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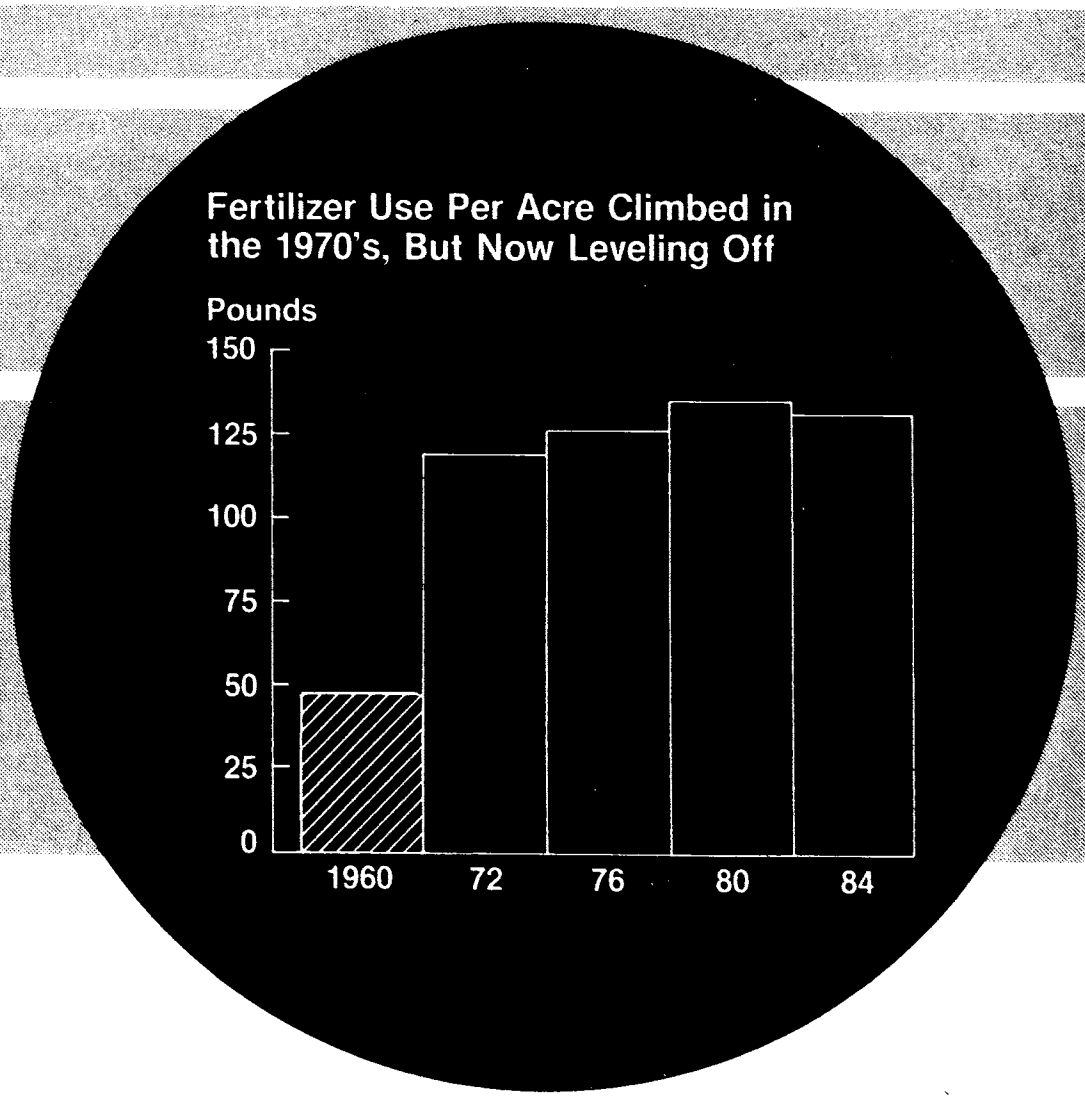
Inputs

Outlook and Situation Report



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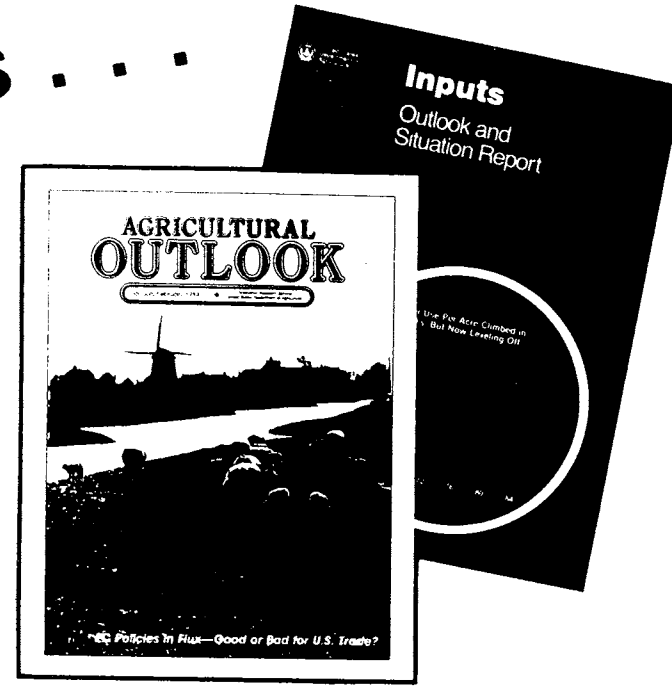

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SUMMARY

Total U.S. fertilizer use in 1984/85 is expected to remain virtually unchanged from a year earlier. Nitrogen use is forecast at 11.1 million tons, while phosphate and potash are projected to be about 4.9 and 5.8 million tons, respectively.

Worldwide fertilizer use has been up from depressed 1983 levels, and growth in use is expected to continue, especially in developing countries. The slowest growth in fertilizer use is projected for the developed nations. World production of fertilizer generally should be adequate to meet expected demand for the next 4 to 5 years because of sufficient planned capacity expansion.

As a result, U.S. phosphate fertilizer exports are expected to increase about 11 percent in 1984/85. Nitrogen exports could be up about 10 percent on the strength of increased diammonium phosphate and urea shipments. Meanwhile, potash imports should be up only 1 percent, and nitrogen imports should be unchanged from a year earlier.

Supplies of all fertilizer materials are projected to be adequate, at prices generally below a year earlier. Phosphate production could slow later this year because movement of materials into the domestic and export markets has not kept pace with production.

U.S. farmers are forecast to purchase $7.35 to $7.65 billion of farm machinery in 1985, close to the estimated $7.4 billion for 1984. Farm financial conditions are not expected to improve in 1985, but real interest rates could drop slightly, and dealers will likely continue sales incentive programs.

Purchases of over-40 horsepower two-wheel drive tractors and all four-wheel drive tractors fell 26 and 51 percent in 1984, compared with 1980-83 annual averages. Purchases of various types of harvesting equipment also dropped substantially. Domestic manufacturers drastically cut production in second-half 1984, but current inventories remain large.

The U.S. farm machinery trade balance during January-October 1984 declined 27 percent to $478 million, compared with a year earlier. Exports were about $1.95 billion and imports $1.48 billion.

Farm pesticide use in 1985 is now projected at 475 to 515 million pounds, active ingredients, compared with an estimated 507 million for 1984. Pesticide supplies will be adequate to meet projected use. However, growers who use methyl isocyanate (MIC) based carbamate pesticide need to determine product availability for their areas. After the accident in Bhophal, India, the sole U.S. manufacturer of MIC closed its plant in December. The plant will not reopen until a study of the MIC situation is completed. Nevertheless, current indications are that supplies of these pesticides will be adequate during the 1985 growing season. Affected pesticides include aldicarb, carbaryl, methomyl, oxamyl, carbofuran, methazole, and tebuthiuron.

Average U.S. gasoline prices are the lowest since 1979. Farmers can expect plentiful supplies of gasoline, diesel fuel, and liquefied petroleum gas at current or lower prices during the year. Only a small increase in the nominal price of natural gas is expected.

CONTENTS

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Approved by the World Agricultural Outlook Board. Summary released February 7, 1985. The next summary of the *Inputs Outlook and Situation* is scheduled for release August 1, 1985. It will appear on several computer networks by 3:30 ET the same day. Summaries of Outlook and Situation reports may be accessed electronically. For details, call (402) 472-1982 or (301) 588-1572. Full reports, including tables are provided by the system on (402) 472-1982.

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FERTILIZER

Demand

Total U.S. plant nutrient consumption will remain virtually unchanged in 1984/85. Plant nutrient use is forecast at 11.1 million tons for nitrogen and 4.9 and 5.8 million tons, respectively, for phosphate and potash.

The continued recovery in world economic activity will strengthen fertilizer demand, but the strong U.S. dollar will likely continue to dampen U.S. exports. However, nitrogen exports still could be up about 10 percent on the strength of increased diammonium phosphate and urea shipments, while improving world markets could add 11 percent to U.S. phosphate exports. U.S. potash exports, though small, could increase as much as 10 percent if Brazil continues to import at recent levels during 1984/85.

Farm use of fertilizer nutrients in 1983/84 increased substantially from 1982/83's PIK-reduced level. Fertilizer use in 1983/84 rose 21 percent from a year earlier, to nearly 22 million tons. Nitrogen use increased to about 11.1 million tons, phosphate 4.9 million, and potash 5.8 million.

Supplies

Domestic supplies of all fertilizers are expected to be adequate in 1984/85. U.S. production of nitrogen and phosphate is expected to be up in response to gains in U.S. exports of nitrogen and phosphate fertilizer materials.

Domestic fertilizer production capacity will be more fully utilized in 1984/85. Current production rates indicate that about 85 percent of anhydrous ammonia capacity, estimated at over 18 million tons, is being used. Wet-process phosphoric acid facilities capable of producing close to 11.6 million tons are operating at about 90 percent of capacity. U.S. potash capacity (2 million tons) is operating at an 80-percent rate, while Canadian capacity (10.3 million tons) is operating at about 90 percent.

U.S. nitrogen production is expected to increase about 4 percent in 1984/85 (table 1). Increases in production will depend on domestic needs for nitrogen fertilizers and an anticipated growth in exports.

The competitive position of the U.S. nitrogen fertilizer industry in the world market has improved, as natural gas feedstock

Table 1--U.S. supply-demand balance for years ending June 30

Item	Nitrogen			Phosphate			Potash		
	1983	1984	1985 1/	1983	1984	1985 1/	1983	1984	1985 1/
	Million nutrient tons								
Producers' beginning inventory	2.07	2.00	1.66	.68	.66	.81	.57	.46	.31
Production	11.32	12.36	12.86	9.45	10.55	11.14	1.81	1.62	1.71
Imports	2.77	4.02	4.00	.13 2/	.10 2/	.10 2/	4.51	5.29	5.35
Total available supply	16.16	18.38	18.52	10.26	11.31	12.05	6.89	7.37	7.37
Agricultural consumption	9.13	11.15	11.10	4.14	4.93	4.93	4.83	5.81	5.81
Exports	2.00	2.05	2.26	3.92 2/	4.33 2/	4.76 2/	.62	.53	.58
Total agricultural and export demand	11.13	13.20	13.36	8.06	9.26	9.69	5.45	6.34	6.39
Producers' ending inventory	2.00	1.66	1.75	.66	.81	.89	.46	.31	.37
Available for non-agricultural use	3.03	3.52	3.41	1.54	1.24	1.47	.98	.72	.61

1/ Forecast. 2/ Does not include phosphate rock.

Source: (1, 4, 5, 6).

prices have stabilized. Partial deregulation, along with plentiful oil supplies, have halted the recent rapid increases in natural gas prices. Thus, prices are not likely to increase with the partial deregulation of natural gas prices as of January 1, 1985.

For anhydrous ammonia producers, abundant supplies of oil will suppress any increases in gas prices. Oil is substituted for gas in commercial and industrial use and electrical generation. These substitutions should provide reasonably stable natural gas prices to firms that use gas as a feedstock to manufacture higher valued products, such as anhydrous ammonia.

Phosphate production could slow later in 1984/85. Movement of phosphate fertilizer materials into the domestic and export markets has not kept pace with production. Diammoniun phosphate inventories are higher than year-earlier levels.

U.S. potash production could increase slightly in 1984/85. Although imports also will increase, U.S. producers could maintain about the same share of the domestic market.

Nitrogen fertilizer production increased in 1983/84 in response to higher domestic demand (table 2). However, production gains for U.S. firms did not match increases in consumption, and much of the gain in nitrogen demand was supplied by imports. Anhydrous ammonia production increased about 9 percent to 15.1 million tons. The output of urea and solid ammonium nitrogen solution increased 30 percent.

Production of phosphate fertilizer materials also increased in 1983/84 in response to higher farm use and export demand. Total output of selected phosphate fertilizers was up 17 percent, after a 10-percent increase a year earlier. Diammonium phosphate production increased about 23 percent, and the output of other ammonium phosphates rose 12 percent. Wet-process phosphoric acid production, at 9.9 million tons, was up 15 percent. Production of triple superphosphate was down slightly as producers adjusted to reduced exports.

U.S. potash production in 1983/84, at 1.6 million tons, was down 10 percent, after a 16-percent decline the previous year. The U.S. industry was slow in responding to increased domestic demand in 1983/84, and Canadian producers further expanded their U.S. markets. New, less costly freight rates for moving potash to regional storage warehouses have aided the Canadian penetration of the U.S. market.

Canadian producers responded quickly to the turnaround in the potash market. Production increased 33 percent in 1983/84, as Canadian producers increased sales to the United States and other countries. However, U.S. producers are controlling production costs and attempting to improve their competitive position in 1984/85.

Imports

Nitrogen imports in 1984/85 could be unchanged from a year earlier (table 1). U.S. potash imports could be up about 1 percent.

Table 2--Production of fertilizer nutrients for years ending June 30

Material	1983	1984 1/	Annual change
	Thousand tons		Percent
Nitrogenous fertilizers: 2/			
Anhydrous ammonia 3/	13,768	15,068	9
Ammonium nitrate, solid	2,609	2,703	4
Urea 3/	5,600	6,304	13
Nitrogen solutions	2,211	2,879	30
Phosphate fertilizers: 4/			
Normal and enriched superphosphate	88	98	11
Triple superphosphate	1,164	1,155	(1)
Diammonium phosphate	4,151	5,101	23
Other ammonium phosphates	968	1,088	12
Total	6,371	7,442	17
Wet-process phosphoric acid 5/	8,615	9,883	15
Muriate of potash: 6/			
United States	1,807	1,620	(10)
Canada	5,929	7,888	33

( ) Numbers in parentheses are negative.

