Mineral Industry Surveys

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MARKETABLE PHOSPHATE ROCK AND POTASH—CROP YEAR 2020

Because the growth cycles for most agricultural commodities do not coincide with the calendar year, the fertilizer industry tracks fertilizer use by crop year (July 1 through June 30 of 2 consecutive years). Taking that into account, the U.S. Geological Survey compiles phosphate rock and potash data by calendar year and crop year.

Marketable Phosphate Rock

Phosphate rock data for this report were collected through semiannual canvasses of U.S. phosphate rock producers. Six of the seven companies that produced phosphate rock in the United States participated in the voluntary surveys, representing more than 95% of the production, use, and value data shown in the tables. U.S. production of marketable phosphate rock was 24.0 million metric tons (Mt) in crop year 2020, which ended June 30, 2020, compared with 23.4 Mt in crop year 2019 (tables 1, 2).

Marketable phosphate rock sold or used was 23.7 Mt, compared with 23.9 Mt in crop year 2019 (tables 1, 3). The manufacturing of wet-process phosphoric acid for fertilizers and animal feed supplements was estimated to have accounted for more than 95% of phosphate rock consumption. The remainder was used to produce elemental phosphorus or defluorinated phosphate rock.

Domestic apparent consumption was 25.9 Mt, compared with 26.5 Mt in crop year 2019. Producers' stocks decreased by 4% to 10.3 Mt in crop year 2020, from 10.7 Mt in crop year 2019 (table 1).

The average unit value of marketable phosphate rock used in the United States was $69.95 per metric ton, compared with $68.93 per metric ton in crop year 2019 (table 1). Imports of phosphate rock decreased by 13% to 2.21 Mt compared with 2.53 Mt in crop year 2019 (table 1). U.S. phosphate rock mining companies reported no exports of phosphate rock in crop year 2020.

Potash

Potash data for this report were collected through semi-annual canvasses of U.S. potash producers. All companies that produced potash in the United States participated in the voluntary surveys, representing 100% of the production, use, and value data shown in the tables.

U.S. production of potash was 480,000 metric tons (t) of K_2O equivalent in crop year 2020 compared with 540,000 t in crop year 2019. Sales of potash were 510,000 t in crop year 2020 compared with 490,000 t in crop year 2019 (table 4).

Exports of potash increased by 56% to 167,000 t of K_2O equivalent from 107,000 t in crop year 2019. The total value of exports increased by 11% to $133 million from $120 million, in crop year 2019 (tables 4, 6). Imports decreased by 7% to 5.0 Mt of K_2O equivalent from 5.49 Mt in crop year 2019. The total customs value of potash imports decreased by 17% to $1.84 billion from $2.23 billion in crop year 2019 (tables 4, 7).

The total value of potash sales increased by 13% to $430 million from $380 million in crop year 2019 (table 4). The average unit value for all forms of potash (K_2O equivalent) increased by 10% over that in crop year 2019. The average unit value for standard muriate of potash (MOP) was the same as that in crop year 2019 and the average unit value for granular MOP, decreased by 8% from that in the same period (table 5).

Apparent consumption of all forms of potash decreased by 10% to 5.3 Mt of K_2O equivalent from 5.9 Mt in crop year 2019 (table 4).

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TABLE 1
SALIENT U.S. PHOSPHATE ROCK STATISTICS[1]

(Thousand metric tons and thousand dollars)

	Crop year[2]	
	2019	2020
Mine production (crude ore)	107,000	106,000
Marketable phosphate rock production	23,400	24,000
P_2O_5 content	6,590	6,710
Value	1,620,000	1,700,000
Average, dollars per metric ton[3]	68.98	70.76
Sold or used by producers	23,900	23,700
P_2O_5 content	6,730	6,650
Value	1,650,000	1,660,000
Average, dollars per metric ton[3]	68.93	69.95
Imports for consumption:[4]	2,530	2,210
Cost, insurance, and freight value	185,000	166,000
Average, dollars per metric ton	73.35	75.17
Consumption[5]	26,500	25,900
Stocks, June 30, producers'	10,700	10,300

[1]Data are rounded to no more than three significant digits, except prices.
[2]July 1–June 30.
[3]Average value is based on sold or used values.
[4]Source: U.S. Census Bureau.
[5]Expressed as sold or used plus imports.

