PHOSPHATE ROCK

(Data in thousand metric tons, unless otherwise noted)

Domestic Production and Use: Phosphate rock ore was mined by 11 firms in 4 States, and upgraded into an estimated 41.5 million tons of marketable product valued at $1.21 billion, f.o.b. mine. Florida and North Carolina accounted for 85% of total domestic output, with the remainder produced in southeastern Idaho and northwestern Utah. About 90% of U.S. phosphate rock demand was for the conversion into wet-process phosphoric acid and superphosphoric acid, which were used as intermediates in the manufacture of granular and liquid ammonium phosphate fertilizers. More than 50% of the wet-process phosphoric acid produced was exported in the form of upgraded granular diammonium and monoammonium phosphate fertilizer, triple superphosphate fertilizer, and merchant grade phosphoric acid. Calcium phosphate animal feed supplements were manufactured from defluorinated phosphate rock and defluorinated phosphoric acid. Phosphate rock mined by two western companies was used as feedstock for elemental phosphorus production at two wholly owned electric furnace facilities in Idaho. Elemental phosphorus was used to produce high-purity phosphoric acid and phosphorus compounds, which were used in a variety of industrial applications.

Salient Statistics—United States:	**1995**	**1996**	**1997**	**1998**	**1999e**
Production[1]	43,500	45,400	45,900	44,200	41,500
Sold or used by producers	43,700	43,500	42,100	43,700	42,900
Imports for consumption	1,800	1,800	1,830	1,760	2,100
Exports	2,760	1,570	335	378	320
Consumption[2]	42,700	43,700	43,600	45,000	44,700
Price, average value, dollars per ton, f.o.b. mine[3]	21.75	23.40	24.40	25.46	29.12
Stocks, producer, yearend	5,710	6,390	7,910	7,920	6,800
Employment, mine and beneficiation plant, number	5,000	5,000	5,000	5,000	5,000
Net import reliance[4] as a percent of apparent consumption	E	—	—	3	7

Recycling: None.

Import Sources (1995-98): Morocco, 99%; and other, 1%.

Tariff: Item	**Number**	**Normal Trade Relations 12/31/99**
Natural calcium phosphates:		
Unground	2510.10.0000	Free.
Ground	2510.20.0000	Free.

Depletion Allowance: 15% (Domestic and foreign).

Government Stockpile: None.

Events, Trends, and Issues: In 1999, the domestic phosphate rock production decreased as producers in Florida reduced stocks and adjusted output to meet demand. Production in North Carolina was down owing to production difficulties, while Western mine production remained about the same as last year. Consumption of phosphate rock dropped slightly as fertilizer production slowed in the second half of the year. The largest phosphate producer permanently closed one of its six mines because of depleted reserves and temporarily closed two other mines to reduce existing stocks and prolong mine life. The company also continued with permitting procedures for two new mines that will be necessary to replace existing mines, which will be depleted of reserves within the next decade. Imports reached a record high because of an increase in production capacity at one fertilizer plant. Exports of phosphate rock have leveled after dropping significantly from 1995 to 1997.

Domestic consumption of phosphatic fertilizers was lower in 1999 primarily because of a reduction in the total acres of corn planted, which was caused by high stocks, low prices, and a reduction in Government assistance payments. Application rates for corn and other crops also were affected by wet weather in the Spring planting season. Exports sales of diammonium phosphate (DAP) remained about the same as last year, however shipments to India were delayed for several months because the Government was late in enacting fertilizer subsidies. Shipments of other fertilizers were lower than last year. The drop in demand early in the year resulted in high fertilizer stocks, primarily of DAP. In response to the weak market conditions and to reduce stocks, several phosphate fertilizer plants were closed temporarily in 1999. However, one DAP plant, which had been closed since 1992, reopened in Manatee County, FL.

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PHOSPHATE ROCK

New phosphate rock mines were commissioned in 1999 in Australia and Canada, thus eliminating the need for imports of phosphate rock in to the respective countries. New facilities in Australia, India, and Pakistan were anticipated to add 4.2 million tons of DAP capacity to that region over the next 2 years. This will have an impact on U.S. DAP exports, as the Indian subcontinent and Australia have been the second and third largest markets, respectively, for U.S. companies after China.

The increased need for world food production assures the long-term growth in world phosphate rock demand. The United States remains the world's largest producer and consumer of phosphate rock and the leader in fertilizer production and exports. U.S. mine production will likely decrease slightly in 2000, as producers reduce stocks and adjust output. U.S. producers will face greater international competition, as new production capacity for both phosphate rock and fertilizers will be added over the next several years. Domestic phosphate rock consumption was expected to decrease this year because of high grain and fertilizer stocks and projected deceases in total planted corn acreage. The export market will continue to be the determining factor for phosphate rock demand.

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves[5]	Reserve base[5]
	1998	1999[e]		
United States	44,200	41,500	1,000,000	4,200,000
Brazil	4,270	4,500	330,000	370,000
China	25,000	20,000	500,000	1,200,000
Israel	4,100	4,100	180,000	180,000
Jordan	5,900	6,000	900,000	1,700,000
Morocco and Western Sahara	24,000	24,000	5,700,000	21,000,000
Russia	9,800	11,000	150,000	1,000,000
Senegal	1,300	1,600	50,000	160,000
South Africa	2,800	3,000	1,500,000	2,500,000
Syria	2,500	2,500	60,000	100,000
Togo	2,200	2,200	30,000	60,000
Tunisia	7,950	7,800	100,000	600,000
Other countries	11,000	10,000	1,000,000	2,500,000
World total (rounded)	145,000	138,000	12,000,000	36,000,000

World Resources: Phosphate rock resources occur principally as sedimentary marine phosphorites. Significant igneous occurrences are found in Canada, Russia, and South Africa. Large phosphate resources have been identified on the continental shelves and on seamounts in the Atlantic Ocean and the Pacific Ocean.

Substitutes: There are no substitutes for phosphorus in agriculture.

[e]Estimated. E Net exporter.

[1]Marketable.

[2]Defined as sold or used plus imports minus exports.

[3]Marketable phosphate rock, weighted value, all grades, domestic and export.

[4]Defined as imports - exports + adjustments for Government and industry stock changes.

[5]See Appendix C for definitions.