1/ Preliminary. 2/ Total not listed because nitrogen solutions are in 1,000 tons of N, while other nitrogen products are in 1,000 tons of material. 3/ Includes material for nonfertilizer use. 4/ Reported in 1,000 tons P_2O_5. 5/ Includes merchant acid. 6/ Reported in 1,000 tons of K_2O.

Source: (6).

Inventories

Generally, producer inventories of nitrogen fertilizer materials trended lower throughout 1983/84, with overall producer inventories down about 20 percent at the end of the year. Phosphate inventories declined early in the year, but second-half production brought end-of-year producer inventories 23 percent above beginning holdings. Potash inventories held by U.S. producers were down about a third in 1983/84, but Canadian inventories were up about 10 percent.

Farm Prices

Overall average fertilizer prices in spring 1985 could fall below last year, as unchanged domestic consumption and plentiful supplies reduce seasonal fall-to-spring price increases. Prices of nitrogen fertilizer materials are the most likely to reach year-earlier levels. Price increases for phosphate and potash materials will be dampened by an inventory buildup during late 1984 through early 1985.

Farm fertilizer prices in May 1984 averaged about 6 to 7 percent higher than a year earlier, but declined more than 5 percent by December (table 3). Anhydrous ammonia and diammonium phosphate prices dropped about 9 percent from May to December, while prices of triple superphosphate and potash fell 10 percent. Mixed fertilizer prices averaged 3 to 9 percent lower at the end of the year. However, December 1984 prices for urea, ammonium nitrate, and nitrogen solutions remained close to May levels.

The major share of fertilizer price advances in 1983/84 occurred between December 1983 and March 1984, as PIK-idled acreage was returned to production. The weather-delayed crop plantings slowed the movement of fertilizer to the fields in spring of 1984, resulting in a buildup of distributor inventories. The backup in distributors' fertilizer supplies caused wholesale and retail prices to level off or decline.

Fertilizer Trade

The volume of fertilizer imported in 1983/84 was up about 26 percent from the previous year, with values up about 23 percent (table 4). About 16.4 million tons of fertilizer materials with a value of $1.54 billion were imported. The volume of fertilizer materials exported was up about 7 percent, while value was up 5 percent (table 5). About 25.5 million tons of fertilizer materials valued at $2.3 billion were exported from the United States in 1984.

Nitrogen

According to U.S. Department of Commerce statistics, nitrogen imports in 1983/84 were up primarily because of a 52-percent increase in anhydrous ammonia and a 27-percent rise in urea imports (table 4).

Table 3--Average U.S. farm prices for selected fertilizer materials 1/

Year	Anhydrous ammonia (82%)	Triple superphosphate (44-46%)	Diammonium phosphate (18-46-0%)	Potash (60%)	Mixed fertilizer (6-24-24%)
			Dollars per ton		
1981: May	247	249	283	155	226
1982: May	255	228	262	155	219
1983: May	237	214	249	143	206
October	226	205	238	128	196
December	232	210	245	131	198
1984: May	280	231	271	147	217
October	259	210	250	134	205
December	252	208	246	132	202

1/ Based on a survey of fertilizer dealers conducted by the Statistical Reporting Service, USDA.

Table 4--U.S. imports of selected fertilizer materials for years ending June 30

Material	1982	1983	1984	1985 1/
	Thousand tons			
Nitrogen:				
Anhydrous ammonia	2,243	2,144	3,259	1,283
Urea	952	1,636	2,083	668
Ammonium nitrate	282	267	494	183
Ammonium sulfate	324	306	354	109
Sodium nitrate	141	117	108	38
Calcium nitrate	139	140	164	52
Nitrogen solutions	158	125	308	107
Other	66	81	125	106
Total	4,305	4,816	6,895	2,546
Phosphate:				
Ammonium phosphates	288	214	188	69
Crude phosphates	19	38	22	0
Phosphoric acid	40 6	*	1	
Normal and triple superphosphate	27	14	11	4
Other	11	8 4	*	
Total	385	280	225	74
Potash:				
Potassium chloride	7,981	7,323	8,574	3,419
Potassium sulfate	31	31	68	24
Potassium nitrate 2/	53	53	43	21
Total	8,065	7,407	8,685	3,464
Mixed fertilizers	146	120	134	37
Total	12,901	12,623	15,939	6,121
	Billion dollars			
Total value 3/	1.37	1.25	1.54	.65

* = Less than 1,000 tons.

1/ Preliminary data for July-November 1984. 2/ Includes potassium sodium nitrate. 3/ Value by fertilizer material in appendix table 1.

Source: (5).

Table 5--U.S. exports of selected fertilizer materials for years ending June 30

Material	1982	1983	1984	1985 1/
	Thousand tons			
Nitrogen:				
Anhydrous ammonia	758	426	390	237
Urea	1,754	1,317	1,034	526
Ammonium nitrate	73	29	19	18
Ammonium sulfate	581	660	692	363
Sodium nitrate	24	19	17	9
Nitrogen solutions	236	121	17	3
Other	158	57	62	10
Total	3,584	2,629	2,231	1,166
Processed phosphate:				
Normal superphosphate	19	62	41	1
Triple superphosphate	1,340	1,425	1,140	654
Diammonium phosphate	4,170	4,557	5,501	3,271
Other ammonium phosphate	292	312	500	272
Phosphoric acid	1,612	1,522	1,586	910
Other	18	9	5	0
Total	7,451	7,887	8,773	5,108
Phosphate rock 2/	11,031	11,913	13,425	4,949
Potash:				
Potassium chloride	706	723	567	256
Other	385	399	373	161
Total	1,091	1,122	940	417
Mixed fertilizers	316	187	134	56
Total	23,473	23,738	25,503	11,696
	Billion dollars			
Total value 3/	2.5	2.2	2.3	1.3

1/ Preliminary data for July-November 1984. 2/ Effective January 1984, phosphate rock exports include a small tonnage of miscellaneous fertilizers. 3/ Value by fertilizer material in appendix table 2.

Source: (4).

Together, anhydrous ammonia and urea accounted for about 77 percent of the nitrogen fertilizer materials imported, but 90 percent of 1983/84 nitrogen imports. Anhydrous ammonia made up 66 percent of the nitrogen nutrients imported, about the same portion as a year earlier. Urea accounted for about 24 percent of nitrogen imports, while nitrogen solutions and ammonium nitrate took 2 and 4 percent, respectively.

Canada remained the largest urea supplier, providing about 38 percent of U.S. imports. The Soviet Union was the second-ranking supplier, accounting for 25 percent, while Mexico provided 5 percent of U.S. urea imports.

Canada, with increased production capacity, provided about 30 percent of U.S. anhydrous ammonia imports in 1983/84. The Soviet Union increased its share of anhydrous ammonia imports, from 22 to 27 percent, while Mexico's share declined to 17 percent, from 25 percent a year earlier. Mexico's share of U.S. anhydrous ammonia imports dropped as it diverted anhydrous ammonia production from the export market to increased urea production for domestic consumption. Trinidad-Tobago's share of the U.S. market increased to 21 percent, from 18 percent. Trinidad-Tobago increased its

production of anhydrous ammonia in 1983/84, and shipped to the resurgent U.S. market.

Diammonium phosphate, urea, and anhydrous ammonia accounted for 87 percent of the nitrogen exports, about the same share as a year earlier (table 5). Diammonium phosphate accounted for 40 percent of nitrogen exports, while urea and anhydrous ammonia made up 30 and 17 percent, respectively. Asian shipments represented 68 percent of U.S. urea exports, with China taking 41 percent. Latin American shipments claimed about 18 percent of the total. With 11 percent, Canada was the only other important market for U.S. urea exports.

Nitrogen exports and imports early in 1984/85 were generally up from depressed year-earlier levels. The increase in exports reflected a more favorable world outlook for fertilizer use, while imports were up in anticipation that U.S. nitrogen fertilizer use could exceed the 1983/84 level.

Phosphate

Exports of phosphate fertilizer materials were a mixed picture in 1983/84. Exports of normal and triple superphosphate were down from a year earlier, while diammonium phosphate and phosphoric acid were up. At 5.5 million tons, diammonium phosphate accounted for 63 percent of U.S. exports of upgraded phosphate materials. Phosphoric acid exports increased about 4 percent and accounted for 18 percent of phosphate materials. Diammonium phosphate and phosphoric acid accounted for 58 and 23 percent, respectively, of phosphate exports.

India and China were the largest purchasers of diammonium phosphate, each taking about 15 percent of U.S. exports. Other large buyers were Belgium, Luxembourg, Taiwan, and Japan. The Soviet Union remained the largest purchaser of U.S. phosphoric acid.

Phosphate exports were also a mixed picture during July-November 1984. Phosphate rock exports were down 12 percent, while ammonium phosphate, triple superphosphate, and wet-process phosphoric acid exports were up substantially. Triple superphosphate exports rose about 24 percent, while diammonium phosphate climbed 65 percent and monoammonium phosphate exports were up nearly 50 percent. Exports of wet-process phosphoric acid increased 186 percent from depressed year-earlier levels.

Low prices for ammonium phosphates and triple superphosphate have encouraged exports of these items. On the other hand, phosphate rock exports are facing competition from Africa and the Middle East.

Potash

Imports of potash were up about 17 percent in 1983/84 (table 4). Potassium chloride remained the largest item, accounting for almost all of the potash imported. Canada provided about 90 percent of potassium chloride imports. Israel was the only other significant potassium chloride supplier, providing 6 percent of imports.

U.S. exports of potassic fertilizer materials were down about 16 percent in 1983/84 (table 5). Less than 1 million tons of potassic materials were shipped in 1983/84, with potassium chloride accounting for 60 percent of the shipments, while potassium sulfate made up about 10 percent.

During July-November 1984, U.S. potassium chloride imports rose about 4 percent from a year-earlier. Most of the increase came from Canada, where producers have abundant supplies. U.S. exports of potash have also been up in 1984/85 because of bigger shipments to Brazil.

Fertilizer Use Estimates

In the year ending June 30, 1984, about 50.2 million tons of fertilizer materials were used in the United States and Puerto Rico (table 6). This represented a 20-percent increase from the 41.8 million tons consumed in 1982/83. In terms of total plant nutrients, use was up 21 percent to 21.9 million tons. Nitrogen applications increased 22 percent to 11.1 million tons. Phosphate use was up 19 percent to 4.9 million tons, while potash use was up 20 percent to 5.8 million tons.

More fertilizer was used in all regions of the country in 1983/84. The increases were greatest in the Corn Belt and Lake States, the result of a sharp rise in corn acreage (table

Table 6--U.S. fertilizer consumption 1/

Year ending June 30	Total fertilizer materials	Primary nutrient use				Change from 1977
		N	P_2O_5	K_2O	Total 2/	
	Million tons					Percent
1975	42.5	8.6	4.5	4.5	17.6	80
1976	49.2	10.4	5.2	5.2	20.8	94
1977	51.6	10.6	5.6	5.8	22.1	100
1978	47.5	10.0	5.1	5.5	20.6	93
1979	51.5	10.7	5.6	6.2	22.6	102
1980	52.8	11.4	5.4	6.2	23.1	105
1981	54.0	11.9	5.4	6.3	23.7	107
1982	48.7	11.0	4.8	5.6	21.4	97
1983	41.8	9.1	4.1	4.8	18.1	82
1984	50.2	11.1	4.9	5.8	21.9	99

1/ Includes Puerto Rico. Detailed State data shown in appendix table 3. 2/ Totals may not add due to rounding.

7). Nitrogen and phosphate use also increased the most in corn-growing regions (table 8). On a percentage basis, the potash use increase was the highest in the Mountain region, but on a quantity basis, use increased more in the Corn Belt and Lakes States.

The portion of fertilizers applied as mixtures continued to decline, dropping to 42 percent of total use in 1983/84 (table 9). Direct application materials have gained an increasing share of the market, rising to 58 percent last year.

Fertilizer application rates were generally up in 1983/84 (table 10). Nitrogen application rates on corn and wheat were at record levels, while potash application rates for corn and soybeans also hit all-time highs.

Corn for Grain

Some fertilizer was applied to 97 percent of the harvested corn acreage in 1983/84. The portion of corn acres on which nitrogen was used increased slightly, while the share fertilized with phosphate and potash declined from year-earlier levels. In 1983/84, the nitrogen application rate reached a record 138 pounds an acre. Phosphate and potash application rates also increased, to 65 and 87 pounds an acre, respectively.

Cotton

About 77 percent of the harvested cotton acreage received some fertilizer, up from 68 percent in 1982/83. Compared with 1982/83, the proportion of cotton acreage fertilized with nitrogen increased from 68 to 76 percent. The share of cotton acreage fertilized with phosphate increased from 44 to 48 percent, while that fertilized with potash rose from 30 to 32 percent. Nitrogen application rates did not change from a year earlier. Phosphate application rates changed the most, increasing 3 pounds to 48 pounds, while potash use increased a pound per acre to 53.

Table 7--Regional plant nutrient consumption for years ending June 30 1/

Region	1983	1984	Annual increase
	Thousand tons		Percent
Northeast	771	826	7
Lake States	2,092	2,716	30
Corn Belt	5,826	7,352	26
Northern Plains	1,955	2,278	17
Appalachia	1,510	1,722	14
Southeast	1,546	1,751	13
Delta States	855	1,053	23
Southern Plains	1,353	1,652	22
Mountain	896	1,023	14
Pacific 2/	1,266	1,483	17
U.S. total 3/	18,071	21,855	21

1/ Totals may not add due to rounding. 2/ Includes Alaska and Hawaii. 3/ Excludes Puerto Rico. Detailed State data shown in appendix table 3.

Table 8--Regional plant nutrient use for years ending June 30 1/

Region	1983	1984	Annual increase
	Thousand tons		Percent
Nitrogen:			
Northeast	285	312	9
Lake States	795	1,057	33
Corn Belt	2,548	3,316	30
Northern Plains	1,416	1,643	16
Appalachia	574	682	19
Southeast	644	736	14
Delta States	458	560	23
Southern Plains	899	1,118	24
Mountain	625	701	12
Pacific 2/	871	1,009	16
U.S. total 3/	9,116	11,134	22
Phosphate:			
Northeast	225	237	5
Lake States	475	618	30
Corn Belt	1,309	1,608	23
Northern Plains	429	510	19
Appalachia	392	434	11
Southeast	311	354	14
Delta States	171	208	22
Southern Plains	319	377	18
Mountain	239	276	15
Pacific 2/	263	303	15
U.S. total 3/	4,133	4,924	19
Potash:			
Northeast	261	278	7
Lake States	822	1,041	27
Corn Belt	1,969	2,428	23
Northern Plains	110	125	14
Appalachia	544	606	11
Southeast	591	661	12
Delta States	227	285	26
Southern Plains	136	157	15
Mountain	31	46	48
Pacific 2/	132	171	30
U.S. total 3/	4,821	5,797	20

1/ Totals may not add due to rounding.
2/ Includes Alaska and Hawaii. 3/ Excludes Puerto Rico. Detailed State data shown in appendix table 3.