TABLE 2
PRODUCTION OF PHOSPHATE ROCK IN THE UNITED STATES[1]

(Thousand metric tons and thousand dollars)

	Mine production, crude ore		Marketable production, beneficated			
Period	Rock	P_2O_5 content	Rock	P_2O_5 content	Value[2]	Stocks, End of period rock
Crop Year 2019:	107,000	8,840	23,400	6,590	1,620,000	10,700
Crop Year 2020:						
July–December 2019	51,800	4,440	11,900	3,320	806,000	9,830
January–June 2020	53,700	4,580	12,100	3,380	891,000	10,300
Total	106,000	9,010	24,000	6,710	1,700,000	XX

XX Not applicable.

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

[2]Based on the per ton sold or used values.

TABLE 3
PHOSPHATE ROCK SOLD OR USED BY PRODUCERS
IN THE UNITED STATES[1]

(Thousand metric tons and thousand dollars)

Period	Rock	P_2O_5 content	Value[2]
Crop Year 2019:	23,900	6,730	1,650,000
Crop Year 2020:			
July–December 2019	11,900	3,350	803,000
January–June 2020	11,900	3,310	857,000
Total	23,700	6,650	1,660,000

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

TABLE 4
SALIENT POTASH STATISTICS[1, 2]

(Thousand metric tons and thousand dollars unless otherwise specified)

		Year ending June 30	
		2019	2020
United States:			
Production:[3]			
Gross weight		1,500	1,300
K_2O equivalent		540	480
Sales by producers:			
Quantity:[3]			
Gross weight		1,300	1,400
K_2O equivalent		490	510
Value[3, 4]		380,000	430,000
Average value:[5]			
Gross weight	dollars per metric ton	280	300
K_2O equivalent	do.	770	850
Exports:			
Gross weight		398	532
K_2O equivalent		107	167
Value		120,000	133,000
Imports for consumption:[6, 7]			
Quantity:			
Gross weight		9,120	8,470
K_2O equivalent		5,490	5,000
Value, customs		2,230,000	1,840,000
Consumption, apparent:[3, 8]			
Gross weight		10,000	9,400
K_2O equivalent		5,900	5,300

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[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 5

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

(Dollars per metric ton of K_2O equivalent)

	Crop Year 2019			Crop Year 202	
Type and grade	July–December 2018	January–June 2019	Average value	July–December 2019	January–June 2020
Muriate, 60% K_2O minimum:					
Standard	490	545	520	520	520
Granular	465	490	480	430	460

[1]Average prices, free on board mine, based on sales.

[2]Data rounded to nearest $5.

TABLE 6
U.S. EXPORTS OF POTASH[1]

(Metric tons, unless otherwise specified)

Type	Approximate average K_2O content (percent)	July–December 2019			January–June 2020			Year ending June 30, 2020		
		Product	K_2O equivalent[e]	Value (thousands)	Product	K_2O equivalent[e]	Value (thousands)	Product	K_2O equivalent[e]	Value (thousands)
Potassium chloride, all grades	61	27,300	16,600	$10,700	28,000	17,100	$7,810	55,300	33,700	$18,500
Potassium nitrate	45	3,390	1,530	2,870	3,120	1,410	2,570	6,520	2,930	5,440
Potassium sulfate[2]	27	262,000	73,300	61,000	208,000	56,900	47,700	471,000	130,000	109,000
Total	XX	293,000	91,500	74,600	239,000	75,400	58,100	532,000	167,000	133,000

[e]Estimated. XX Not applicable.
[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; adjusted by the U.S. Geological Survey.

TABLE 7

U.S. IMPORTS FOR CONSUMPTION OF POTASH[1]

(Metric tons, unless otherwise specified)

Type	Approximate average K_2O content (percent)	July–December 2019			January–June 2020			Year ending June 30, 2020		
		Product	K_2O equivalent[e]	Customs value (thousands)	Product	K_2O equivalent[e]	Customs value (thousands)	Product	K_2O equivalent[e]	Customs value (thousands)
Potassium chloride	61	3,870,000	2,360,000	$870,000	4,100,000	2,500,000	$779,000	7,970,000	4,860,000	$1,650,000
Potassium sulfate	51	42,900	21,900	24,800	39,000	19,900	21,500	81,800	41,700	46,300
Potassium nitrate	45	45,500	20,500	27,900	67,000	30,200	41,500	112,000	50,600	69,400
Potassium sodium nitrate mixtures	14	62,100	8,690	16,800	251,000	35,100	57,000	313,000	43,800	73,800
Total	XX	4,020,000	2,410,000	940,000	4,460,000	2,590,000	899,000	8,470,000	5,000,000	1,840,000

[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; adjusted by the U.S. Geological Survey.