7.1	7.5
Argentina	.8	.4	1.4	1.0	.3	.9	.7	.8	.9	1.0
Brazil	.8	2.0	2.8	.7	.8	1.0	.7	1.0	1.4	2.1
Colombia	.5	.8	.7	.7	.9	1.5	1.5	1.1	.7	.7
Venezuela	.2	.3	.4	.8	.6	.3	1.1	.8	2.6	2.5
Others	.6	1.0	1.4	1.1	1.0	.7	1.1	.9	1.4	1.2
Asia	.9	.6	.4	.8	1.1	1.2	1.1	2.0	2.9	3.8
Japan	*	*	*	*	*	*	.1	.4	.5	.9
South Korea	*	*	*	*	.1	.2	.1	.3	.5	.5
Saudi Arabia	*	.1	.1	.2	.4	.5	.4	.7	1.0	.8
Taiwan	.1	.1	.1	.3	.2	.3	.3	.3	.4	.3
Others	.7	.4	.2	.2	.4	.2	.1	.3	.6	1.0
Western Europe	5.9	6.9	9.2	10.9	14.4	15.7	13.1	11.4	12.0	18.5
Belgium/Luxembourg	.1	.7	.5	.2	.4	.5	.2	.3	.6	.6
France	.5	.2	.6	.3	1.4	1.5	1.8	2.1	1.3	2.3
West Germany	3.0	2.1	3.4	3.4	3.1	3.9	3.2	3.5	3.1	3.4
Italy	.8	1.8	2.3	1.9	2.8	3.2	3.2	2.0	2.8	4.6
Netherlands	.2	.5	.8	2.5	4.7	4.9	1.5	1.0	2.3	3.7
Spain	.1	.4	.5	.4	.5	.3	.4	.5	.5	.5
Sweden	*	*	*	.2	.3	.1	.3	.3	.3	.9
Switzerland	.5	.9	.5	.8	.4	.4	1.6	.6	.1	.7
Others	1.2	1.2	1.4	2.0	1.2	1.4	2.4	1.8	1.2	2.6
Eastern Europe	.4	1.1	.6	.8	.3	.6	1.0	.3	1.3	1.2
Hungary	.2	1.0	.4	.7	.3	.5	.9	.2	1.2	1.2
USSR	*	*	*	*	*	*	.1	.8	.5	.5
Others	.2	.1	.1	.1	*	.1	.1	.1	.2	*
Oceania	*	*	*	*	*	*	*	*	.4	.7
World	12.0	16.4	19.8	20.7	23.5	25.6	24.8	23.1	28.2	35.7

\* = Less than \$50,000.

1/ Totals may not add due to rounding.

Source: (11).

Appendix table 29--U.S. import value of bull semen by major world regions, 1980-87 1/

Region/country	1980	1981	1982	1983	1984	1985	1986	1987
	<u>1,000 dollars</u>							
North and Central America	1,982	1,964	2,182	2,073	2,707	1,904	2,076	3,471
Barbados	0	0	0	0	0	0	0	118
Canada	1,981	1,964	2,182	2,069	2,707	1,904	2,076	3,263
Panama	0	0	0	0	0	0	0	88
Others	1	0	0	4	0	0	0	2
Western Europe	39	40	17	28	15	29	60	141
Denmark	0	0	0	0	5	21	7	7
Ireland	35	28	17	0	9	0	0	16
United Kingdom	4	11	0	25	0	8	45	119
Others	0	1	0	3	1	0	8	0
Oceania	0	94	2	66	2	48	5	227
Australia	0	94	0	0	2	42	5	198
New Zealand	0	0	2	66	0	6	0	28
World	2,020	2,098	2,201	2,167	2,724	1,981	2,141	3,839

1/ Total may not add due to rounding.

Source: (12).

Appendix table 30--U.S. export value of seeds for planting by major world regions, 1982-87 1/