Soybeans

The portion of soybean acres fertilized with each of the three plant nutrients remained the same as a year earlier, with nitrogen at 20 percent, phosphate 30 percent, and potash 32 percent. Nitrogen use decreased to 17 pounds, while phosphate and potash use rose to 46 and 72, respectively.

All Wheat

A record 76 percent of the 1983/84 harvested wheat acreage was fertilized. Nitrogen was applied on 76 percent of the acres, phosphate on 49, and potash on 17. Nitrogen application rates increased 2 pounds an acre to 62 pounds, while phosphate application rates were down 2 pounds to 37. Potash application rates declined the same amount to 46 pounds.

World Fertilizer Review and Prospects

Production

World plant nutrient production in 1982/83 increased 1 percent to about 121 million metric tons (table 11). Nitrogen production rose about 2 percent to 63.4 million tons, while phosphate output was up almost 4 percent to 33 million tons. Potash production declined about 5 percent to 24.4 million tons.

Increased nitrogen production in the developing countries contributed heavily to the higher world output. Latin American production was up as Mexico and Brazil sought to increase foreign exchange earnings through exports of anhydrous ammonia and urea. In the developing countries of Asia, nitrogen production rose largely because of added production capacity in India and Indonesia. In the Middle East, Saudi Arabia increased nitrogen production in its effort to utilize abundant natural gas reserves.

Table 9--Average annual U.S. fertilizer use 1/

Year ending June 30	All fertilizer	Mixtures 2/		Materials 3/	
		Quantity	Share of total	Quantity	Share of total
	Million tons		Percent	Million tons	Percent
1975	42.5	20.6	49	21.8	51
1976	49.2	23.0	47	26.2	53
1977	51.6	24.1	47	27.5	53
1978	47.5	22.1	47	25.4	53
1979	51.5	23.7	46	27.7	54
1980	52.8	23.3	44	29.5	56
1981	54.0	23.5	44	30.5	56
1982	48.7	20.9	43	27.8	57
1983	41.8	18.4	44	23.5	56
1984	50.2	21.2	42	29.0	58

1/ Includes Puerto Rico. 2/ Materials that contain more than one primary nutrient. 3/ Fertilizer materials that contain one primary nutrient.

Table 10--Fertilizer use on selected U.S. field crops

Crop, year	Total harvested acreage	Harvested acres receiving				Application rates		
		Any fertilizer	N	P_2O_5	K_2O	N	P_2O_5	K_2O
	Million acres	Percent				Pounds		
Corn for grain:								
1980	73.0	96	96	87	81	130	66	86
1981	74.5	97	97	90	84	137	67	86
1982	72.7	97	97	88	84	135	65	86
1983	51.5	96	96	88	83	137	64	85
1984	71.8	97	97	87	82	138	65	87
Cotton:								
1980	13.2	71	71	48	30	72	46	46
1981	13.8	75	75	52	30	72	46	46
1982	9.7	71	71	41	30	82	46	55
1983	7.3	68	68	44	30	81	45	52
1984	10.5	77	76	48	32	81	48	53
Soybeans:								
1980	67.8	37	23	35	36	17	46	70
1981	66.2	36	21	33	35	18	46	76
1982	69.4	30	17	27	29	17	43	68
1983	62.5	33	20	30	32	18	45	70
1984	66.1	34	20	30	32	17	46	72
All wheat:								
1980	71.1	67	67	43	18	58	39	40
1981	80.6	70	70	47	20	58	39	47
1982	77.9	70	70	45	18	59	37	41
1983	61.4	73	72	48	20	60	39	48
1984	66.9	76	76	49	17	62	37	46

1/ Detail for States by crop are found in appendix tables 6 and 7.

Table 11--World plant nutrient production and consumption for years ending June 30

Plant nutrient	1982	1983	Annual change
	Million metric tons		Percent
Production: 1/			
Nitrogen	62.3	63.4	1.8
Phosphate	31.8	33.0	3.8
Potash	25.6	24.4	(4.7)
Total	119.7	120.8	.9
Consumption:			
Nitrogen	60.3	61.0	1.2
Phosphate	30.9	30.8	(.3)
Potash	23.8	22.8	(4.2)
Total	115.0	114.6	(.3)

( ) Numbers in parentheses are negative.

1/ Includes production for industrial uses.

Source: (3).

Among the developed countries, Western Europe increased 1982/83 nitrogen production 2 percent to match a marginal rise in domestic consumption. In North America, many U.S. ammonia and urea plants were idled because they were caught in a cost-price squeeze between higher natural gas prices and depressed world prices for their products. As a result of the plant closings, North American production dropped 14 percent.

In centrally-planned countries, production bottlenecks have slowed output increases in Eastern Europe and the Soviet Union. The construction of new anhydrous ammonia and urea plants has, however, offset the low operating levels of existing plants. Consequently, Eastern Europe and the Soviet Union achieved a 6.3-percent increase in production in 1982/83, compared with only 3.6 percent in 1981/82.

The centrally-planned countries of Asia, mainly China, increased nitrogen production 3.4 percent. A shortage of foreign exchange has recently reduced China's ability to build new plants.

Final figures for 1984 are expected to show that world nitrogen fertilizer production increased at a much faster rate than in 1983. This short-term production increase was mostly due to a 7-percent expansion in U.S. output, as idle U.S. plants were restarted to match a rebound in domestic consumption.

In 1982/83, an 8-percent increase in U.S. output accounted for about half of the 1.1-million-ton increase (6.2 percent) in world production of processed phosphate fertilizers. Other countries that increased phosphate production in 1982/83 were located in Eastern Europe, Africa, and the Middle East. In 1981/82, world production declined 8 percent, creating extremely low inventories that had to be rebuilt in 1982/83. In 1982/83, however, phosphate manufacturers overproduced in anticipation of a rebound in world consumption.

Estimates for 1984 show an increase in world phosphate production, largely because of higher demand in the developed countries. Phosphate rock output closely parallels the production of finished phosphate fertilizer. Consequently, 10 million tons of phosphate rock capacity returned to production in 1984, leaving only 1.8 million tons of idle capacity. Also, as of June 1984, ending inventories of phosphate rock held by U.S. firms were down 36 percent from the previous year.

While nitrogen and phosphate production increased, the production of potash was down in 1982/83. Potash's 4.7-percent decline was primarily the result of an 11-percent drop in Canadian production, which coincided with a 2-year decline in U.S. potash consumption.

Other major potash production regions also reduced production. Potash output in Western Europe was down in 1981/82 and 1982/83, and Eastern Europe reduced production in 1982/83. Preliminary figures indicate that world potash production, like phosphate production, increased in 1984. The major contributing factor was the return to production of U.S. crop acreage idled by the 1983 PIK program.

Generally, world production of all types of fertilizer should be adequate to meet expected world demand through 1988/89. Sufficient raw materials, together with planned capacity utilization and rates of expansion, should provide adequate supplies. Projected surpluses in world nitrogen production are expected to increase until 1985/86, and then decline through 1988/89 (appendix table 8). Given current and planned production capacity, a deficit in nitrogen supplies could occur by 1988/89 as a result of increased demand in developing countries.

Between 1983/84 and 1988/89, world nitrogen production is projected to increase 19 percent, from 64.5 to 76.8 million tons. Expanded production in developing countries with abundant natural gas reserves and fertilizer production capacity will probably contribute 5.7 million tons of nitrogen, or 46 percent of the world increase. Production in the developed countries is expected to contribute about 3.4 million tons, accounting for about 28 percent of the increase in nitrogen production.

Most of the increased production in the developed world will come from an expansion in Canadian capacity and the reopening of idle U.S. capacity. West European producers, because of stagnation in their own markets, are projected to increase nitrogen production at a much slower rate than North American producers. Eastern Europe and the Soviet Union are expected to contribute 17 percent or 2.1 million tons of nitrogen to the increased world total, while the centrally-planned countries of Asia will contribute about 9 percent. From 1983/84 through 1988/89, the developing countries are projected to increase their share of world nitrogen production from 19 to 23 percent, while production shares in all other regions are expected to decline (table 13).

Between 1983/84 and 1988/89, world phosphate production is projected to increase 14.7 percent--a smaller rise than for nitrogen production (table 12). Throughout this period, the world phosphate market is projected to be in oversupply by 2 to 4 million tons annually (appendix table 9).

The developing countries are projected to account for about 48 percent of the 5.2-million-ton increase in world phosphate production between 1983/84 and 1988/89. Morocco and Tunisia, with abundant reserves of phosphate rock, will be the dominant producers.

Growth in phosphate production in the developed countries will not match the growth in the developing nations. West European production is expected to change little because of stable demand. Meanwhile, North American phosphate production is forecast to increase 12 percent and account for 21 percent of the worldwide expansion. China is expected to increase production about 18 percent and to account for about 10 percent of the world increase. Production in Eastern Europe and the Soviet Union could be up about 12 percent and account for about 20 percent of the rise in world output.

Between 1983/84 and 1988/89, the share of world phosphate production held by developed countries is projected to fall (table 13). African countries with large reserves of phosphate rock are projected to claim the largest increase in market share. Eastern Europe and the Soviet Union's share of world production is expected to remain the same at 23 percent.

Between 1983/84 and 1988/89, world production of potash is projected to increase 15 percent (table 12). In absolute terms, the developed market economies and Eastern Europe will have the largest gains. Although the percentage increase in production projected for the developing countries is high at 153 percent, their absolute increase is insignificant because of currently very low production.

Within the next 5 years, shifts in world potash production shares are expected to

Table 12--Projected 1984-89 change in world fertilizer supply and demand 1/

World regions	Nitrogen	Phosphate	Potash
	Percent increase		
Supply:			
Developed market economies	16.1	6.2	11.0
Developing market economies	46.4	41.6	153.3
Eastern Europe and the Soviet Union	10.9	12.4	16.8
Centrally-planned countries of Asia	9.4	18.3	0.0
Total	19.1	14.7	15.0
Demand:			
Developed market economies	17.6	15.1	13.5
Developing market economies	34.0	40.0	37.0
Eastern Europe and the Soviet Union	20.7	13.7	23.5
Centrally-planned countries of Asia	10.4	24.3	40.0
Total	20.4	20.7	20.9

1/ Detail in appendix tables 8, 9, and 10.

Source: (2).

occur among the developed countries (table 13). North America's share, largely accounted for by Canada, will increase at the expense of Western Europe. Eastern Europe and the Soviet Union may maintain the same share in 1988/89 as in 1983/84, about 42 percent.

Consumption

World fertilizer consumption in 1983 decreased by less than 1 percent from a year earlier, to about 115 million tons (table 11). Nitrogen consumption rose more than 1 percent, while potash and phosphate consumption declined by 4.2 and 0.3 percent, respectively.

Nitrogen consumption in the developed countries decreased 5.6 percent in 1982/83. Most of this decline occurred in North America because of a sharp drop in crop acres. In Western Europe, nitrogen fertilizer consumption was up as crop prices continued to be heavily subsidized by the European Community.

In 1982/83, the developing countries increased nitrogen consumption more than 4 percent. Countries such as Pakistan and Indonesia, with historically low application rates, were increasing use. Turkey is expected to increase its nitrogen fertilizer application rates as more land is brought under irrigation.

Nitrogen consumption in Latin America remained about the same between 1981/82 and 1982/83. Mexico increased nitrogen use because of plentiful domestic supplies at economical prices. On the other hand, nitrogen consumption in Brazil declined because of a decrease in subsidized rural credit.

Large supplies of nitrogen resulting from greatly expanded production capacity enabled Eastern Europe and the Soviet Union to

Table 13--Projected regional shares of world fertilizer supply capabilities and demand 1/

World regions	Nitrogen		Phosphate		Potash	
	1984	1989	1984	1989	1984	1989
	Percent					
Supply:						
Developed market economies--	32.4	31.6	51.2	47.4	57.4	55.4
North America	15.4	16.1	25.4	24.8	34.4	35.9
Western Europe	14.9	13.8	16.7	14.6	19.1	15.8
Oceania	0.4	0.3	3.8	3.4	0	0
Other countries	1.7	1.4	5.3	4.6	3.9	3.7
Developing market economies--	19.0	23.4	17.0	20.9	1.1	2.4
Africa	0.4	0.8	5.7	8.0	0	0
Latin America	5.4	5.3	4.3	4.8	0.1	0.7
Asia	13.2	17.3	7.0	8.1	1.0	1.7
Eastern Europe and the Soviet Union	30.6	28.5	23.5	23.0	41.5	42.1
Centrally-planned countries of Asia	18.0	16.5	8.3	8.7	0.7	0.1
Demand:						
Developed market economies--	34.6	33.9	39.6	37.8	49.3	46.3
North America	16.4	16.6	15.5	15.4	23.3	22.6
Western Europe	16.0	15.1	16.8	15.3	22.0	19.6
Oceania	0.4	0.4	3.7	3.5	1.0	1.0
Other countries	1.8	1.8	3.6	3.6	3.0	3.1
Eastern Europe and the Soviet Union	22.5	22.5	29.5	27.7	34.5	35.2
Centrally-planned countries of Asia	20.8	19.0	10.8	11.2	3.0	3.5
Developing market economies--	22.1	24.6	20.1	23.3	13.2	15.0
Africa	1.2	1.3	1.5	1.8	1.2	1.3
Latin America	4.5	5.1	5.9	7.7	5.6	6.8
Asia	16.4	18.2	12.7	13.8	6.4	6.9

1/ Forecasts for year ending June 30.

Source: (2).

increase consumption more than 5 percent. The centrally-planned countries of Asia, mainly China, also increased nitrogen fertilizer use to improve crop yields.

For 1983/84, global disappearance of nitrogen fertilizer was estimated to increase 6 to 8 percent from the previous year. The improved outlook largely stemmed from increased U.S. consumption, up 22 percent. Countries with favorable fertilizer/crop price ratios, such as India, also used more nitrogen fertilizer in 1983/84.

In 1982/83, phosphate consumption was about equal to a year earlier. Increased consumption in developing and centrally-planned countries almost offset reduced demand in the developed nations, particularly North America. Increased use in India, Indonesia, and Turkey contributed heavily to overall use in the developing countries of Asia. In Latin America, consumption was down, largely because of import quotas imposed by Brazil.

