POTASH

(Data in thousand metric tons of K_2O equivalent, unless otherwise noted)

Domestic Production and Use: In 1997, the value of production of marketable potash, f.o.b. mine was about $315 million, owing to sales of more expensive forms of potash and increasing prices. Domestic potash production was from three States. The majority of the production was from southwestern New Mexico, where three companies operated five mines at the beginning of the year. These five mines were conventional underground mines of bedded deposits, which have projected lifetimes that range from about 1 year to more than 100 years at present prices. New Mexico potash ore was beneficiated by flotation, heavy media separation, dissolution-recrystallization, and washing, and provided about 80% of the U.S. total producer sales.

In Utah, of the three potash operations, one company brought underground potash to the surface by solution mining. The potash was recovered from the brine by solar evaporation to crystals and flotation. Another Utah company collected subsurface brines from an interior basin for solar evaporation to crystals and flotation. The third Utah company collected lake brines for solar evaporation to crystals, flotation, and dissolution-recrystallization. In Michigan, a company used deep well solution mining and recovery by mechanical evaporation. In California the first domestic potash producer sold only from its remaining stockpiles, having closed potash operations last year. The fertilizer industry used more than 88% of the U.S. potash sales and the chemical industry used close to 12%. About 65% of the potash was produced as potassium chloride (muriate of potash). Potassium sulfate (sulfate of potash) and potassium magnesium sulfate (sulfate of potash-magnesia), required by certain crops and soils, were also sold.

Salient Statistics—United States:	**1993**	**1994**	**1995**	**1996**	**1997[e]**
Production, marketable	1,510	1,400	1,480	1,390	1,430
Imports for consumption	4,360	4,800	4,820	4,950	4,910
Exports	415	464	409	481	450
Consumption, apparent	5,430	5,810	5,810	5,890	5,890
Price, dollars per metric ton of K_2O, average, muriate, f.o.b. mine[1]	128	131	137	133	140
Stocks, producer, yearend	305	234	312	265	265
Employment, number: Mine	795	845	900	880	850
Mill	910	810	840	810	800
Net import reliance[2] as a percent of apparent consumption	72	76	75	77	76

Recycling: None.

Import Sources (1993-96): Canada, 92%; Russia, 3%; Belarus, 2%; Israel, 1%; Germany, 1%; and other, 1%.

Tariff: Item	**Number**	**Most favored nation (MFN) 12/31/97**	**Non-MFN[3] 12/31/97**
Crude salts, sylvinite, etc.	3104.10.0000	Free	Free.
Potassium chloride	3104.20.0000	Free	Free.
Potassium sulfate	3104.30.0000	Free	Free.
Potassium nitrate	2834.21.0000	Free	Free.
Potassium-sodium nitrate mixtures	3105.90.0010	Free	Free.

Depletion Allowance: 14% (Domestic), 14% (Foreign).

Government Stockpile: None.

Events, Trends, and Issues: The world's largest potash producers operated at less than full capacity for another year. The world remained in over-capacity but production increased marginally. The Canadian potash industry operated at about 75% capacity, about 45% for the largest producer and 90% for all the others; the Former Soviet Union producers operated at about 60% capacity. New Mexico producers operated at about 85% capacity for the year. While capacity remained about the same as last year, U.S. production increased partially owing to increasing domestic demand and greater production of sulfate of potash; French production decreased owing to the approaching end of mine life, while Canada increased slightly. The Pacific Basin potash buyers apparently noted the price difference between the U.S. price and the international price, and demanded that Canada equalize prices. Muriate of potash price declined in the first half of the year in the Pacific Basin by about 6% while U.S. price rose by about 6%.[4] This was an improvement for the domestic muriate of potash producers who export less of their production and were struggling to stay in business. The reader should note the ownership changes during the year.

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The St. Paul, MN, civil, class action, antitrust lawsuit, which dated from the summer of 1993, approached resolution during the year. In January the Federal District Court Judge agreed with the magistrate's recommendation and dismissed the suit. The plaintiffs appealed to the 8th Circuit Court of Appeals in St. Paul, MN, and there were oral arguments in June without an immediate decision. In early December 1997 a Carlsbad, NM, mine was closed as unprofitable.

On June 18th, the Potash Company of Canada (Potacan) mine at Clover Hill, New Brunswick, Canada, an 800,000-ton muriate of potash mine was discovered to be subject to a water inflow problem. The flow was initially estimated to be 4,000 to 5,000 cubic meters per day. This mine was jointly owned by Kali und Salz GmbH of Kassel, Germany, a division of Kali und Salz Beteiligungs AG, and Entreprise Minière et Chemique of Paris, France.

In 1997, because the world cereal stocks have been below 17% of consumption since 1995,[5] there has been price pressure for more production of cereals. Fall fertilizer application was strong owing to good weather and expectations of El Niño's possible bad effects on next year's crop production, e.g., droughts in Indonesia and Australia, rain in the southeastern and northwestern United States, and a strengthening of the westerlies in the Southern Hemisphere during its winter season that brings heavy precipitation to parts of southern parts of South America.

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves[6]	Reserve base[6]
	1996	1997[e]		
United States	1,390	1,430	70,000	240,000
Azerbaijan[e]	50	50	NA	NA
Belarus	2,600	2,600	800,000	1,000,000
Brazil	270	300	50,000	600,000
Canada	8,165	8,400	4,400,000	9,700,000
Chile	50	50	10,000	50,000
China	110	130	320,000	320,000
France	800	730	9,000	25,000
Germany	3,200	3,200	720,000	870,000
Israel	1,320	1,300	42,000	[7]580,000
Jordan	1,200	1,200	42,000	[7]580,000
Russia	2,800	2,800	1,800,000	2,200,000
Spain	600	600	20,000	35,000
Ukraine	100	100	25,000	30,000
United Kingdom	580	600	22,000	30,000
Other countries	—	—	50,000	140,000
World total (may be rounded)	23,200	23,500	8,400,000	17,000,000

World Resources: Estimated domestic potash resources total about 6 billion tons. Most of this lies at depths between 6,000 and 10,000 feet in a 1,200-square-mile area of Montana and North Dakota as an extension of the Williston Basin deposits in Saskatchewan, Canada. The Paradox Basin in Utah contains approximately 2 billion tons, mostly at depths of more than 4,000 feet. An unknown, but large potash resource lies about 7,000 feet under central Michigan. The U.S. reserve figure above contains a conservative 25 million tons of reserves in central Michigan. Estimated world resources total about 250 billion tons. The potash deposits in the Former Soviet Union contain large amounts of carnallite; it is not clear if this can be mined in a free market, competitive economy. Large resources, about 10 billion tons and mostly carnallite, occur in Thailand.

Substitutes There are no substitutes for potassium as an essential plant nutrient and essential requirement for animals and humans. Manure and glauconite are low-potassium-content sources that can be profitably transported only short distances to the crop fields.

[e]Estimated. NA Not available.

[1]Average prices based on actual sales; excludes soluble and chemical muriates.

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

[3]See Appendix B.

[4]Potash Corporation of Saskatchewan, 1997, 10-QC Second Quarter of 1997, ending June 30: Securities and Exchange Commission, August 12, p. 11.

[5]Soh, Kim Gai, 1997, Fertilizer demand and crops: International Fertilizer Industry Association, published as supplement of CONTACT No. 14, June, 7 p. (Accessed October 16, 1997, on the World Wide Web at URL http://www.fertilizer.org/CROPS/CROPS/globalag.htm)

[6]See Appendix D for definitions.

[7]Total reserve base in the Dead Sea is equally divided between Israel and Jordan.