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POTASH

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POTASH

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Potash production declined in quantity by 8.3% in 2006, but the total value of sales remained about the same compared with that of 2005 because the average unit value was higher. About 2.4 million metric tons (Mt) of minerals was mined to produce 1.1 Mt of potassium oxide (K_2O) equivalent.[1] Imports for consumption decreased by 9.0%; however, the customs value only decreased slightly. Total exports were 66% higher in 2006 when compared with those of 2005 (table 1).

Potash denotes a variety of mined and manufactured salts, all of which contain the element potassium in water-soluble form. The majority of the domestic potash was produced near Carlsbad, NM, with most of the potash coming from the mineral sylvite. The term potash refers to potassic fertilizers, which are potassium chloride (KCl or sylvite), potassium sulfate [K_2SO_4 or sulfate of potash (SOP), usually a manufactured product], and potassium-magnesium sulfate [K_2SO_4•$2MgSO_4$ or langbeinite or double sulfate of potash magnesia (SOPM or K-Mag)]. Muriate of potash (MOP) is an agriculturally acceptable mix of KCl (95% pure or greater) and sodium chloride (halite) for fertilizer use that includes minor amounts of other nontoxic minerals from the mined ore and is neither the crude ore sylvinite nor pure sylvite.

This publication has historically included potassium nitrate [KNO_3 or saltpeter or nitrate of potash (NOP), a mostly manufactured product] and mixed sodium nitrate and potassium nitrate ($NaNO_3$ and KNO_3 or Chilean saltpeter, a natural product) because these materials function as potassic plus nitrogenous fertilizers. Saltpeter and Chilean saltpeter are still noted in the import tables (tables 8, 9).

Production

Domestic production data were developed by the U.S. Geological Survey (USGS) from a semiannual voluntary canvass of U.S. operations. Of the seven operations canvassed for semiannual production data, all responded for the January through June survey, and all but one operation responded for the July through December survey, representing 98% of the total production listed in table 1. Data for the nonrespondent were estimated on the basis of prior-year production levels.

Three companies produced potash from seven operations in three States. Most domestic production was from southeastern New Mexico where Intrepid Mining LLC operated two mines and The Mosaic Company operated one mine. Mosaic also operated a deep-solution mine in Michigan. The third State with potash production was Utah where Intrepid produced potash from two operations and Great Salt Lake Minerals Corp. produced from another operation.

Potash producers in the United States produced MOP, SOP, and SOPM. Published production data of all types and grades of potash in the United States have been adjusted since mid-1997 to avoid disclosing the proprietary data of companies that produce SOP and SOPM, which together are known as sulfates.

Production decreased for the second consecutive year. By yearend, higher potash prices indicated that market conditions were becoming more favorable for producers, prompting Intrepid to plan expansions at its U.S. operations that could result in an additional 700,000 metric tons per year (t/yr) of capacity (Fertilizer International, 2006b).

Consumption

Consumption of K_2O equivalent in 2006 was 11.3% lower compared with that of 2005. Decreases in production and imports and increased exports resulted in the decrease in apparent consumption.

The principal use of potash is as an agricultural fertilizer (plant nutrient) because it is a source of soluble potassium, which is one of the three primary plant nutrients required for plant growth and maturation; the others are fixed nitrogen and soluble phosphorus. Potash and phosphorus are mined products, and fixed nitrogen is produced from the atmosphere using industrial processes. Modern agricultural practice uses large amounts of these primary nutrients and additional nutrients, such as boron, calcium, chlorine, copper, iron, magnesium, manganese, molybdenum, sulfur, and zinc, to ensure plant health and proper maturation. The three major plant nutrients have no cost-effective substitutes. Low-nutrient-content alternative sources, such as animal manure and guano, bone meal, compost, glauconite, and "tankage" from slaughterhouses, are available, but the cost of transportation per metric ton of nutrient can reduce their desirability beyond relatively short distances. In addition to its use as a fertilizer, potassium chloride is important in industrialized economies where it is used in aluminum recycling, by the chloralkali industry to produce potassium hydroxide, in metal electroplating, oil well drilling mud, snow and ice melting, steel heat-treating, and water softening.