In North America, phosphate consumption dropped sharply because of reduced U.S. crop acreage. West European countries maintained phosphate use at about the same level as the previous year, because crop price supports made continued use profitable.

In 1983/84, world consumption of phosphate fertilizer was expected to be up about 5 to 6 percent because of a rebound in use in the developed countries and continued consumption growth in developing and centrally-planned nations.

In 1982/83, potash consumption declined 4.2 percent as a result of reduced use in the developed countries. The centrally-planned countries of Eastern Europe and Asia also sustained a large drop in consumption. Reduced production in Eastern Europe and the Soviet Union limited available supplies in that area, while China, in an effort to conserve foreign exchange, cut potash imports.

In 1983/84, world potash consumption, like nitrogen and phosphate consumption, will likely show a substantial gain over the depressed 1982/83 level. Indications are that global consumption of potash was up about 8 percent from 1982/83. Greater demand in the developed countries was largely responsible for the rebound.

Between 1983/84 and 1988/89, nitrogen fertilizer consumption is expected to increase 20 percent, from 64.5 to 77.7 million tons (appendix table 8). Growth during the 5-year period is projected to be the highest in the developing countries, with consumption likely to rise 34 percent and to account for 37 percent of the world increase.

Eastern Europe and the Soviet Union are expected to increase consumption about 21 percent, which will account for 23 percent of the world increase. Meanwhile, the developed countries are projected to increase nitrogen consumption 22 percent and to account for 30 percent of the world increase. The centrally-planned countries of Asia, at 10 percent, are projected to have the lowest growth in nitrogen fertilizer use, accounting for 11 percent of the world increase. China, whose farmers already use a high proportion of nitrogen to phosphate and potash, is seeking to slow the growth in nitrogen use to obtain a better balance in plant nutrient use.

During the 5-year forecast period, the developing countries should increase their share of world nitrogen consumption slightly at the expense of the developed market economies and centrally-planned countries of Asia (table 13). Eastern Europe and the Soviet Union are projected to retain their share of world nitrogen consumption.

World phosphate consumption is projected to increase 21 percent, from 32.3 to 39 million tons (appendix table 9). Phospate consumption in the developing countries is projected to increase 40 percent and to account for 39 percent of the world increase, while consumption in the developed countries is forecast up 15 percent, about 29 percent of world growth. Consumption in the centrally-planned countries will be up by 17 percent and account for 32 percent of the increased world consumption.

Between 1983/84 and 1988/89, the developed countries and Eastern Europe and the Soviet Union are expected to have smaller world shares of phosphate consumption (table 13). In North America and Western Europe, almost stable application rates and crop acreages will reduce their shares 2 percent. Eastern Europe and the Soviet Union's share will decrease as phosphate imports are curtailed to conserve foreign exchange. The

developing nations and the centrally-planned countries of Asia will increase their share of world phosphate consumption as they improve crop yields through more balanced fertilizer use.

Between 1983/84 and 1988/89, worldwide potash use also is projected to increase 21 percent, from 24.7 to 29.8 million tons (appendix table 10). Growth in potash consumption will be greatest in the centrally-planned countries of Asia. Developing countries will also increase potash use. Consumption in Eastern Europe and the Soviet Union, with plentiful supplies of potash, should be up 23.5 percent. The developed countries, which currently account for half of world consumption, are projected to increase consumption by only 13.5 percent during the 5-year forecast period.

In 1988/89, developing countries are expected to account for about 15 percent of total world potash consumption, still well below the 46 percent used by developed countries (table 13). The share held by developing countries will increase slightly in response to higher use in Brazil and Mexico. Eastern Europe and the Soviet Union and the centrally-planned countries of Asia will increase their shares slightly to just over 35 percent of world potash consumption.

World Trade Developments

Eastern Europe and the Soviet Union should remain the dominant nitrogen exporters. However, expansion of anhydrous ammonia production capacity by the Soviet Union in the next decade probably will not match the capacity added during 1975-85. A greater share of their production will be used domestically, thus limiting exports. Reduced imports from Eastern Europe and the Soviet Union could stimulate additional production in Western Europe. Recent expansion in anhydrous ammonia production capacity in the Netherlands is one such example.

Canada is expected to add to its anhydrous ammonia production capacity. Greater capacity in western Canada would be used to increase shipments to the nearby U.S. Corn Belt. Proposed capacity additions in eastern Canada would serve western Europe and the eastern United States.

In Latin America, Mexico is reducing exports of anhydrous ammonia and diverting it to that country's expanding urea industry. Meanwhile, temporary reductions in domestic consumption of nitrogen fertilizer have encouraged Brazil to enter the anhydrous ammonia export market. Renewed consumption of nitrogen could, however, cause Brazil to withdraw from the export market.

Shifts are also occurring in urea trade patterns. Producers in Eastern Europe and the Middle East have been penetrating the Asian market once dominated by Japan and South Korea. In addition, Bangladesh, Malaysia, and Indonesia are projected to generate surpluses, which can be exported to nearby Asian markets. However, as domestic demand increases, these countries' exportable surpluses of urea could decline.

Morocco and Tunisia, the second- and third-leading phosphate rock exporters, have built phosphoric acid plants, enabling them to become serious participants in the processed phosphate fertilizer market. Such countries do not, however, have large indigenous supplies of sulfur for producing sulfuric acid, which is necessary for treating phosphate rock to produce phosphoric acid. During periods of tight sulfur supplies, U.S. phosphoric acid producers, which have more direct access to sulfur supplies, could have a competitive advantage.

Canada, the German Democratic Republic, and the Soviet Union are the dominant exporters of potash, and Canada is expected to gain further dominance. A greater portion of Eastern Europe's production will go for domestic use, enabling Canada to further penetrate the large Indian and Chinese markets, where Eastern Europe previously had a freight advantage. Canada is also developing a potash export market with Brazil.

Potash deposits have been discovered in Brazil. The first potash mine is currently under development, but production may not begin before 1987. Brazil probably will continue to import potash in the foreseeable future, because potash deposits are in remote areas and the cost of developing these supplies is more expensive than imports.

China should continue to be a major importer of potash. Its potash needs are

great, and the development of scattered potash deposits within its borders will not be sufficient.

World Fertilizer Prices

Higher world fertilizer prices in 1983/84 reflected improved demand. Generally, fertilizer prices remained stable in the third and fourth quarters of 1983 and advanced in the first and second quarters of 1984. Nitrogen prices advanced the most, reflecting a tighter supply situation. Phosphate and potash prices advanced less, as adequate production capacity kept supplies moving into the market in a timely manner.

The rebound in U.S. fertilizer use and increased use of plant nutrients in Asia were probably the most important reasons for increases in fertilizer prices in 1984, following 2 years of decline. In the third and fourth quarters of 1984, large orders by India, China, Turkey, and Iran supported diammonium phosphate prices, while orders by Egypt and Bangladesh supported triple superphosphate prices. Import orders by India and China and the resumption of potash imports by Brazil firmed potash prices.

The prices of raw materials used in the production of finished fertilizers showed several trends. During early 1984, ammonia prices increased as very low inventories and reduced exports from the Soviet Union created a tight supply situation. Between mid-1983 and mid-1984, phosphate rock prices increased very moderately. The quick return of idle U.S. capacity to production prevented phosphate rock prices from rising more than they did. Morocco, the world's second largest producer of phosphate rock, along with the Soviet Union, also boosted production.

In 1984, both solid and liquid sulfur prices increased sharply from 1983 because of reduced production and exports from Saudi Arabia and Iraq. Saudi Arabia's reduced oil production decreased the amount of recovered sulfur, which is a byproduct of oil production. Meanwhile, because of war, Iraq was unable to export sulfur.

Government Policy

A large number of new fertilizer projects in Eastern Europe and the Soviet Union, China, India, and Indonesia has raised the percentage of State-owned world fertilizer capacity from 40 percent in 1970 to 60 percent in 1983.

Many developing countries have found fertilizer transportation costs from plants to markets excessive. These countries are, therefore, giving more consideration to fertilizer plant location. For example, India had previously located anhydrous ammonia and urea plants near natural gas fields. To reduce transportation costs, the Indian Government is now planning to build anhydrous ammonia plants closer to their markets. To accomplish this, a gas pipeline network from the Bombay High gas fields to plants located in market areas is being built.

Argentina and Brazil are more closely integrating policies affecting fertilizer use and agricultural production. The Argentine Government is encouraging more intense fertilizer use to increase agricultural output and to earn foreign exchange through the export of farm commodities. To make fertilizer prices more favorable to the farmer, it has eliminated fertilizer import duties. The Government has also reduced the value-added tax on fertilizer purchases, from 18 to 5 percent.

Brazil had previously limited potash and phosphate imports, but to stimulate agricultural output, the Government lifted these restrictions. Like Argentina, its strategy is to pay for imported fertilizer with foreign exchange earnings from the export of agricultural commodities.

The European Community is seriously considering paying farmers to reduce agricultural output, rather than supporting farm prices and subsidizing the disposal of agricultural surpluses. A reduction in agricultural output could reduce fertilizer use.

FARM MACHINERY

Expenditures for farm machinery in 1985 are forecast to remain about the same or rise up to 3 percent from the estimated 1984 level of $7.4 billion. Farm financial conditions this year are forecast to be the same as in 1984, but real interest rates may be slightly lower.

U.S. farmers purchased fewer machinery items in 1984 than in recent years. Unit purchases of over-40 horsepower (hp) two-wheel drive tractors in 1984 were 26 percent below the 1980-83 annual average, and all four-wheel drive unit purchases dropped 51 percent. Unit purchases of the major grain and forage harvesting equipment also were down 21 to 46 percent from the 1980-83 annual average. Unit purchases in 1985 are forecast at year-earlier levels.

Domestic supplies of farm machinery are high relative to current and projected demand. With demand for farm machinery continuing a 5-year slide, domestic manufacturers drastically cut production in second-half 1984 to lower inventories and reduce total costs. Even with production cuts, as of November 1984, inventory-to-purchase ratios for all over-40 hp tractors and major harvesting equipment items, excluding corn heads, forage harvesters, and self-propelled combines, increased from year-earlier levels. Domestic plant capacity utilization for tractors and combines in December 1984 stood at about 8 percent. Most plants are not expected to reopen in early 1985.

The farm machinery trade balance for January-October 1984 dropped 27 percent to $478 million from a year earlier. U.S. exports and imports of farm machinery rose 16 and 37 percent, respectively. Australia, Canada, and Saudi Arabia are the major U.S. farm machinery export markets, while shipments of small- and medium-sized tractors from Italy, Japan, the United Kingdom, and West Germany account for the most significant import trend.

Demand

Financial Conditions

U.S. farmers are forecast to purchase $7.35 to $7.65 billion of farm machinery in 1985 (table 14). Current demand projections for 1985 are similar to the November 1984 outlook ($7.3-$7.8 billion), although interest rates this year are now projected lower than in late 1984, and the estimated debt-asset ratio for January 1, 1985, has improved slightly.

Although real market interest rates in 1985 currently are expected to be lower than in 1984, they should remain near historical highs. Adjusted for inflation and taxes, the annual average PCA rate is forecast between 5.1 and 5.65 percent, compared with 5.61 percent in 1984. Interest rates could drop slightly during the first half of 1985, but are expected to rise during the rest of the year. Real total interest expenditures are forecast to range from $9.45 to $11.16 billion in 1985, compared with $10.3 billion last year.

With input prices expected to rise very little this year, real total production expenses are projected to drop from $63.6 billion in 1984 to between $61 to $63.2 billion. Consequently, the proportion of interest expenses to total production expenses will remain high, ranging between 15.5 to 17.7 percent this year, compared with 16.2 percent in 1984.

The farm equity outlook for 1985 is expected to be similar to conditions in 1984. The debt-asset ratio for January 1, 1985, is forecast at 20.7, down slightly from 20.8 a year earlier. Real total farm debt is expected to fall 5.2 percent, from about $96.1 billion in 1984 to $91.1 billion this year. Also, the real value of total farm assets is forecast to fall 4.9 percent. Real estate assets, which account for about three-fourths of total farm assets, however, are projected to drop 6 percent in value, from $342.4 billion in 1984 to $321.7 billion this year, as declining cropland values continue their 4-year slide.

Current farm income projections for 1985 are not as favorable as expectations for the financial indicators mentioned previously. Real net farm and net cash income are both forecast to fall this year, as domestic commodity supplies rise and prices decline. Real net farm income currently is expected to total between $8 to $10 billion in 1985, down from $13 to $15 billion in 1984. Real net cash income is projected to fall to between $13 to $15 billion, down from $15 to $17 billion from last year.

Table 14--U.S. farm machinery trends

Item	1979	1980	1981	1982	1983	Projected 1984	Projected 1985
				Billion dollars			
Nominal expenditures:							
Tractors	3.75	3.68	3.74	2.88	2.77	2.70	2.63-2.82
Other machinery	8.00	6.96	6.48	5.10	4.85	4.70	4.72-4.83
Total	11.75	10.64	10.22	7.98	7.62	7.40	7.35-7.65
Factors affecting demand: 1/							
Interest expenses	7.99	9.11	10.18	10.72	9.87	10.30	9.45-11.16
Total production expenses	72.24	72.27	70.15	67.42	62.85	63.59	60.97-63.18
Outstanding farm debt 2/	86.17	92.93	93.24	97.48	100.47	96.14	91.11
Real estate assets 2/	400.80	423.66	424.51	395.83	357.26	342.36	321.68
Net farm income	19.76	11.94	15.89	10.78	7.48	13-15	8-10
Net cash income	22.95	21.13	17.94	17.79	18.63	15-17	13-15
				Percent			
After-tax PCA interest rate 3/	-0.72	0.38	1.47	4.92	4.89	5.61	5.08-5.64
Interest expenses as a share of total production expenses	11.1	12.6	14.5	15.9	15.7	16.2	15.5-17.7
Debt-asset ratio 2/	16.1	16.5	16.7	18.6	20.7	20.8	20.7

1/ Deflated using the GNP implicit price deflator (1972 = 100). 2/ Computed based on nominal dollar balance sheet data, including farm households. 3/ Production Credit Association.

Overall, farm financial conditions in 1985 will remain relatively the same as last year. The possibility of lower interest rates appears to be the most probable financial improvement for the agricultural sector during 1985.

Two other factors will have a large influence on demand for farm machinery this year. The effect of the merger between Tenneco's J.I. Case and IH's farm equipment division could influence the North American farm machinery market during early 1985. If Case-IH liquidates IH's inventory of high-powered tractors and combines, it could heighten price competition during 1985. Farmers that are in relatively good financial condition and are thinking about buying new farm machinery will benefit from this increased competition. Also, the eventual outcome of the 1985 Farm Bill will influence long-term demand for farm machinery. In summary, demand for farm machinery in 1985 is forecast to remain at or rise slightly from 1984 levels.

