

Mineral Industry Surveys

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MARKETABLE PHOSPHATE ROCK AND POTASH—CROP YEAR 2018

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. All companies that produced phosphate rock 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 marketable phosphate rock was 27.7 million metric tons (Mt) in crop year 2018, which ended June 30, 2018, compared with 28.4 Mt in crop year 2017 (tables 1, 2).

Marketable phosphate rock sold or used was 25.3 Mt, compared with 25.9 Mt in crop year 2017 (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 28.3 Mt, compared with 27.7 Mt in crop year 2017. Producers' stocks increased by 17% to 12.8 Mt in crop year 2018, from 10.9 Mt in crop year 2017 (table 1).

The average unit value of marketable phosphate rock used in the United States was \$74.30 per metric ton, compared with \$74.60 per metric ton in crop year 2017 (table 1). Imports of phosphate rock increased by 67% to 2.98 Mt compared with 1.79 Mt in crop year 2017 (table 1). The increase in imports primarily was from The Mosaic Company importing more phosphate rock from Peru, where it owns a 35% interest in the

Miski Mayo Mine. U.S. phosphate rock mining companies reported no exports of phosphate rock in crop year 2018.

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 500,000 metric tons (t) of K₂O equivalent in crop year 2018 compared with 460,000 t in crop year 2017. Sales of potash were 510,000 t in crop year 2018 compared with 520,000 t in crop year 2017 (table 4).

Exports of potash increased by 17% to 123,000 t of K₂O from 95,000 t in crop year 2017 (tables 4, 6). Imports increased by 9% to 5.67 Mt of K₂O from 5.21 Mt in crop year 2017. The total customs value of potash imports increased by 9% to \$1.98 billion from \$1.81 billion in crop year 2017 (tables 4, 7).

The total value of potash sales increased by 3% to \$390,000 from \$380,000 in crop year 2017. The average unit value for all forms of potash (K₂O equivalent) increased by 5% (table 4). The average unit value for MOP, standard and granular grade combined, increased by 15% over that in crop year 2017 (table 5).

Apparent consumption of all forms of potash increased by 9% to 6.1 Mt of K₂O from 5.6 Mt in crop year 2017, owing to higher fertilizer use (table 4).

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TABLE 1
SALIENT U.S. PHOSPHATE ROCK STATISTICS¹

(Thousand metric tons and thousand dollars)

	Crop year ²	
	2017	2018
Mine production (crude ore)	118,000	124,000
Marketable phosphate rock production	28,400	27,700
P ₂ O ₅ content	7,910	7,760
Value	2,380,000	2,090,000
Average, dollars per metric ton ³	83.77	74.61
Sold or used by producers	25,900	25,300
P ₂ O ₅ content	7,300	7,100
Value	1,930,000	1,880,000
Average, dollars per metric ton ³	74.59	74.34
Imports for consumption: ^{e, 4}	1,790	2,980
Cost, insurance, and freight value	160,000	231,000
Average, dollars per metric ton	89.87	77.77
Consumption ^{e, 5}	27,700	28,300
Stocks, June 30, producers'	10,900	12,800

^eEstimated.

¹Data are rounded to no more than three significant digits, except prices.

²July 1-June 30.

³Average value is based on sold or used values.

⁴Source: U.S. Census Bureau.

⁵Expressed as used plus imports.

TABLE 2
PRODUCTION OF PHOSPHATE ROCK IN THE UNITED STATES¹

(Thousand metric tons and thousand dollars)

Period	Mine production, crude ore		Marketable production, beneficiated			Stocks, End of period rock
	Rock	P ₂ O ₅ content	Rock	P ₂ O ₅ content	Value ²	
Crop Year 2017:	118,000	9,220	28,400	7,910	2,380,000	10,900
Crop Year 2018:						
July–December 2017	63,300	4,500	14,000	3,890	1,080,000	10,200
January–June 2018	60,900	4,810	13,700	3,870	984,000	12,800
Total	124,000	9,310	27,700	7,760	2,070,000	XX

XX Not applicable.

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

²Based on the per ton sold or used values.