Potassium hydroxide is used for industrial water treatment and is the precursor of potassium carbonate, several forms of potassium phosphate, many other potassic chemicals, and soap manufacturing. The glass industry uses potassium carbonate for television and computer monitor production. Potassium carbonate is used to produce animal feed supplements, cement, some types of fire extinguishers, food products, photographic

[1]The potash industry has established a common standard of measurement for defining a product's potassium content [or purity] because the potassium content of its common salts varies in terms of equivalent percentages of potassium oxide (K_2O). A K_2O equivalent for muriate of potash is 60%; sulfate of potash, 51%; and double sulfate of potash magnesia products, 22%. All tonnages are reported in metric tons, K_2O equivalent, unless otherwise specified. All percentages are computed on unrounded K_2O equivalent values.

chemicals, and textiles. It is also used in brewing beer, pharmaceutical preparations, and as a catalyst for synthetic rubber manufacturing. Generally, these nonfertilizer uses have accounted for about 15% of annual potash consumption in the United States.

Foreign Trade

U.S. exports of potash increased in 2006 for the first time in several years. Exports of 332,000 metric tons (t) were reported, of which 62.0% was MOP, 26.0% was SOPM, 11.6% was SOP, and less than 1% was NOP (table 3). Brazil, Mexico, Canada, Chile, and Japan, in declining order and with more than 50,000 t each, received 65.4% of the total exports of potash from the United States (table 4). Of the total quantity of exports by world region, 50.1% went to South America, 23.3% went to North America, 10.7% went to Asia, 8.6% went to Central America, 2.9% went to Oceania, 2% went to Africa, 2% went to the Caribbean, and the remainder went to Europe and the Middle East. Exports of MOP to all regions increased by 147%, mostly as a result of exports to Brazil that were nearly 10 times what they were in 2005. SOP exports increased by 4.5%, SOPM increased by 10.0%, and NOP decreased by 4.0% (table 3). Total potash exports, reported by K_2O content, increased by 66.0% in 2006 compared with those of 2005.

Potash imports into the United States for 2006 decreased 9.1% to 4.47 Mt compared with 4.92 Mt in 2005 (table 5). The leading source of all potash imports was Canada with 84.6% of the total, although the 6.25 Mt imported from Canada in 2006 was 11.3% lower than in 2005. MOP imports were 9.5% lower at 4.35 Mt of K_2O and represented 97.4% of total potash imports. Mixed potassium salts declined by 95.5% to 36 t; NOP imports, 66.9% of which were from Chile, increased by 24.7%; and SOP imports, 60.9% of which came from Germany, decreased by 6.1%. Imports from Belarus were 9.2% of the total potash imports and 55.7% higher when compared with 2005 data. Other important sources of imported potash were, in decreasing order of quantity imported, Russia, Germany, Chile, and Israel.

World Industry Structure

Estimated 2006 world potash production decreased by 10.6% to 29.1 Mt with decreased output from all the major producing countries (table 7). Eastern Europe was the leading producing region in the world, although estimates of production there decreased by 7.1% to 10.4 Mt. North America had more production capacity than Eastern Europe, but in 2006, production in North America totaled 9.46 Mt, 19.8% less than that of 2005 and 8.9% less than that produced in Eastern Europe in 2006. Potash production in Western Europe was estimated to have decreased slightly.

Normally, about one-third of global potash supply comes from Canada and another one-third from Russia and Belarus (Lerner, 2006b). Only about 15 countries are notable potash producers, with Belarus, Canada, Germany, Israel, Jordan, and Russia operating 90% of global capacity (Fertilizer International, 2006a).