Region/country	1982	1983	1984	1985	1986	1987
	<u>Million dollars</u>					
Africa	12.3	14.6	15.1	10.4	11.9	11.2
South Africa	6.1	7.5	4.3	2.7	4.6	5.5
Egypt	2.4	3.2	4.0	3.6	2.2	3.0
Others	3.8	3.9	6.8	4.1	5.1	2.7
North and Central America	91.3	107.7	100.2	89.6	76.7	92.5
Canada	28.8	28.8	28.6	26.5	23.5	35.3
Mexico	54.9	71.9	62.8	54.0	45.8	48.6
Others	7.6	7.0	8.8	9.1	7.4	8.6
South America	21.2	26.4	28.0	25.1	33.3	28.3
Brazil	5.1	6.7	3.3	3.8	4.2	4.6
Argentina	2.2	3.2	6.5	4.0	9.3	9.5
Colombia	3.1	4.1	4.5	3.0	3.8	3.4
Venezuela	7.2	6.1	7.1	10.4	11.2	5.1
Others	3.6	6.3	6.6	3.9	4.8	5.7
Western Europe	107.1	98.1	84.7	134.4	135.1	148.3
United Kingdom	10.3	8.7	7.2	9.8	10.2	9.9
Netherlands	14.6	15.8	11.1	16.4	21.5	20.1
France	16.7	16.1	13.3	34.3	23.0	16.8
West Germany	8.3	6.7	5.4	6.4	6.2	5.8
Spain	4.7	3.2	4.1	4.9	6.1	8.0
Italy	31.2	28.1	26.7	44.8	47.1	72.3
Greece	7.1	5.7	4.5	6.8	8.4	4.8
Others	14.2	13.8	12.4	11.0	12.6	10.6
Eastern Europe	2.7	3.7	1.6	11.9	17.8	.7
Hungary	1.3	.2	.4	10.4	2.1	.5
Bulgaria	.1	.4	*	*	11.3	*
Others	1.3	3.1	1.2	1.5	4.4	.2
Asia	63.3	70.1	84.7	78.6	88.6	84.5
Turkey	.7	1.6	2.2	4.5	11.2	7.4
Iraq	1.3	6.8	10.6	9.1	8.1	6.6
Saudi Arabia	10.2	10.1	14.5	9.9	13.4	7.4
Japan	36.3	36.9	36.7	38.3	35.4	46.0
South Korea	1.4	2.4	4.8	3.0	3.4	3.8
Others	13.4	12.3	15.9	13.8	17.1	13.3
Oceania	6.6	8.4	6.3	8.7	7.1	8.4
Australia	5.2	7.1	4.9	7.3	5.9	6.9
New Zealand	1.3	1.2	1.3	1.3	1.1	1.3
Others	.1	.1	.1	.1	.1	.1
World	304.5	329.0	320.6	358.7	370.5	373.9

\* = Less than \$50,000.

1/ Totals may not add due to rounding.

Source: (11).

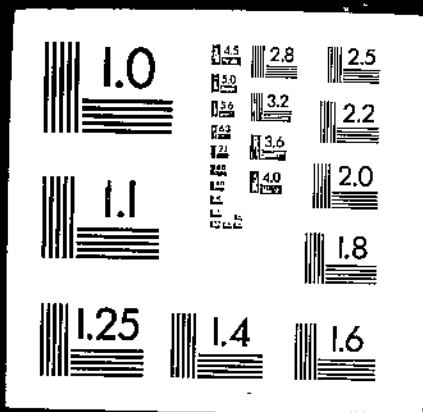
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Appendix table 31--U.S import value of seeds for planting by major world regions, 1982-87 1/

Region/country	1982	1983	1984	1985	1986	1987
	<u>Million dollars</u>					
Africa	5.4	5.3	5.1	5.5	4.5	5.7
Ethiopia	3.5	3.3	3.0	3.8	3.2	4.4
South Africa	1.7	1.2	1.6	.8	.6	.2
Others	.2	.8	.5	.9	.7	1.1
North and Central America	29.4	43.8	33.0	33.3	49.0	64.6
Canada	20.2	37.1	23.5	23.1	39.7	54.9
Mexico	3.8	3.0	2.5	3.5	3.3	2.9
Guatemala	1.8	1.3	2.6	2.0	3.0	3.6
Costa Rica	2.9	2.3	4.1	4.2	2.9	3.0
Others	.7	.1	.3	.5	.1	.2
South America	3.2	3.0	9.3	8.0	7.9	8.7
Chile	2.5	2.8	9.0	7.1	7.0	5.8
Others	.7	.2	.3	.9	.9	2.9
Western Europe	14.8	11.6	15.1	18.2	21.1	28.0
Denmark	.6	.5	.7	1.4	1.4	3.1
United Kingdom	2.2	1.7	.6	.7	.7	1.1
Netherlands	5.8	5.5	9.6	10.1	11.9	14.8
France	1.2	1.2	1.2	1.2	1.2	2.5
West Germany	2.0	.6	1.2	1.2	2.5	3.7
Italy	1.2	1.0	1.0	1.5	1.2	1.8
Others	1.8	1.1	.8	2.1	2.2	1.0
Eastern Europe	5.2	.3	6.5	1.6	.5	.8
Yugoslavia	.2	.2	.7	1.2	*	*
Romania	2.6	*	4.8	.2	.1	*
Others	2.4	.1	1.0	.2	.4	.8
Asia	16.5	17.8	19.2	17.4	25.1	28.2
India	6.0	3.9	1.5	2.9	7.3	4.2
Taiwan	4.7	6.4	9.1	6.6	6.8	9.8
Japan	3.5	4.3	5.3	5.3	6.9	8.7
Others	2.3	3.2	3.3	2.6	4.1	5.5
Oceania	1.3	2.3	1.8	2.6	4.9	9.5
Australia	.9	1.1	1.2	1.9	2.0	3.0
New Zealand	.4	1.2	.6	.7	2.9	6.5
World	75.8	84.1	90.0	86.6	113.0	145.5