Unit Purchases

The steady decline in demand for farm machinery, which began in 1980, continued during 1984. Purchases of all reported major agricultural machinery items were off sharply from average annual purchases in the early 1970's. Domestic tractor sales show that farmers are buying smaller powered units. Purchases of 40-99 hp and over-100 hp two-wheel drive tractors in 1984 fell about 19 and 35 percent, respectively, below average annual purchases during 1980-83, and about 43 and 62 percent below 1973-1979 annual averages (table 15). Four-wheel drive tractor purchases in 1984 were off even further from recent levels, falling 51 percent below the 1980-83 annual average and 56 percent from the 1973-79 average.

Purchases of under-40 hp two-wheel drive tractors in 1984, however, were up sharply from historical averages, rising about 16 percent from the 1980-83 annual average and 108 percent above the 1973-79 average. These sales are made primarily in nonagricultural markets and do not reflect changing tractor demand on commercial farms.

Purchases of major grain and forage harvesting equipment during 1984 also were well below historical annual averages. Baler, forage harvester, and mower conditioner

Table 15--Domestic farm machinery purchases 1/

Machinery category	Annual average		Projected 3/	Change in 1984 from average for	
	1973-79 2/	1980-83	1984	1973-79 2/	1980-83
	Units			Percent	
Tractors:					
Two-wheel drive--					
Under 40 hp	24,464	43,768	50,934	108.2	16.4
40-99 hp	66,798	47,093	38,270	-42.7	-18.7
100-200 hp	64,857	37,728	24,505	-62.2	-35.0
Four-wheel drive	9,074	8,113	3,977	-56.2	-51.0
Harvesting machinery:					
Balers 4/	25,763	11,401	8,313	-67.7	-27.1
Forage harvesters 5/	14,063	6,573	3,539	-74.8	-46.2
Mower conditioners	24,505	16,552	13,057	-46.7	-21.1
Self-propelled combines	31,568	20,386	11,441	-63.8	-43.9

1/ Sales of some machinery categories are not reported each year in the time series. Annual averages for each category were computed for the actual number of years in which data are reported. 2/ Annual averages for harvesting equipment are for 1972 through 1979. 3/ Final January-November purchases plus preliminary December purchases. 4/ Producing bales up to 200 pounds. 5/ Shear bar type.

Source: Farm and Industrial Equipment Institute. November 1984 U.S. Retail Sales of Wheel Tractors and Selected Machinery and previous reports, plus December 1984 FED FLASH REPORT.

purchases this year were down 27, 46, and 21 percent, respectively, from 1980-83 averages and were down approximately double these amounts compared with 1972-79 averages. Final 1984 purchase declines were nearly identical to the January- October 1984 declines, suggesting that demand for forage harvesting equipment remained flat. This is normal because balers and mower conditioners are sold primarily during the summer. Forage harvester sales, however, usually peak in September and October. Therefore, demand for forage harvesters did not improve in late 1984.

Self-propelled combine purchases, though still well below historical averages, improved significantly in fourth- quarter 1984. Purchases last year were 44 percent below the 1980-83 annual average and 64 percent below the 1972-79 average, compared with about 47 and 69 percent, respectively, reported in November 1984. Market incentives designed to move these big-ticket grain harvesting items apparently helped improve sales in late 1984.

On-Farm Inventories

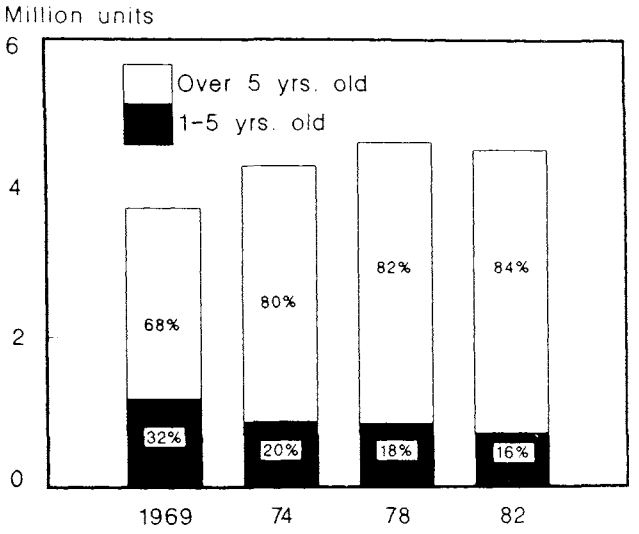
In recent years, U.S. farmers have bought substantially less new farm machinery than during the 1970's. Depressed financial conditions have forced farmers to either keep and maintain machinery longer or purchase used machinery. Some market analysts suggest that if demand for farm machinery does not improve in the near future, machinery on U.S. farms may become less dependable and adversely affect crop production. Census of Agriculture data for 1969, 1974, 1978, and 1982 show that the average age of on-farm machinery has risen steadily.

The number of tractors on U.S. farms increased from about 3.74 million units in 1969 to 4.52 million in 1982 (figure 1). During that time, however, the share of tractors more than 5 years old rose steadily, from 68 to 84 percent. Major harvesting machinery showed a similar pattern. Pickup balers over 5 years old rose from 61 percent of the on-farm inventory in 1969 to 77 percent in 1982; forage harvesters increased from 56 to 77 percent; and self-propelled combines advanced from 53 to 77 percent (figures 2-4). Most of these inventory age gains occurred between 1969 and 1974.

Over time, U.S farmers have purchased higher powered farm machinery with increased productive capacity. The shift in demand to

Figure 1

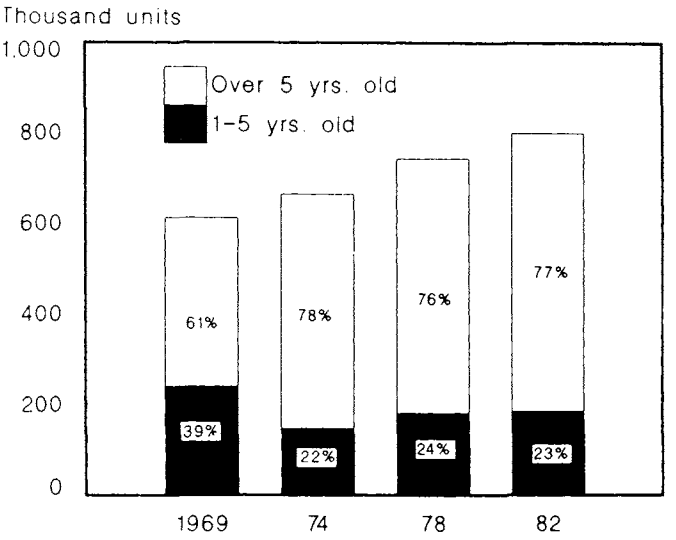
On-Farm Wheel Tractor Inventories



Source: 1969, 1974, 1978, and 1982 U.S. Census of Agriculture

Figure 2

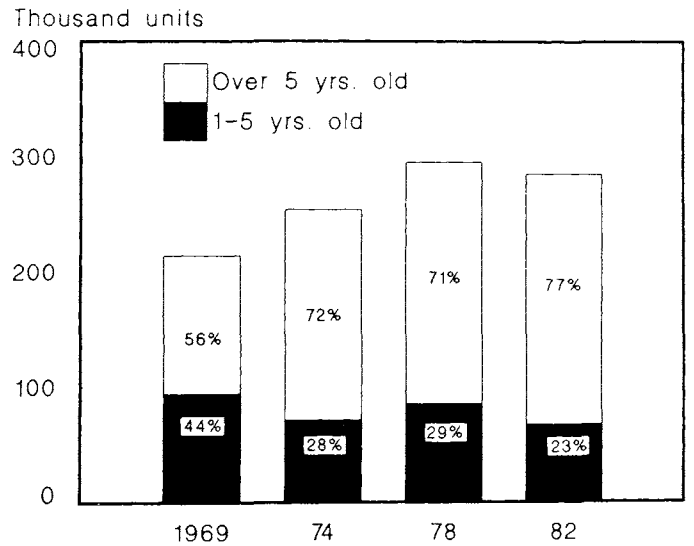
On-Farm Pickup Baler Inventories



Source: 1969, 1974, 1978, and 1982 U.S. Census of Agriculture

Figure 3

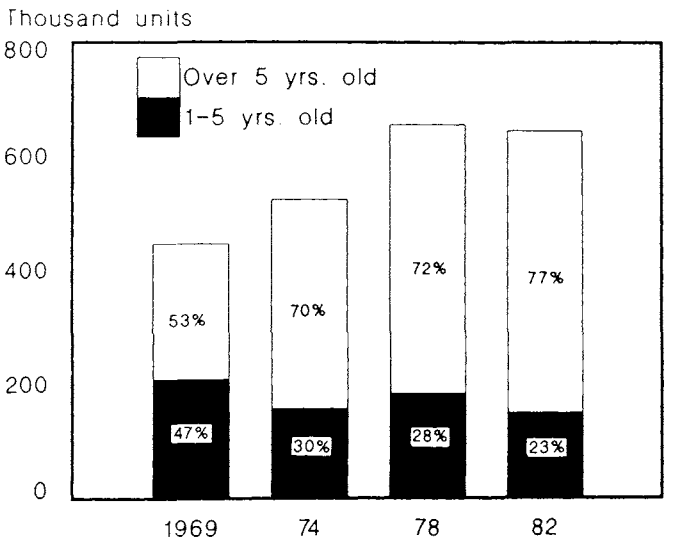
On-Farm Forage Harvester Inventories



Source: 1969, 1974, 1978, and 1982 U.S. Census of Agriculture

Figure 4

On-Farm Self-Propelled Combine Inventories



Source: 1969, 1974, 1978, and 1982 U.S. Census of Agriculture

larger tractors during the past 20 years occurred primarily before 1975. The weighted-average per-unit size for all over-40 hp tractors purchased from 1964 to 1975 rose sharply, from about 68 hp to 106. The per-unit size of tractors purchased after 1975 has fluctuated annually between 102 and 111 hp.

Farm machinery generally is considered to have become more dependable and to have a longer working life. Consequently, farmers keep machinery longer than they did two decades ago. But, as on-farm machinery inventories grew significantly older, farmers began to spend more for repairs. Real annual repair expenditures for farm machinery were

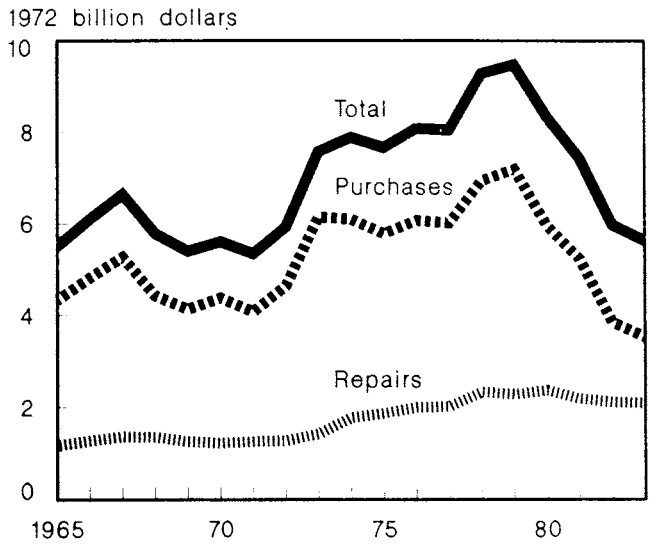
relatively stable between 1965 and 1972, ranging from $1.18 to $1.37 billion (figure 5). But, repair expenditures began to increase substantially in 1973, reaching a new plateau of $1.78 to $2.38 billion between 1974 and 1980. The increase in repair expenditures to record-high levels was due in part to a sharp rise in the average age of on-farm machinery.

Real expenditures for farm machinery purchases also rose to record-highs during the 1970's, peaking in both 1973 and 1979, as expectations for increased earnings rose with higher commodity exports. Higher demand for farm machinery in 1973 was spurred primarily by a large jump in net cash farm income and declining interest rates, while the surge in demand during the late 1970's was due mainly to a dramatic rise in the value of farm equity and negative real interest rates. But rising machinery repair expenditures also increased demand for farm machinery during the 1970's. Increased machinery purchases resulted in a relative leveling off of the average age of on-farm machinery after 1974.

The trend of farmers to hold machinery longer probably has been accentuated by depressed farm financial conditions since 1981. Real purchase expenditures for farm machinery fell drastically, from $7.19 billion in 1979 to $3.54 billion in 1983. Real expenditures for repairs, however, remained relatively constant, between $2.1 and $2.37 billion during this 5-year period. The combined effects of farmers having older farm machinery to maintain, increased demand for used machinery, and reduced demand for new machinery have kept repair expenditures since 1980 from falling as dramatically as purchase expenditures. As a consequence, repairs as a share of total annual farm machinery expenditures have increased from 28.5 percent in 1980 to 37.2 percent in 1983.

Figure 5

Farm Machinery Expenditures



Supplies

Domestic Situation

Market supplies of farm machinery continued to be large throughout the first 11 months of 1984. Inventories of selected farm machinery items, such as 40-99 hp two-wheel drive tractors, four-wheel drive tractors, balers, and mower conditioners, as of November 1984 were 13, 11, 4, and 24 percent greater than a year earlier. On the other hand, manufacturers were successful in reducing inventories of over-100 hp two-wheel drive tractors, self-propelled combines, forage harvesters, and corn heads by 4, 21, 20, and 24 percent. Nevertheless, because of reduced demand, November 1984 inventory-to-purchase ratios for all machinery items were higher than in November 1983, except for forage harvesters, self-propelled combines, and corn heads (table 16, footnote 1).

Market incentives such as price discounts and rebate programs have undoubtedly had a positive effect on inventory-to-purchase ratios for self-propelled combines and corn heads. The inventory-to-purchase ratios for both self-propelled combines and corn heads have been the lowest since November 1981. In absolute terms, inventories of self-propelled combines, which stood at 10,470 units as of November 1984, were 15 percent above the 6-year November low recorded in 1978. Inventories of corn heads were also at a 6-year November low.