Global shipments of potash lagged through the first 6 months of 2006 because price negotiations for imported material in China and India dragged on longer than expected. By the time agreements were reached at the end of July, stocks in those countries were quite low. Following the deal, shipments to those countries were expected to increase significantly, perhaps to the point of straining the supply lines (Lerner, 2006a).

World Review

Belarus.—Potash is produced in Belarus by Belaruskali, a company that was expanding capacity by developing a new mine to replace a depleted one. Production capacity was expected to increase to 8.5 Mt/yr from 7.7 Mt/yr (Fertilizer International, 2006b).

Brazil.—Companhia Vale do Rio Doce was working toward expanding KCl capacity to 1 Mt/yr in 2012 from 850,000 t/yr (Fertilizer International, 2006b).

Canada.—As the leading potash-producing country, the bulk of Canadian potash production comes from mines in Saskatchewan. Approximately one-third of global potash capacity is in Canada. The Canadian potash producers were, in descending order of capacity, Potash Corporation of Saskatchewan Inc. (PotashCorp), Mosaic, and Agrium Inc. Although the market was weak in the beginning of 2006, improved expectations by yearend prompted all producers to work to expand potash production capacity through debottlenecking projects and mine expansions. In total, Canadian producers had plans to increase capacity by 1.1 Mt/yr KCl to 23.2 Mt/yr by 2010 with the potential of an additional 2 Mt being reactivated at idled mines (Fertilizer International, 2006b).

PotashCorp, headquartered in Saskatoon, Saskatchewan, is the leading potash producer in the world with 22% of world production capacity (Potash Corporation of Saskatchewan, Inc., 2006). PotashCorp attempted to balance supply and demand by idling capacity at different mines periodically through the first 7 months of the year. In January, the company announced the temporary closure schedule for three mines that resulted in reducing production by 1.1 Mt during the shutdown followed by the closure of another mine in February, eliminating 240,000 t of production during the shutdown. Three mines closed on varying schedules during May, June, and July. The closures curtailed an additional 430,000 t of potash production (Green Markets, 2006e-g).

On January 29, 2006, a fire broke out at Mosaic's Esterhazy Mine in Saskatchewan. Workers followed safety procedures when the fire was discovered by relocating to underground refuge stations while emergency crews worked to extinguish the blaze. The workers were evacuated safely more than 24 hours later. Esterhazy, which is owned by PotashCorp and operated by Mosaic, is the largest potash mine in the world, spanning a 20 by 30 kilometer area about 945 meters underground with upwards of 7,830 kilometers of tunnels (Green Markets, 2006h).

Later in the year, Esterhazy experienced unusually high water inflow that was first noticed in the second week of December. Mosaic was taking steps to mitigate the problem, including injections of calcium chloride, which reacts with the

brine to form gypsum that plugs the entry points and pumping underground brine to the surface to help control underground brine levels (Fertilizer Week America, 2007).

China.—China was becoming an increasingly important producer of potash, raising its total KCl capacity to 3.6 Mt/yr from 2.9 Mt/yr by 2010. Potassium magnesium sulfate capacity was expanding at three locations, bringing it to 3.5 Mt/yr by 2010 (Fertilizer International, 2006b). China's deposits are relatively low grade and in remote locations, making it less expensive to import potash for much of the country, although capacity was expanding (Fertilizer International, 2006a).

Congo (Brazzaville).—MagMinerals Inc. (a subsidiary of MagIndustries Corp. of Canada) announced plans to develop a potash project near Point-Noire, Congo (Brazzaville). The company was working on a feasibility study to determine financial feasibility, develop process flow sheets, and evaluate other factors in the determining whether to proceed with the project. MagMinerals expected to use solution mining methods to produce potash from the carnellite deposit. Initial production capacity was expected to be about 580,000 t/yr, with additional development phases to follow with the possibility of operating for more than 50 years (Green Markets, 2006a). Previously, 400,000 to 500,000 t/yr of sylvinite was recovered from this mine until it flooded in 1997. The Government of the Congo (Brazzaville) estimated carnalite reserves 800 billion tons (Davies, 2006).