\* = Less than \$50,000.

1/ Totals may not add due to rounding.

Source: (12).

Appendix table 32--Comparison of U.S. agricultural input imports by data source, 1980-86

Input	1980	1981	1982	1983	1984	1985	1986
<u>Million dollars</u>							
Fertilizer (crude and manufactured):							
UN 1/	1,175	1,244	1,039	1,079	1,245	1,079	NA
FAO 2/	1,015	1,131	986	1,017	1,164	994	910
FATUS 3/	NA	NA	1,314	1,405	1,696	1,428	1,273
TSUSA 4/	1,214	1,327	1,234	1,317	1,601	1,335	1,154
SIC 5/	1,436	1,516	1,311	1,423	1,445	NA	NA
Agricultural machinery:							
UN	1,491	1,329	1,083	1,250	1,591	1,511	NA
FAO	1,445	1,280	1,042	1,196	1,442	1,429	NA
FATUS	NA	NA	1,187	1,359	1,654	1,536	1,741
TSUSA	1,686	1,441	1,103	1,296	1,660	1,590	1,671
SIC	1,989	1,937	1,670	1,782	2,155	NA	NA
Pesticides:							
UN	276	295	277	265	324	418	NA
FAO	266	284	265	251	308	399	381
FATUS	NA	NA	NA	NA	313	380	330
TSUSA	308	335	320	301	376	451	428
SIC	308	338	320	303	375	NA	NA
Seed for planting:							
UN	52	54	67	80	72	76	NA
FATUS	60	80	85	90	100	98	120
TSUSA	NA	65	75	84	90	87	113

NA = Not available.

1/ United Nations Trade Data System from the National Institutes of Health Computer Center.

2/ United Nations, Food and Agriculture Organization, Trade Yearbook, various years and volumes.3/ U.S. Department of Agriculture, Economic Research Service, Foreign Agricultural Trade of the United States.4/ U.S. Department of Commerce, Bureau of the Census, Tariff Schedule of the United States of America.5/ U.S. Department of Commerce, Bureau of the Census, Standard Industrial Classification Imports: FT 210 Annual SIC Based Products and FT 610 Annual Domestic Merchandise SIC Based Products.

Appendix table 33--Comparison of U.S. agricultural input exports by data source, 1980-86

Input	1980	1981	1982	1983	1984	1985	1986
<u>Million dollars</u>							
Fertilizer (crude and manufactured):							
UN 1/	2,773	2,158	1,772	1,693	2,210	2,346	NA
FAO 2/	2,777	2,156	1,772	1,701	2,207	1,450	2,167
FATUS 3/	NA	NA	2,291	2,076	2,706	2,673	2,029
SCH B 4/	3,365	2,827	2,402	2,170	2,843	1,681	NA
SIC 5/	2,767	2,401	1,953	1,699	2,372	NA	NA
Agricultural machinery:							
UN	3,104	3,529	2,392	1,592	1,740	1,601	NA
FAO	3,191	3,560	2,428	1,638	1,790	1,655	NA
FATUS	NA	NA	1,592	1,153	1,307	1,099	892
SCH B	2,700	3,033	2,443	2,030	2,255	1,885	1,486
SIC	1,996	2,299	1,110	1,505	1,654	NA	NA
Pesticides:							
UN	1,077	1,083	1,123	1,145	1,354	1,241	NA
FAO	555	547	609	631	708	609	664
FATUS	NA	NA	1,257	1,280	1,496	1,362	1,428
SCH B	1,210	1,204	1,257	1,281	1,497	1,363	1,424
SIC	1,210	1,204	1,257	1,280	1,497	NA	NA
Seed for planting:							
UN	153	162	160	180	191	177	NA
FATUS	268	277	309	336	330	365	382
SCH B	NA	290	305	329	320	359	371

NA = Not available.