November 1984 inventory-to-purchase ratios for all selected machinery items remained considerably above levels of the past 6 years, especially compared with the late 1970's. For example, the ratio of 1.09 for all over-40 hp tractors was 122 percent higher than the low of 0.49 recorded in November 1978. From 1978 to 1984, ratios increased 72

Table 16--November inventory-to-purchase ratios for selected farm machinery 1/

Machinery category	1978	1979	1980	1981	1982	1983	1984
				Ratio			
Tractors:							
Two-wheel drive--							
40-99 hp	0.53	0.58	0.69	0.83	0.80	0.80	0.91
Over 100 hp	.44	.48	.50	.90	1.35	1.20	1.32
Total	.49	.53	.60	.86	1.03	.97	1.08
Four-wheel drive	.59	.56	.73	.76	.95	.70	1.32
Total	.49	.53	.61	.85	1.02	.95	1.09
Harvesting machinery:							
Balers 2/	.71	.71	.97	.93	1.36	.86	.97
Cornheads	.53	.55	.71	.93	1.69	1.52	1.22
Forage harvesters 3/	.97	.93	1.25	1.36	1.85	1.63	1.53
Mower conditioners	.65	.72	1.09	.98	1.27	.94	1.27
Self-propelled combines	.31	.30	.50	.54	1.10	1.15	.99

1/ November 30 inventories for manufacturers, wholesalers, and dealers divided by January through October purchases. 2/ Producing bales up to 200 pounds. 3/ Shear bar type.

percent for 40-99 hp two-wheel drive tractors, 200 percent for over-100 hp two-wheel drive tractors, and 124 percent for four-wheel drive tractors.

Manufacturers are facing stagnant farm machinery demand and high inventories. While production cutbacks are one means of reducing inventories, they are not fully effective unless farm machinery demand increases. Despite heavy price discounting and other marketing incentives, farm machinery purchases remain depressed and continue to offset manufacturers' attempts to reduce inventories. Since November 1978, when inventory-to-purchase ratios were relatively low for all the reported machinery items, purchase declines of these items have ranged from 48 percent for mower conditioners to 70 percent for both corn heads and forage harvesters.

North American farm machinery manufacturers were operating at approximately 35 percent of capacity for tractor and combine production in January 1984 (Stark's Off-Highway Ledger, Vol. 3, No. 25 and earlier issues). After it became apparent that domestic demand would not increase last year, manufacturers cut production sharply in second-half 1984. Capacity utilization rates for tractor and combine manufacturers plummeted to about 8 percent in December 1984.

Given the industry's need to further reduce inventories, several major producers drastically cut prices during fourth-quarter 1984. Consequently, ample supplies of lower priced farm machinery will be available during early 1985.

Foreign Trade

During the first 10 months of 1984, the United States posted a positive farm machinery trade balance of roughly $478 million, which was down about 21 percent from the $607 million of a year earlier (table 17). The growing importance of farm machinery imports, especially small- to medium-sized tractors, has been a major factor contributing to the decline in the U.S. trade balance. U.S. exports and imports of farm machinery continued to trend upward during January-October 1984, rising about 16 and 37 percent, respectively, from a year earlier.

Canada, Australia, and Saudi Arabia continue to be the major export markets. Large-scale grain production in Australia and Canada requires the type of high-powered farm machinery produced in the United States, while Saudi Arabia's goal to develop an agricultural base calls for farm machinery as well as large irrigation systems similar to those commonly used in U.S. dryland crop regions. Trade with Canada, Australia, and

Table 17--Farm machinery trade situation 1/

Trade, area	January-October 1983	January-October 1984	Percent change
	Million dollars		
Exports to:			
Africa	89.4	112.7	26.1
Australia	78.8	179.1	127.3
Canada	707.1	788.5	11.5
Central America 2/	69.1	129.4	87.3
Eastern Europe	29.6	22.0	-30.1
Far East	53.5	70.3	31.4
Middle East	24.9	27.6	10.8
Near East	13.0	11.9	-8.5
Saudi Arabia	271.4	234.8	-13.5
South America	61.5	79.4	29.1
Western Europe	290.2	298.1	2.7
Total	1688.5	1953.8	15.7
Imports from:			
Africa	0.2	6.7	3250.0
Canada	352.1	474.9	34.9
Central America 2/	17.2	10.8	-37.2
Eastern Europe	9.6	21.3	122.0
Far East	19.2	21.6	12.5
Italy	78.8	132.6	68.3
Japan	161.2	273.3	69.5
Middle East	2.8	3.5	25.0
Near East	0.2	0.3	50.0
South America	5.9	10.3	74.6
United Kingdom	132.6	192.4	45.1
West Germany	209.7	189.3	-9.7
Western Europe 3/	92.0	139.1	51.2
Total	1081.4	1476.3	36.5
Trade balance	607.1	477.5	-21.3

1/ Includes finished machinery items, nonassembled machinery, and parts. 2/ Includes Caribbean countries. 3/ Excluding Italy, the United Kingdom, and West Germany.

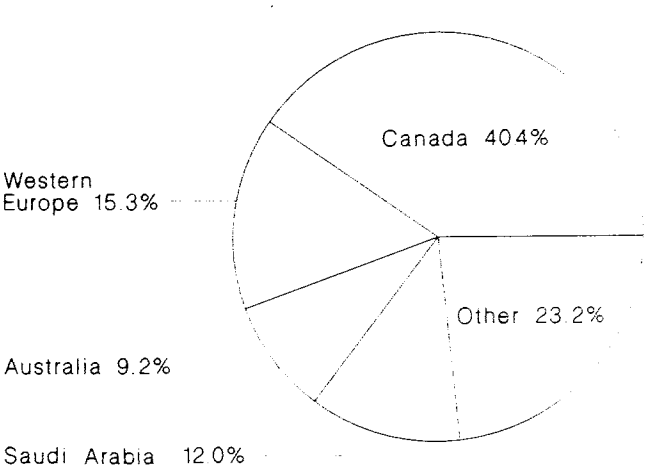
Source: U.S. Department of Commerce. Trade Development, Office of Special Industrial Machinery.

Saudi Arabia accounts for about 62 percent of the value of U.S. farm machinery exports (figure 6). Exports to Canada and Australia in 1984 rose 12 and 127 percent, respectively, from 1983, to about $789 and $179 million, but exports to Saudi Arabia dropped 13.5 percent to about $235 million (table 17).

After Canada, Australia, and Saudi Arabia, Western Europe is the most important U.S. farm machinery market. Exports to Western Europe during January-October 1984 totaled $298 million, up 2.7 percent from a year earlier. Exports to Central America and the Far East were up about 87 and 31 percent, respectively. China's imports of U.S. farm machinery increased twelvefold in value from 1983.

Figure 6

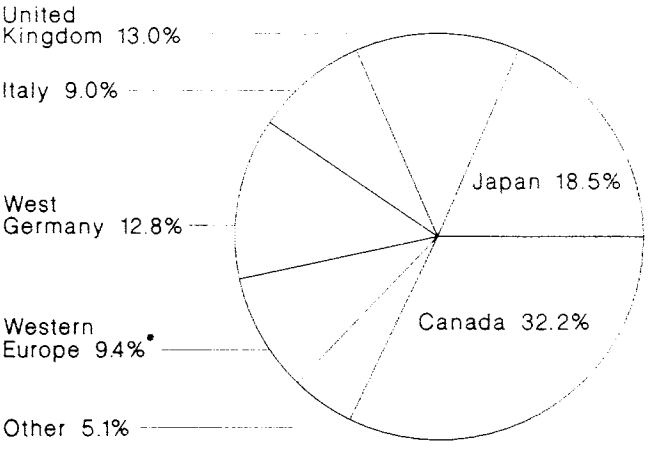
U.S. Farm Machinery Exports January-October 1984 Expenditures



Source: U.S. Department of Commerce. Trade development, Office of Special Industrial Machinery

Figure 7

U.S. Farm Machinery Imports January-October 1984 Expenditures



* Excluding Italy, the United Kingdom, and West Germany

Source: U.S. Department of Commerce. Trade development, Office of Special Industrial Machinery

Canada, the United Kingdom (UK), Japan, Italy, and West Germany accounted for 86 percent of the value of U.S. farm machinery imports during January-October 1984 (figure 7). The value of imports from Japan, the UK, and Italy rose about 70, 45, and 68 percent, respectively, from a year earlier (table 17). Conversely, imports from West Germany were down about 10 percent. For the first 10 months of 1984, the United States registered a negative trade balance of roughly $645 million with Japan, West Germany, the UK, and Italy. They accounted for less than 8 percent of the

value of U.S. farm machinery exports, yet made up 53 percent of the import value. The large volume of U.S. imports from these four countries reflects business arrangements between U.S. manufacturers and private firms or foreign subsidiaries to produce small- to medium-sized tractors (See *Inputs Outlook and Situation*, November 1984).

PESTICIDES

Demand

Total farm pesticide use on major field crops could range from 475 to 515 million pounds, active ingredients (a.i.), in 1985. Herbicide use will account for 85 percent of the total, followed by insecticides at 13 percent. Fungicide use is projected at 7 million pounds (a.i.), with 75 percent used in peanut production. Pesticide use is directly affected by planted crop acreage and climatic conditions during the growing season. Current indications are that 1985 planted acreage for most field crops will be slightly less than in 1984.

Supplies

Herbicide supplies are forecast to drop 4 percent in 1985, but at 680 million pounds (a.i.), supplies will be adequate to meet projected field crop use. Field crop farmers are forecast to use 405 to 440 million pounds (a.i.) of herbicides in 1985. Insecticide supplies are projected to rise 11 percent and fungicide supplies 4 percent.

However, growers who use methyl isocyanate (MIC) based carbamate pesticides should check with their suppliers to determine product availability. Nevertheless, current indications are that supplies of these pesticides will be adequate for major field crop production during the 1985 growing season. Affected pesticides include:

NAME	TYPE
Aldicarb	Insecticide-nematicide
Carbaryl	Insecticide
Methomyl	Insecticide
Oxamyl	Insecticide
Carbofuran	Insecticide-nematicide
Methazole	Herbicide
Tebuthiuron	Herbicide

After the accident in Bhophal, India, Union Carbide, the sole manufacturer of MIC in the United States, closed its plant at Institute, West Virginia, in December. The plant will not be reopened until a study of the MIC situation is completed.

1984 Pesticide Use

Farmers in 1984 used an estimated 507 million pounds (a.i.) of pesticides in the production of major field crops. Herbicide use was estimated at 433 million pounds (a.i.), followed by insecticides at 67 million and fungicides at 7 million. Corn, soybeans, and cotton accounted for 87 percent of the herbicides and 85 percent of the insecticides used in 1984.

Herbicides

Farmers treated 95 percent of the corn acres, 94 percent of the soybean acres, and 93 percent of the cotton acres with herbicides in 1984 (table 18). Between 26 and 31 percent of all herbicide applications on these three crops were made before planting. For corn,

Table 18--Herbicide use and timing, 1984

Item	Corn	Soybeans	Cotton
		Percent	
Acres treated with herbicides	95	94	93
Application timing:			
A-before planting	26	31	30
B-at planting	20	14	10
C-preemergence	24	12	*
D-postemergence	8	5	*
A + D	8	19	17
B + D	6	6	4
C + D	4	3	*
A + B	*	4	10
A + B + D	-	*	21
Other	*	4	5
Total	100	100	100

* Less than 3 percent.

herbicide treatments at planting (20 percent) and preemergence (24 percent) were the next two most significant application periods.

However, more farmers are using sequential herbicide treatments to control weeds. In soybean production, sequential applications of before-planting + postemergence treatments accounted for 19 percent of the acres treated, and at-planting and preemergence applications represented 14 and 12 percent of the acres treated.

Weeds are a problem throughout the growing season in cotton production. Cotton is a slower growing plant than are corn and soybeans. Therefore, it takes a longer period of time for the leaf canopy to be established and shade the ground, reducing weed germination. As a result, farmers treated 21 percent of the cotton acreage with a sequence of before-planting + at-planting + postemergence applications. In addition, they treated 17 percent of the cotton acreage with a before-planting + postemergence sequence.

Of the corn herbicides applied before planting, broadcast soil-incorporated applications were used on 85 percent of the acreage treated (table 19). On the other hand, 85 percent of the preemergence applications were broadcast not soil-incorporated. Herbicides applied at planting were most commonly banded on the plant row (42 percent), while postemergence applications were broadcast (46 percent).

The method of application for before-planting, at-planting, and preemergence herbicide use in soybean production followed a pattern similar to corn. For postemergence soybean herbicide applications, 29 percent of the acreage was treated with spot applications, compared with 14 percent of the corn acreage.

On cotton, before-planting herbicide applications dominate (76 percent), with most of the materials applied using the broadcast soil-incorporated method. At-planting applications were most commonly banded over the crop row, while slightly over 50 percent of the postemergence acreage was treated by spot application. The data indicate that cotton farmers applied herbicides during the growing season as weeds became a problem.

Insecticides

In 1984, farmers treated 63 percent of the cotton acreage with insecticides, followed by corn at 42 percent and soybeans at 8 percent (table 20). Soil applications to control corn rootworm larvae were made on 81 percent of the corn acreage treated with insecticides. On the other hand, 84 percent of all soybean insecticide applications were foliar. Cotton farmers treated 33 percent of the acreage with soil insecticides at planting, generally with systemic materials to control early-season insects. Also, 82 percent of the cotton acreage received foliar treatments primarily to control boll weevils and the bollworm-budworm complex.

Regulatory Actions

The Environmental Protection Agency's (EPA) Office of Pesticide Programs has indicated that it plans to complete and issue position documents (PD's)--on the following pesticides in fiscal 1985:

- PD 1's (risk analysis) for acephate, captafol, triphenyltin hydroxide, chlordimeform, and cyanazine.
- PD 2/3's (risk-benefit analysis) for cadmium, linuron, amitrole, carbon tetrachloride, captan, daminozide, aldicarb, inorganic arsenicals (non-wood uses), and alachlor. In the PD 2/3's, EPA will outline its proposed regulatory decisions.
- PD 4's (final regulatory decisions) for creosote (non-wood uses), pentachlorophenol (non-wood uses), compound 1080, and dicofol.

In addition, EPA will reassess its Rebuttable Presumption Against Registration (RPAR) decisions on lindane, benomyl, the EBDC fungicides, EPN, and PCNB. EPA also will reassess its pre-RPAR decisions concerning paraquat, terbutryn, and DDVP. These reassessments are the result of a court settlement between EPA and the Natural Resources Defense Council (Federal Register, 49:45486).