Germany.—Kali und Salz GmbH (K+S) produced 38 Mt/yr of potash and magnesium salts from 6 mines in Germany and 11 Mt/yr from the mine at Zeilitz, which is the most modern potash facility in Europe (Fertilizer International, 2006c).

Jordan.—Arab Potash Co. in Jordan was increasing potash capacity by 25% to 2.445 Mt/yr by 2008 and evaluating the prospect for future expansion to 3 Mt/yr (Fertilizer International, 2006b).

Russia.—Potash is produced in Russia by JSC Silvinit and JSC Uralkali. Uralkali's Berezniki 1 potash mine, which had operated since the 1930s in the Perm region, experienced serious flooding. The inflow was first detected on October 19 and led to the permanent closure of the mine. The loss of Berezniki 1 was expected to have a short-term impact on Uralkali's production. Closure of the mine reduced total Uralkali production by 1 Mt/yr, but expansion plans that were already in the works will restore production to 2005 levels in 2008 and to 7 Mt in 2009. Uralkali also had plans to build a new facility at Ust-Yaivinski with the capacity to produce 4 Mt/yr (Green Markets, 2006b-c, i).

EuroChem Mineral and Chemicals Co. signed an agreement with the Volgograd regional government to develop the Gremyachinskaya potash deposit in Russia. Production capacity was expected to be 2 Mt/yr when production begins in 2010 (Industrial Minerals, 2007).

Outlook

Because of the lost production resulting from the Berezniki 1 flooding, increased demand for potash, and other factors limiting increased production, global potash supplies were expected to tighten for 2007, driving prices higher. Expected higher domestic demand for potash is a result of strong demand for corn for traditional markets as well as increased ethanol production for use as a gasoline additive and perhaps substitute in the quest for reduced energy dependence. Higher corn prices correlate well with higher potash application rates (Green Markets, 2006d).

Global potash capacity utilization is forecast to remain steady at just more than 80% for the next few years, and prices will probably remain firm through 2010. Demand is expected to increase faster than supply, driving operating rates higher. Global potash demand is growing as a result of increases in population, higher incomes in some developing countries, and increased production of biofuels, including ethanol and diesel made from agricultural products (Lerner, 2006b). Asia has become the largest regional consumer of potash, representing 36% of global consumption. The United Nations expected that global potash consumption will increase at about 2.7 Mt/yr, and 60% of the growth will be in Asia (Fertilizer International, 2006a).

The International Fertilizer Industry Association (IFA) expected that global potash capacity will increase to 71.3 Mt/yr of KCl equivalent in 2010 from 64.3 Mt/yr in 2005. New capacity is likely to result from expansions in operations in China, the Middle East, North America, and Russia along with possible new operations in Asia and Argentina. Demand is expected to expand faster than supply, reducing the surplus. New operations are not expected to be completed before 2009 (Fertilizer International, 2006b).

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TABLE 1
SALIENT POTASH STATISTICS[1, 2]

(Thousand metric tons and thousand dollars unless otherwise specified)

		2002	2003	2004	2005	2006
United States:						
Production:[3]						
Gross weight		2,500 r	2,300 r	2,700	2,500	2,400
K_2O equivalent		1,200	1,100	1,200 r	1,200	1,100
Sales by producers:						
Quantity:[3]						
Gross weight		2,500	2,600 r	2,700	2,500	2,400
K_2O equivalent		1,200	1,200	1,300	1,200	1,100
Value[3, 4]		280,000	280,000	340,000	410,000	410,000
Average value:[5]						
Gross weight	dollars per metric ton	$110	$110	$125	$165	$170
K_2O equivalent	do.	$230	$230	$270	$350	$375
Exports:						
Gross weight		894	801	640	569	809
K_2O equivalent		371	329	233	200	332
Imports for consumption:[6, 7]						
Quantity:						
Gross weight		7,630	7,810	8,140	8,110	7,380
K_2O equivalent		4,620	4,720	4,920	4,920	4,470
Value, customs		615,000	646,000	751,000	1,170,000	1,150,000
Consumption, apparent:[3, 8]						
Gross weight		9,300 r	9,600 r	10,000	10,000	9,000
K_2O equivalent		5,400 r	5,600 r	6,000	5,900 r	5,200
World, production, marketable K_2O equivalent		27,100 r	28,600 r	31,100 r	32,500 r	29,100 e

eEstimated. rRevised.