TABLE 3
 PHOSPHATE ROCK SOLD OR USED BY PRODUCERS
 IN THE UNITED STATES¹

(Thousand metric tons and thousand dollars)

Period	Rock	P ₂ O ₅ content	Value ²
Crop Year 2017:	25,900	7,300	1,930,000
Crop Year 2018:			
July–December 2017	14,400	4,040	1,140,000
January–June 2018	10,900	3,060	747,000
Total	25,300	7,100	1,890,000

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

²Free on board mine.

TABLE 4
SALIENT POTASH STATISTICS^{1,2}

(Thousand metric tons and thousand dollars unless otherwise specified)

	Year ending June 30	
	2017	2018
United States:		
Production: ³		
Gross weight	1,300	1,400
K ₂ O equivalent	460	500
Sales by producers:		
Quantity: ³		
Gross weight	1,300	1,400
K ₂ O equivalent	520	510
Value ^{3,4}	380,000	390,000
Average value: ⁵		
Gross weight	dollars per metric ton	290
K ₂ O equivalent	do.	725
Exports:		
Gross weight	388	454
K ₂ O equivalent	95	123
Imports for consumption: ^{6,7}		
Quantity:		
Gross weight	8,640	9,400
K ₂ O equivalent	5,210	5,670
Value, customs	1,810,000	1,980,000
Consumption, apparent: ^{3,8}		
Gross weight	9,600	10,000
K ₂ O equivalent	5,600	6,100

do. Ditto.

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

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

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

⁴Free on board mine.

⁵Rounded to the nearest \$5 to avoid disclosing proprietary data.

⁶Excludes potassium chemicals and mixed fertilizers.

⁷Includes nitrate of potash.

⁸Calculated from sales plus imports minus exports.

TABLE 5
 PRICES OF U.S. POTASH, BY TYPE AND GRADE^{1,2}

(Dollars per metric ton of K₂O equivalent)

Type and grade	Crop Year 2017		Crop Year 2018	
	July– December 2016	January– June 2017	July– December 2017	January– June 2018
Muriate, 60% K ₂ O minimum:				
Standard	370	400	510	490
Granular	305	400	370	390

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

²Data rounded to nearest \$5.

TABLE 6
U.S. EXPORTS OF POTASH¹

(Metric tons, unless otherwise specified)

Type	Approximate average K ₂ O content (percent)	July–December 2017			January–June 2018			Year ending June 30, 2018		
		Product	K ₂ O	Value	Product	K ₂ O	Value	Product	K ₂ O	Value
			equivalent ^c	(thousands)		equivalent ^c	(thousands)		equivalent ^c	(thousands)
Potassium chloride, all grades	61	15,000	9,140	\$6,090	13,900	8,510	\$6,610	28,900	17,600	\$12,700
Potassium nitrate	45	5,580	2,510	3,750	5,130	2,310	3,710	10,700	4,820	7,460
Potassium sulfate ²	25	215,000	52,700	49,300	200,000	47,600	45,200	415,000	100,000	94,500
Total	XX	236,000	64,400	59,100	219,000	58,400	55,500	454,000	123,000	115,000

^cEstimated. XX Not applicable.

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

²Includes potassium magnesium sulfate.

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

TABLE 7
U.S. IMPORTS FOR CONSUMPTION OF POTASH¹

(Metric tons, unless otherwise specified)

Type	Approximate average K ₂ O content (percent)	July–December 2017			January–June 2018			Year ending June 30, 2018		
		Product	K ₂ O equivalent ^c	Customs value (thousands)	Product	K ₂ O equivalent ^c	Customs value (thousands)	Product	K ₂ O equivalent ^c	Customs value (thousands)
Potassium chloride	61	4,430,000	2,700,000	\$896,000	4,680,000	2,860,000	\$961,000	9,110,000	5,550,000	\$1,860,000
Potassium sulfate	51	63,500	32,400	22,500	41,400	21,100	20,500	105,000	53,500	43,000
Potassium nitrate	45	66,600	30,000	38,700	44,500	20,000	26,500	111,000	50,000	65,100
Potassium sodium nitrate mixtures	14	38,600	5,410	3,170	38,000	5,320	8,910	76,600	10,700	12,100
Total	XX	4,590,000	2,770,000	961,000	4,800,000	2,900,000	1,020,000	9,400,000	5,670,000	1,980,000

^cEstimated. XX Not applicable.

¹Data 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.