Dinocap- The producer, Rohm and Haas, recently notified EPA that it is voluntarily

Table 19--Method and timing of herbicide applications in 1984

Crop, application method	Before planting	At planting	Pre-emergence	Post-emergence
			Percent	
Corn:				
Proportion of planted acres treated 1/	36	26	29	25
Method:				
Broadcast--				
Soil-incorporated	85	25	6	*
Not soil-incorporated	12	32	85	33
On plant row--				
Banded	-	42	-	-
Broadcast	*	-	9	46
Spot treatment	*	-	-	14
Other	*	*	*	6
Total	100	100	100	100
Soybeans:				
Proportion of planted acres treated 1/	55	25	17	33
Method:				
Broadcast--				
Soil-incorporated	91	24	4	*
Not soil-incorporated	7	29	85	26
On plant row--				
Banded	-	46	-	-
Broadcast	-	-	10	37
Spot treatment	-	-	*	29
Other	*	*	*	8
Total	100	100	100	100
Cotton:				
Proportion of planted acres treated 1/	76	45	*	45
Method:				
Broadcast--				
Soil-incorporated	94	21		-
Not soil-incorporated	*	6		8
On plant row--				
Banded	-	65		-
Directed spray	-	-		30
Spot treatment	*	-		52
Other	6	8		10
Total	100	100		100

* Less than 3 percent.

1/ Adds to more than 100 percent because of multiple applications.

Table 20--Insecticide use and timing, 1984

Item	Corn	Soybeans	Cotton
		Percent	
Acres treated with insecticides	42	8	63
Application timing:			
In soil at planting	77	16	18
Foliar after planting	19	75	67
Both	4	9	15
Total	100	100	100

suspending sales of all products containing the fungicide dinocap. Lifting of the sales suspension will depend on the outcome of studies on rabbit teratology, mixer-loader-applicator exposure, residues, metabolism, and Rhesus monkey skin absorption-penetration.

Dinocap is registered for use on fruit crops (apples, apricots, grapes, peaches, and pears), vegetable crops (cantaloups, cucumbers, melons, pumpkins, and squash), ornamentals, and nursery stock. In a 1978 USDA pesticide survey, growers reported using 120,000 pounds (a.i.) of dinocap on 117,000 acres of apples. Dinocap may have been used on peaches and pears, but quantities were not large enough to be cited in the report. Apricots and grapes were not included in the 1978 survey. Vegetable growers, in a 1979 USDA pesticide survey, did not report using dinocap in sufficient quantities to be cited in the report.

IOS-1

ENERGY

U.S. Energy Outlook

The U.S. energy outlook has not changed materially in the past several months. U.S. farmers can expect plentiful supplies of gasoline, diesel fuel, natural gas, and electricity at prevailing or lower prices. This assessment assumes that there will be no major supply interruptions over the forecast period.

Slight revisions in domestic petroleum demand and imports have been made recently by the Department of Energy. Domestic petroleum demand for 1985 has been revised down slightly, from 15.87 million barrels a day to 15.78 million. This modest decline is expected to occur despite continued, but moderating economic growth and lower petroleum prices. The downward revision stems primarily from expected improved auto efficiency and lower than previously projected disposable personal income in 1985. Because of rapid economic growth in 1984, petroleum demand was more than 4 percent higher than in 1983.

Net petroleum imports (excluding imports for the Strategic Petroleum Reserve) also have been revised downward for both 1984 and 1985. Imports in 1984 are expected to be 4.58 million barrels a day, instead of the previously estimated 4.80 million. It is now estimated that net petroleum imports in 1984 were 12 percent above 1983. For 1985, imports are projected to be 4.71 million barrels a day, an increase of 2.8 percent from 1984.

The situation and outlook pertaining to other energy sources are:

- According to preliminary estimates, total U.S. energy consumption for 1984 was up 6 percent from 1983, but may increase only 1 percent in 1985.
- Natural gas consumption was about 18 trillion cubic feet in 1984 and is projected to increase slightly to 18.2 trillion cubic feet in 1985. Natural gas production had been estimated to increase 9 percent in 1984, but now is forecast to rise only slightly in 1985.
- The preliminary estimate of electricity generation was 2,428 billion kilowatt hours in 1984, a 5-percent increase from 1983. Generation for 1985 is forecast to increase 2.7 percent to 2,492 billion kilowatt hours.

Prices

Average gasoline prices are the lowest since 1979 in all regions of the United States. Lower prices are likely to persist for the foreseeable future as the Organization of Petroleum Exporting Countries (OPEC) has been unable to maintain prices at the established benchmark.

OPEC, once a strong cartel, recently abandoned the $29 per barrel benchmark price. Now market forces are expected to have more influence in determining the future course of oil prices. The price of Arabian light crude, which had been used as the OPEC benchmark, was reduced by $1, to $28 per barrel. Other oil-producing countries, such as the United Kingdom and Norway, were underselling the cartel price, with spot market prices hovering $1.50 below the benchmark. In addition, several major oil companies recently reduced the price they were willing to pay for U.S. crude oil by $1 or more per barrel.

Petroleum product prices are likely to decline moderately because of excess supplies in the petroleum industry. The agricultural sector's energy supply and price expectations reflect the world market situation. In 1984, farmers paid an average of $1.16 a gallon for bulk-delivered gasoline, $1 a gallon for diesel, and 76 cents a gallon for L.P. gas. Petroleum product prices paid by farmers are expected to decline through 1985.

As provided by the 1978 Natural Gas Policy Act, partial deregulation of natural gas went into effect on January 1, 1985, decontrolling 50 to 60 percent of all natural gas (intrastate and interstate), according to Department of Energy estimates. However, only a small increase in the nominal prices of natural gas is expected in 1985. There are two reasons for this. First, because of market conditions in the last few years, most of the expected price effects of deregulation of natural gas already have occurred. Second, natural gas prices are influenced strongly by world oil prices because of the large substitution potential between oil and gas in the industrial use and electricity generation markets. Since oil prices are likely to fall, they will act as a lid on natural gas prices.

Electricity prices to nonindustrial consumers are expected to increase by about 3 percent between 1984 and 1985. Electricity price increases have been rising at lower rates over the last 3 years because of declining fuel costs to electric utilities.

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(4) U.S. Deptartment of Commerce, Bureau of the Census. U.S. Exports, Commodity and Country. Report FT-410. November 1984 and earlier issues.

(5) _____, Bureau of the Census. U.S. Imports, Commodity and Country. Report FT-135. November 1984 and earlier issues.

(6) _____, Bureau of the Census. Inorganic Fertilizer Materials and Related Products. M28-B. September 1984 and earlier issues.

Appendix table 1--U.S. fertilizer imports: Declared value of selected materials for years ending June 30

Material	1982	1983	1984	1985 1/
	Million dollars			
Nitrogen:				
Anhydrous ammonia	296	296	443	184
Urea	156	226	255	82
Ammonium nitrate	35	34	55	18
Ammonium sulfate	29	27	27	9
Sodium nitrate	16	13	11	4
Calcium nitrate	10	10	14	4
Nitrogen solutions	19	15	31	11
Other	15	13	17	12
Total 2/	576	635	853	324
Phosphate:				
Ammonium phosphates	54	39	35	12
Crude phosphates	*	1	2	*
Phosphate acid 3	*	*	*	
Normal and triple superphosphate	4	2	1	*
Other	2	2	1	*
Total 2/	64	44	40	13
Potash:				
Potassium chloride	687	546	602	252
Potassium sulfate	5	5	12	5
Potassium nitrate 3/	11	11	9	2
Total 2/	704	552	623	304
Mixed fertilizers	28	23	25	6
Total 2/	1,372	1,254	1,541	647

* = Less than $1 million.

1/ Preliminary data for July-November 1984.
2/ Totals may not add due to rounding. 3/ Includes potassium sodium nitrate.

Source: (5).

Appendix table 2--U.S. fertilizer exports: Declared value of selected materials for years ending June 30

Material	1982	1983	1984	1985 1/
	Million dollars			
Nitrogen:				
Anhydrous ammonia	102	58	59	39
Urea	264	166	127	81
Ammonium nitrate	11	4	5	2
Ammonium sulfate	50	48	35	23
Sodium nitrate	3	3	3	1
Nitrogen solutions	34	11 2	*	
Other	7	6	4	1
Total 2/	471	297	235	147
Phosphate:				
Phosphate rock	403	393	419	154
Normal superphosphate	*	1 1	*	
Triple superphosphate	181	183	142	78
Diammonium phosphate	710	722	933	544
Other ammonium phosphates	55	51	89	43
Phosphoric acid	455	392	352	183
Other	2	1	1	0
Total 2/	1,807	1,742	1,937	1,002
Potash:				
Potassium chloride	65	52	46	21
Other	52	55	45	19
Total 2/	117	107	91	40
Mixed fertilizers	70	44	32	7
Total 2/	2,463	2,190	2,295	1,196

* = Less than $1 million.

1/ Preliminary data for July-November 1984.
2/ Totals may not add due to rounding.

Source: (4).

Appendix table 3--Plant nutrient use by State for years ending June 30 1/

State, region	1983			1984		
	Nitrogen	Phosphate	Potash	Nitrogen	Phosphate	Potash
	Thousand tons					
Maine	11	11	12	13	13	12
New Hampshire	3	2	2	3	2	3
Vermont	6	5	7	7	6	8
Massachusetts	8	4	5	7	3	5
Rhode Island	2	1	1	2	1	1
Connecticut	7	4	1	7	4	4
New York	82	78	88	91	86	100
New Jersey	20	15	17	27	19	21
Pennsylvania	78	63	63	73	56	55
Delaware	15	8	17	19	9	19
Maryland	52	33	44	61	38	49
District of Columbia	1	1	*	2 *	*	
NORTHEAST	285	225	261	312	237	278
Michigan	205	144	225	291	177	295
Wisconsin	178	130	317	208	146	365
Minnesota	411	201	279	558	295	381
LAKE STATES	795	475	822	1,057	618	1,041
Ohio	310	197	296	368	234	348
Indiana	415	257	410	521	302	446
Illinois	779	425	632	1,056	504	787
Iowa	740	282	410	1,038	397	606
Missouri	304	148	221	333	172	241
CORN BELT	2,548	1,309	1,969	3,316	1,608	2,428
North Dakota	209	101	18	250	114	20
South Dakota	105	52	13	127	60	16
Nebraska	576	123	38	682	154	47
Kansas	526	153	41	584	182	43
NORTHERN PLAINS	1,416	429	110	1,643	510	125
Virginia	80	59	80	93	65	90
West Virginia	10	10	10	12	10	10
North Carolinia	207	114	193	252	128	234
Kentucky	161	120	145	193	123	156
Tennessee	117	89	116	132	109	116
APPALACHIA	574	392	544	681	434	606
South Carolina	78	44	85	91	46	96
Georgia	214	104	172	256	124	206
Florida	230	96	253	236	102	256
Alabama	122	66	81	152	82	104
SOUTHEAST	644	311	591	736	354	661
Mississippi	144	63	85	187	77	109
Arkansas	197	59	78	221	70	94
Louisiana	117	49	63	152	61	83
DELTA STATES	458	171	227	560	208	285
Oklahoma	247	94	30	284	99	33
Texas	652	225	106	834	278	123
SOUTHERN PLAINS	899	319	135	1,118	377	157
Montana	121	76	11	137	88	14
Idaho	187	49	6	182	58	11
Wyoming	37	18	1	34	15	1
Colorado	139	36	8	186	43	15
New Mexico	28	12	4	37	13	5
Arizona	80	29	1	88	37	1
Utah	29	17	1	33	20	*
Nevada	4	2	*	4	2 *	
MOUNTAIN	625	239	31	701	276	46
Washington	231	56	34	234	56	39
Oregon	143	46	22	130	48	25
California	476	148	55	626	187	88
PACIFIC	850	249	111	990	290	152
48 STATES AND D.C.	9,096	4,119	4,801	11,115	4,912	5,778
Alaska	2	2	1	3	2	1
Hawaii	19	13	20	16	10	17
Puerto Rico	11	5	10	12	5	12
U.S. TOTAL	9,127	4,138	4,831	11,146	4,929	5,808

* = Less than 500 tons. 1/ Totals may not add due to rounding.

Appendix table 4--Fertilizer use on harvested corn for grain acreage in 1984

State	Acres for harvest	Fields in survey	Harvested acres receiving				Application rates			Proportion fertilized		
			Any fertilizer	N	P_2O_5	K_2O	N	P_2O_5	K_2O	At or before seeding	After seeding	Both
	Thousand	No.	Percent				Pounds			Percent		
Michigan	2,620	87	100	100	100	97	136	65	108	48	0	52
Minnesota	6,440	166	96	96	91	91	115	50	68	81	1	18
Wisconsin	3,250	131	100	100	99	97	102	57	84	63	2	35
Total	12,310	384	98	98	95	94	116	55	81	69	1	30
Illinois	10,940	229	99	99	99	90	148	87	117	96	2	22
Indiana	6,030	166	99	99	98	93	155	72	104	57	1	42
Iowa	12,900	200	97	97	85	86	143	63	80	77	5	18
Missouri	1,930	125	99	99	78	78	119	56	66	70	12	18
Ohio	3,900	160	99	98	96	89	150	79	102	56	0	44
Total	35,700	880	98	98	89	88	146	73	98	71	3	26
Nebraska	6,950	196	98	98	72	49	156	41	25	56	8	36
South Dakota	2,780	98	66	66	51	30	61	34	18	81	11	8
Total	9,730	294	87	87	66	43	136	39	24	61	9	30
10 State total	57,740	1,558	97	97	87	82	138	65	87	68	4	28

Appendix table 5--Fertilizer use on harvested cotton acreage in 1984

State	Acres for harvest	Fields in survey	Harvested acres receiving				Application rates			Proportion fertilized		
			Any fertilizer	N	P_2O_5	K_2O	N	P_2O_5	K_2O	At or before seeding	After seeding	Both
	Thousand	No.	Percent				Pounds			Percent		
Missouri	162	55	100	100	100	100	70	31	66	29	7	64
Tennessee	325	97	100	100	100	100	82	62	68	67	0	33
Alabama	307	96	98	98	91	88	78	60	70	43	1	56
Georgia	172	57	100	100	93	98	69	51	88	26	5	69
South Carolina	105	60	98	98	87	98	95	47	103	27	14	59
Total	584	213	99	99	91	93	78	55	82	35	5	60
Arkansas	445	104	100	97	80	82	75	38	53	46	13	41
Louisiana	645	99	99	99	77	77	81	52	59	52	29	19
Mississippi	1,040	158	99	98	44	46	103	57	68	35	21	44
Total	2,130	361	99	98	61	62	91	50	60	43	21	36
Oklahoma	375	84	66	66	42	4	53	42	12	98	2	0
Texas	4,819	493	56	55	39	18	47	39	15	66	22	12
Total	5,194	577	56	56	39	17	48	39	14	68	21	11
Arizona	471	91	99	98	48	4	150	59	29	12	55	33
New Mexico	82	70	67	66	34	14	71	64	6	70	11	19
Total	553	161	95	94	47	6	14	59	21	18	50	32
California	1,400	262	92	91	27	2	116	61	87	43	30	27
13 State total	10,348	1,726	77	76	48	32	81	48	53	51	22	28