[1]Includes muriate of potash, sulfate of potash, potassium magnesium sulfate, and some parent salts. Excludes other chemical compounds that contain potassium.

[2]Data are rounded to no more than three significant digits unless otherwise specified.

[3]Data are rounded to no more than two significant digits.

[4]Free on board mine.

[5]Rounded to the nearest $5 to avoid disclosing proprietary data.

[6]Excludes potassium chemicals and mixed fertilizers.

[7]Includes nitrate of potash.

[8]Calculated from sales plus imports minus exports.

TABLE 2
PRICES OF U.S. POTASH, BY TYPE AND GRADE[1, 2]

(Dollars per metric ton of K_2O equivalent)

Type and grade	2005 January-June	2005 July-December	2005 Yearly average	2006 January-June	2006 July-December	2006 Yearly average
Muriate, 60% K_2O minimum:						
Standard	185	275	230	290	310	295
Granular	300	305	300	290	275	280

[1]Average prices, free on board mine, based on sales.
[2]Data rounded to nearest $5.

TABLE 3
U.S. EXPORTS OF POTASH, BY TYPE[1]

	Approximate average K_2O equivalent content (percentage)	Quantity (metric tons) Gross weight	Quantity (metric tons) K_2O equivalent[e]
2005:			
Potassium chloride, all grades	61	136,000	83,200
Potassium sulfate	51	72,100	36,800
Potassium magnesium sulfate	22	356,000	78,400
Potassium nitrate	45	3,910	1,760
Total	XX	569,000	200,000
2006:			
Potassium chloride, all grades	61	337,000	206,000
Potassium sulfate	51	75,400	38,400
Potassium magnesium sulfate	22	392,000	86,200
Potassium nitrate	45	3,750	1,690
Total	XX	809,000	332,000

[e]Estimated. XX Not applicable.
[1]Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau, as adjusted by the U.S. Geological Survey.

TABLE 4
U.S. EXPORTS OF POTASH, BY COUNTRY[1]

(Metric tons of product)