1/ United Nations Trade Data System from the National Institutes of Health Computer Center.

2/ United Nations, Food and Agriculture Organization, Trade Yearbook, various years and volumes.

3/ U.S. Department of Agriculture, Economic Research Service, Foreign Agricultural Trade of the United States.

4/ U.S. Department of Commerce, Bureau of the Census, Schedule B.

5/ U.S. Department of Commerce, Bureau of the Census, Standard Industrial Classification Imports: FT 210 Annual SIC Based Products and FT 610 Annual Domestic Merchandise SIC Based Products.



Appendix table 34--U.S. TSUSA and Schedule B codes used in this report

TSUSA codes (imports)	Schedule B codes (exports)	TSUSA codes (imports)	Schedule B codes (exports)	TSUSA codes (imports)	Schedule B codes (exports)		
Live breeding stock (bulls and cows)	Live breeding stock (beef and dairy)	Pesticides		Seeds for planting			
1000130	1004120	4051510	4082900	4860200	4863400	1260100	1260120
1000140	1004140	4051520	4082900	4860900	4863900	1260300	1260140
1000150	1004160	4051530	4083100	4861200	4865500	1260500	1260300
	1004180	4051540	4083200	4861400	4866200	1260700	1260500
		4051550	4083600	4861600	4866400	1260900	1260900
		4081600	4083800	4861900	4866600	1261100	1260900
Baby chicks	Live breeder stock (chickens)	4081700	4251040	4862100	4866900	1261500	1261700
		4081800	4253620	4862300	4867200	1261700	1262700
1000700	1000220	4081900	4287270	4862500	4867900	1261900	1263100
	1000240	4082100	4930200	4862505	4868200	1262300	1263120
		4822200	4930400	4862600	4868400	1262500	1263140
Bull semen (bovine)		4082300	4935500	4862800	4868900	1262700	1263200
		4082400	4935600	4862900	4869500	1262900	1263640
1911600	1911520	4082800	4937500	4863200	4920300	1263100	1263660
					4920400	1263300	1264100
Crude fertilizers						1263500	1266100
						1263700	1266300
						1263900	1267100
4802500	4802500					1264100	1267500
4804500	4804500	6496500	6660050	6626031	6660057	1265100	1267720
4806000	4809500	6617500	6660060	6626033	6660058	1265300	1268100
4808070		6618000	6660065	6626035	6660059	1265500	1268500
		6624500	6660070	6626040	6660060	1265900	1268700
Manufactured fertilizers		6660005	6660075	6626044	6660061	1266100	1271200
		6660007	6923402	6626045	6660062	1266300	1271220
4802000	4154500	6660009	6923404	6626046	6660063	1266500	1271220
4803000	4803000	6660010	6923405	6660004	6660064	1266700	1271240
4805000	4805000	6660012	6923406	6660006	6660065	1267100	1271510
4805500	4805500	6660015	6923409	6660007	6660066	1267300	1271515
4806510	4806510	6660020	6923411	6660011	6660067	1267700	1271520
4806530	4806530	6660025	6923415	6660012	6660068	1267900	1271530
4806540	4806540	6660030	6923417	6660021	6660072	1268100	1271540
4806550	4806550	6660035	6923440	6660022	6660077	1268300	1271545
4806560	4806565	6660040	6923450	6660024	6660079	1268500	1271560
4807010	4807015	6660045	6923460	6660026	6660083	1268700	1271570
4807030	4807025			6660028	6660084	1268900	1271580
4807050	4807030			6660031	6660086	1269100	1271590
4807070	4807050			6660034	6660088	1269300	1303420
4807500	4807075			6660036	6660090	1269500	1303440
4808005	4807500			6660037	6923315	1270100	1304020
4808015	4808005			6660038	6923320	1271000	1403100
4808020	4808010			6660041	6923325	1303000	1403300
4808095	4808018			6660042	6923330	1306300	1754000
	4808022			6660043	6923335	1307020	1754000
	4808027			6660044	6923340		
	4808065			6660046	6923345		
				6660047	6923350		
				6660049	6923350		
				6660047	6923350		
				6660049	6923355		
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