Appendix table 6--Fertilizer use on harvested soybean acreage in 1984

State	Acres for harvest	Fields in survey	Harvested acres receiving				Application rates			Proportion fertilized		
			Any fertilizer	N	P_2O_5	K_2O	N	P_2O_5	K_2O	At or before seeding	After seeding	Both
	Thousand	No.	Percent				Pounds			Percent		
Minnesota	5,240	105	26	20	24	25	18	38	63	96	4	0
Illinois	9,020	168	24	9	17	22	31	62	99	100	0	0
Indiana	4,350	114	54	35	48	49	10	41	67	95	5	0
Iowa	8,400	141	18	14	16	18	23	52	69	96	4	0
Missouri	5,300	155	14	7	10	14	22	58	76	86	9	5
Ohio	3,770	117	48	22	39	45	14	53	102	96	4	0
Total	30,840	695	28	15	22	26	19	51	84	96	4	0
Nebraska	2,550	85	18	17	15	9	13	29	12	87	13	0
North Carolina	1,790	93	58	46	54	56	16	42	68	98	2	0
Tennessee	1,850	89	64	40	61	63	16	43	60	94	4	2
Total	3,640	182	61	43	57	60	16	43	64	96	3	1
Alabama	1,370	86	74	34	74	73	21	48	56	100	0	0
Georgia	2,000	79	63	51	63	63	16	35	68	98	2	0
South Carolina	1,490	95	74	41	66	74	13	36	76	94	6	0
Total	4,860	260	70	43	67	69	16	39	67	97	3	0
Arkansas	3,900	140	28	14	26	21	21	40	48	92	8	0
Louisiana	2,380	109	32	8	32	30	13	50	67	86	14	0
Mississippi	3,200	111	41	17	40	41	16	49	71	98	2	0
Total	9,480	360	34	14	32	33	18	46	63	93	7	0
15 State total	56,610	1,687	34	20	30	32	17	46	72	95	4	1

Appendix table 7--Fertilizer use on harvested wheat acreage in 1984

State	Acres for harvest	Fields in survey	Harvested acres receiving				Application rates			Proportion fertilized		
			Any fertilizer	N	P_2O_5	K_2O	N	P_2O_5	K_2O	At or before seeding	After seeding	Both
	Thousand	No.	Percent				Pounds			Percent		
Minnesota	2,553	76	95	95	91	72	60	33	28	94	0	6
Illinois	1,600	82	92	89	84	78	74	75	86	39	8	53
Indiana	1,050	61	85	84	85	85	87	63	73	14	4	82
Missouri	2,050	89	87	87	67	69	72	50	55	45	25	30
Ohio	1,100	77	95	94	91	92	65	62	70	23	6	71
Total	5,800	309	89	88	80	79	74	62	70	34	13	53
Kansas	11,200	258	84	84	48	9	57	35	28	75	5	20
Nebraska	2,250	120	58	58	23	5	49	30	14	87	3	10
North Dakota	8,660	254	72	72	63	5	43	25	19	98	2	0
South Dakota	3,662	49	47	47	45	4	21	23	17	96	4	0
Total	25,772	681	75	75	50	7	51	30	25	84	4	12
Oklahoma	5,300	186	81	81	48	13	65	35	16	58	11	31
Texas	5,000	71	71	71	24	5	95	51	27	58	15	27
Total	10,300	257	76	76	36	9	79	40	19	58	13	29
Colorado	3,270	110	39	39	9	3	41	20	6	86	5	9
Idaho	1,280	142	88	88	28	6	108	36	24	43	20	37
Montana	4,640	174	64	64	63	7	40	32	11	78	2	20
Total	9,190	426	59	59	39	5	55	31	12	73	6	21
Oregon	1,115	112	96	96	21	6	66	37	32	60	7	33
Washington	2,610	172	98	98	24	1	83	31	42	72	3	25
Total	3,725	284	98	98	24	3	78	33	35	68	4	28
16 State total	57,340	2,033	76	76	49	17	62	37	46	71	7	22

Appendix table 8--Projected world supply-demand balance of nitrogen fertilizers 1/

World regions	1984	1985	1986	1987	1988	1989
			Million metric tons			
Developed market economies:						
Supply	20.87	22.20	23.62	24.20	24.14	24.24
Demand	22.37	23.48	24.21	24.93	25.67	26.31
Balance	-1.50	-1.28	-.59	-.73	-1.53	-2.07
North America--						
Supply	9.95	11.00	11.90	12.27	12.30	12.37
Demand	10.60	11.35	11.72	12.10	12.50	12.90
Balance	-.65	-.35	.18	.17	-.20	-.53
Western Europe--						
Supply	9.63	9.85	10.35	10.60	10.60	10.60
Demand	10.35	10.60	10.90	11.20	11.50	11.70
Balance	-.72	-.75	-.55	-.60	-.90	-1.10
Oceania--						
Supply	.25	.26	.26	.25	.25	.25
Demand	.29	.30	.31	.32	.33	.34
Balance	-.04	-.04	-.05	-.07	-.08	-.09
Other countries--						
Supply	1.04	1.09	1.10	1.08	1.04	1.02
Demand	1.13	1.23	1.28	1.31	1.34	1.37
Balance	-.09	-.14	-.18	-.23	-.30	-.35
Developing market economies:						
Supply	12.27	13.43	14.92	16.04	16.84	17.96
Demand	14.25	15.20	16.25	17.20	18.95	19.10
Balance	-1.98	-1.77	-1.33	-1.16	-2.11	-1.14
Africa--						
Supply	.24	.35	.42	.53	.58	.64
Demand	.75	.80	.85	.90	.95	1.00
Balance	-.51	-.45	-.43	-.37	-.37	-.36
Latin America--						
Supply	3.49	3.65	3.84	3.85	3.92	4.10
Demand	2.90	3.15	3.40	3.60	3.80	4.00
Balance	.59	.50	.44	.25	.12	.10
Near East--						
Supply	2.38	2.78	3.10	3.25	3.40	3.52
Demand	2.60	2.75	2.90	3.00	3.10	3.20
Balance	-.22	.03	.20	.25	.30	.32
Far East:						
Supply	6.16	6.65	7.56	8.41	8.94	9.70
Demand	8.00	8.50	9.10	9.70	10.30	10.90
Balance	-1.84	-1.85	-1.54	-1.29	-1.36	-1.20
Centrally-planned countries of Asia:						
Supply	11.61	11.71	11.82	12.15	12.51	12.70
Demand	13.40	13.65	13.90	14.20	14.50	14.80
Balance	-1.79	-1.94	-2.08	-2.05	-1.99	-2.10
Eastern Europe and the Soviet Union:						
Supply	19.75	20.80	21.40	21.60	21.80	21.90
Demand	14.50	15.20	15.80	16.30	16.90	17.50
Balance	5.25	5.60	5.60	5.30	4.90	4.44
WORLD TOTAL:						
Supply	64.50	68.14	71.75	73.99	75.34	76.80
Demand	64.52	67.53	70.16	72.63	75.22	77.71
Balance	-.02	.61	1.59	1.36	.12	-.91

1/ Forecasts for year ending June 30.

Source: (2).

Appendix table 9--Projected world supply-demand balance of phosphate fertilizers 1/

World regions	1984	1985	1986	1987	1988	1989
			Million metric tons			
Developed market economies:						
Supply	18.42	19.55	19.55	19.56	19.60	19.56
Demand	12.81	13.34	13.71	14.05	14.41	14.75
Balance	5.61	6.21	5.84	5.51	5.19	4.81
North America--						
Supply	9.15	10.17	10.18	10.21	10.25	10.25
Demand	5.00	5.36	5.52	5.68	5.84	6.00
Balance	4.15	4.81	4.66	4.53	4.41	4.25
Western Europe--						
Supply	5.99	6.09	6.08	6.07	6.05	6.03
Demand	5.44	5.51	5.62	5.74	5.86	5.97
Balance	.55	.58	.46	.33	.19	.06
Oceania--						
Supply	1.38	1.39	1.39	1.39	1.39	1.39
Demand	1.20	1.23	1.26	1.29	1.32	1.35
Balance	.18	.16	.13	.10	.07	.04
Other countries--						
Supply	1.90	1.90	1.90	1.89	1.91	1.89
Demand	1.17	1.24	1.31	1.35	1.39	1.43
Balance	.73	.66	.59	.54	.52	.46
Developing market economies:						
Supply	6.10	6.66	7.24	7.75	8.26	8.64
Demand	6.50	7.09	7.55	8.03	8.56	9.10
Balance	-.40	-.43	-.31	-.28	-.30	-.46
Africa--						
Supply	2.04	2.22	2.43	2.69	3.02	3.32
Demand	.50	.54	.58	.62	.66	.70
Balance	1.54	1.68	1.85	2.07	.2.36	2.62
Latin America--						
Supply	1.53	1.64	1.78	1.91	1.97	1.99
Demand	1.90	2.20	2.40	2.60	2.80	3.00
Balance	-.37	-.56	-.62	-.69	-.83	-1.01
Near East--						
Supply	1.11	1.25	1.31	1.31	1.30	1.30
Demand	1.40	1.50	1.60	1.70	1.80	1.90
Balance	-.29	-.25	-.29	-.39	-.50	-.60
Far East--						
Supply	1.42	1.55	1.72	1.84	1.97	2.03
Demand	2.70	2.85	2.97	3.11	3.30	3.50
Balance	-1.28	-1.30	-1.25	-1.27	-1.33	-1.47
Centrally-planned countries of Asia:						
Supply	3.00	3.11	3.22	3.33	3.44	3.55
Demand	3.50	3.70	3.90	4.05	4.20	4.35
Balance	-.50	-.59	-.68	-.72	-.76	-.80
Eastern Europe and the Soviet Union:						
Supply	8.45	8.61	8.83	9.07	9.27	9.50
Demand	9.50	9.76	10.02	10.28	10.54	10.80
Balance	-1.05	-1.15	-1.19	-1.21	-1.27	-1.30
WORLD TOTAL:						
Supply	35.97	37.93	38.84	39.71	40.57	41.25
Demand	32.31	33.89	35.18	36.42	37.71	39.00
Balance	3.66	4.04	3.66	3.29	2.86	2.25

1/ Forecasts for year ending June 30.

Source: (2).

Appendix table 10--Projected world supply-demand balance of potash fertilizers 1/

World regions	1984	1985	1986	1987	1988	1989
	Million metric tons					
Developed market economies:						
Supply	15.52	15.58	16.23	16.88	17.12	17.23
Demand	12.17	12.50	12.81	13.14	13.47	13.81
Balance	3.35	3.08	3.42	3.74	3.65	3.42
North America--						
Supply	9.32	9.40	10.12	10.81	11.05	11.16
Demand	5.75	5.95	6.15	6.35	6.55	6.75
Balance	3.57	3.45	3.97	4.46	4.50	4.41
Western Europe--						
Supply	5.15	5.04	4.97	4.93	4.93	4.93
Demand	5.42	5.47	5.55	5.65	5.75	5.85
Balance	-.27	-.43	-.58	-.72	-.82	-.92
Oceania--						
Supply	0.00	.00	.00	.00	.00	.00
Demand	.25	.26	.27	.28	.29	.31
Balance	-.25	-.26	-.27	-.28	-.29	-.31
Other countries--						
Supply	1.05	1.14	1.14	1.14	1.14	1.14
Demand	.75	.82	.84	.86	.88	.90
Balance	.30	.32	.30	.28	.26	.24
Developing market economies:						
Supply	.30	.39	.53	.65	.72	.76
Demand	3.27	3.50	3.74	4.00	4.23	4.48
Balance	-2.97	-3.11	-3.21	-3.35	-3.51	-3.72
Africa--						
Supply	.00	.00	.00	.00	.00	.00
Demand	.30	.32	.34	.36	.38	.40
Balance	-.30	-.32	-.34	-.36	-.38	-.40
Latin America--						
Supply	.02	.02	.07	.13	.17	.21
Demand	1.40	1.50	1.63	1.76	1.89	2.02
Balance	-1.38	-1.48	-1.56	-1.63	-1.72	-1.81
Near East--						
Supply	.28	.37	.46	.52	.55	.55
Demand	.08	.09	.04	.10	.10	.11
Balance	.20	.28	.37	.42	.45	.44
Far East--						
Supply	.00	.00	.00	.00	.00	.00
Demand	1.49	1.59	1.68	1.78	1.86	1.95
Balance	-1.49	-1.59	-1.68	-1.78	-1.86	-1.95
Centrally-planned countries of Asia:						
Supply	.02	.02	.02	.02	.02	.02
Demand	.75	.81	.87	.93	.99	1.05
Balance	-.73	-.79	-.85	-.91	-.97	-1.03
Eastern Europe and the Soviet Union:						
Supply	11.22	11.73	12.35	12.77	13.01	13.10
Demand	8.50	8.90	9.30	9.70	10.10	10.50
Balance	2.72	2.83	3.05	3.07	2.91	2.60
WORLD TOTAL:						
Supply	27.06	27.72	29.13	30.32	30.87	31.11
Demand	24.69	25.71	26.72	27.77	28.79	29.84
Balance	2.37	2.01	2.41	2.55	2.08	1.27

1/ Forecasts for year ending June 30.

Source: (2).

LIST OF TABLES

APPENDIX TABLES

LIST OF FIGURES

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C. 20250

OFFICIAL BUSINESS
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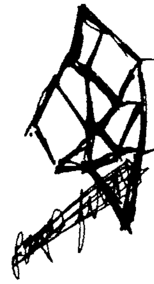
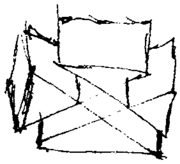


Lynn Daft 3/18/85

Agri-business in general favor ag. exports but they have not moved to suggest import quotas, tariffs for ag. inputs. [Partly because many of these mfg. are also exporters]

Large farm implications for farm mach. mfg. are not looking at very large equip. because of cost, compaction, etc. while sales have increased for smaller low H P mach. which tend to be imported.



⑥ Most (large firms) will try to be effective but in ~~a~~ quiet way.

Agri-business & Farm Policy

① ~~Naive about~~ Naive about policy
② Interest has grown since PIK
③ Sensitive to how their clientele w/ respond to their policy position
- tend to deal w/ less sensitive issues
④ Large firms hire their own policy people, but smaller firms do not → complu
⑤ Most firms [redacted] are taking larger-run view of policy.
less