Country	Potassium chloride		Potassium sulfates, all grades[2]		Potassium nitrate		Total	
	2005	2006	2005	2006	2005	2006	2005	2006
Argentina	--	--	3	4,030	--	--	3	4,030
Australia	18	36	24,800	15,900	--	--	24,800	15,900
Barbados	1,100	34	157	156	--	3	1,260	193
Belize	--	1	36	175	--	23	36	199
Brazil	25,000	236,000	10,500	2,960	--	--	35,500	239,000
Canada	2,060	2,090	76,200	70,300	846	614	79,100	73,000
Chile	--	--	29,800	51,100	--	--	29,800	51,100
China	--	--	28,000	35,500	10	5	28,000	35,500
Colombia	72	69	33,300	35,400	3	23	33,400	35,500
Costa Rica	6,000	12,600	40,000	32,700	--	15	46,000	45,300
Côte d'Ivoire	--	--	3,000	9,050	--	--	3,000	9,050
Czech Republic	320	240	--	--	--	--	320	240
Dominican Republic	4,000	--	6,000	1,810	5	--	10,000	1,810
Ecuador	18	17	9,010	17,000	--	--	9,030	17,000
El Salvador	6,200	--	2	2,800	--	--	6,200	2,800
Guatemala	6	2,120	3,000	2,400	--	--	3,010	4,520
Guyana	2,500	2,750	--	--	--	--	2,500	2,750
Honduras	--	--	8,510	12,500	--	--	8,510	12,500
India	--	--	--	--	2,150	9	2,150	9
Indonesia	--	19	--	454	--	--	--	473
Israel	--	--	935	477	--	--	935	477
Jamaica	--	3,730	--	--	--	--	--	3,730
Japan	40	40	46,700	50,000	1	--	46,700	50,100
Korea, Republic of	1	--	5,070	3	71	29	5,150	32
Martinique	13,900	7,380	3,560	3,450	--	--	17,500	10,800
Mexico	57,400	51,400	61,500	61,700	377	2,540	119,000	116,000
Morocco	--	--	474	947	--	--	474	947
New Zealand	--	--	--	7,590	32	55	32	7,640
Nicaragua	4,400	--	3,750	500	--	--	8,150	500
Panama	10,400	--	1,750	3,260	--	--	12,200	3,260
Peru	20	45	20,000	17,000	--	--	20,000	17,000
Russia	274	209	--	--	--	--	274	209
Saudi Arabia	617	--	--	--	--	--	617	--
South Africa	--	--	--	6,350	--	--	--	6,350
Suriname	--	73	--	--	--	--	--	73
Thailand	258	204	--	--	--	74	258	278
Trinidad and Tobago	1,200	--	4	2	--	--	1,200	2
Venezuela	2	17,400	12,200	21,200	--	--	12,200	38,700
Other	471	906	332 [r]	610	412	362	1,220 [r]	1,880
Total	136,000	337,000	429,000	467,000	3,910	3,750	569,000	809,000

[r]Revised. -- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes potassium magnesium sulfate.

Source: U.S. Census Bureau, as adjusted by the U.S. Geological Survey.

TABLE 5

U.S. IMPORTS FOR CONSUMPTION OF POTASH, BY TYPE[1]

	Approximate average K_2O equivalent content (percentage)	Quantity (metric tons)		Value (thousands)	
		Gross weight	K_2O equivalent[e]	Customs	C.i.f.[2]
2005:					
Potassium chloride[3]	61	7,880,000	4,810,000	1,100,000	1,160,000
Potassium sulfate	51	106,000	53,900	23,400	27,700
Potassium nitrate	45	120,000	54,000	40,700	46,200
Potassium sodium nitrate mixture	14	5,700	798	1,750	2,250
Total	XX	8,110,000	4,920,000	1,170,000	1,240,000
2006:					
Potassium chloride[3]	61	7,130,000	4,350,000	1,070,000	1,130,000
Potassium sulfate	51	99,200	50,600	22,100	25,200
Potassium nitrate	45	150,000	67,300	52,300	59,900
Potassium sodium nitrate mixture	14	259	36	184	193
Total	XX	7,380,000	4,470,000	1,150,000	1,210,000

[e]Estimated. XX Not applicable.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Cost, insurance, and freight.

[3]Contains imports listed under Harmonized Tariff Schedule of the United States code 3104.10.0000.

Source: U.S. Census Bureau, as adjusted by the U.S. Geological Survey.

TABLE 6

U.S. IMPORTS FOR CONSUMPTION OF POTASH, BY COUNTRY[1]

Country	Potassium chloride (metric tons)		Potassium sulfate (metric tons)		Potassium nitrate (metric tons)		Potassium sodium nitrate (metric tons)		Total					
									Quantity (metric tons)		Value (thousands)			
											Customs		C.i.f.[2]	
	2005	2006	2005	2006	2005	2006	2005	2006	2005	2006	2005	2006	2005	2006
Australia	2	20	--	--	--	--	--	--	2	20	$3	$38	$3	$40
Belarus	436,000	680,000	--	--	--	--	--	--	436,000	680,000	73,500	102,000	82,400	114,000
Belgium	--	--	5,520	25,200	7	12	--	--	5,520	25,200	1,530	2,650	2,250	2,850
Cameroon	17	--	--	--	--	--	--	--	17	--	6	--	6	--
Canada	7,030,000	6,240,000	13,000	9,160	--	--	1,760	233	7,040,000	6,250,000	963,000 r	942,000	1,000,000	983,000
Chile	--	--	13,300	2,910	81,500	100,000	--	--	94,800	103,000	30,500	38,900	32,700	42,100
China	--	--	--	185	18	57	--	--	18	242	14	114	16	166
France	--	--	163	1,030	--	--	--	--	163	1,030	190	261	215	314
Germany	29,800	69,300	72,400	60,400	2,500	2,080	--	--	105,000	132,000	20,100	20,800	24,200	24,400
Iceland	--	15	--	--	--	--	--	--	--	15	--	9	--	12
India	1	2	4	2	393	620	--	--	398	624	134	198	144	210
Israel	5,720	11,600	--	--	34,300	45,600	3,860	21	43,900	57,200	14,000	15,000	17,800	19,400
Italy	--	--	36	187	--	--	--	--	36	187	43	44	50	50
Japan	--	--	234	122	1,090	1,020	--	--	1,320	1,140	554	419	646	484
Mexico	39	--	--	--	7	6	--	--	46	6	27	12	28	12
Netherlands	165	--	--	--	--	1	1	2	166	3	14	12	15	14
Poland	--	--	--	--	160	200	--	--	160	200	88	108	108	128
Romania	--	--	--	--	--	38	--	--	--	38	--	6	--	11
Russia	382,000	136,000	--	--	--	--	44	--	382,000	136,000	63,300	22,900	75,000	25,000
Slovakia	19	--	--	--	--	--	--	--	19	--	3	--	3	--
Spain	--	--	1,020	63	--	--	--	3	1,020	66	112	156	117	177
Switzerland	--	1	--	--	--	--	--	--	--	1	--	4	--	4
United Kingdom	180	41	--	--	2	1	37	--	219	42	286	69	314	76
Total	7,880,000	7,130,000	106,000	99,200	120,000	150,000	5,700	259	8,110,000	7,380,000	1,170,000	1,150,000	1,240,000	1,210,000

rRevised. -- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Cost, insurance, and freight.

Source: U.S. Census Bureau, as adjusted by the U.S. Geological Survey.

TABLE 7
MARKETABLE POTASH: WORLD PRODUCTION, BY COUNTRY[1, 2]

(Thousand metric tons of K_2O equivalent)

Country	2002	2003	2004	2005	2006[e]
Belarus[e]	3,800	4,230	4,600	4,844 [3]	4,605 [3]
Brazil	337	416	403	405 [r]	405 [p]
Canada	8,515	9,104 [r]	10,100 [r]	10,596 [r]	8,360 [3]
Chile[e]	575 [r]	563 [r]	559 [r]	547 [r]	450
China[e]	450	500	551 [3]	600	600
France[e]	130	--	--	--	--
Germany	3,472	3,564 [r]	3,627 [r]	3,664 [r]	3,620
Israel	1,950 [r]	1,990 [r]	2,170 [r]	2,260 [r]	2,200
Jordan	1,191 [r]	1,190 [r]	1,175 [r]	1,115 [r]	1,036 [3]
Russia[e]	4,400	4,740	5,600 [r]	6,270 [r]	5,720
Spain[e]	481 [r]	506 [r]	553 [r]	494 [r]	437
Ukraine[e]	60	50	50	65	65
United Kingdom	540 [r]	620 [r]	550 [r]	480 [r]	480
United States[e, 4]	1,200	1,100	1,200	1,200	1,100
Total	27,100 [r]	28,600 [r]	31,100 [r]	32,500 [r]	29,100

[e]Estimated. [p]Preliminary. [r]Revised. -- Zero.

[1]World totals, U.S. data, and estimated data are rounded to no more than three significant digits; may not add to totals shown.

[2]Table includes data available through April 24, 2007.

[3]Reported figure.

[4]Rounded to within 100,000 metric tons to avoid disclosing proprietary data.