

Mineral Industry Surveys

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MARKETABLE PHOSPHATE ROCK AND POTASH—CROP YEAR 2017

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 28.4 million metric tons (Mt) in crop year 2017, which ended June 30, 2017, compared with 26.2 Mt in crop year 2016 (tables 1, 2).

Marketable phosphate rock sold or used was 25.9 Mt, compared with 26.0 Mt in crop year 2016 (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 27.7 Mt, the same as that in crop year 2016. Producers' stocks increased to 10.9 Mt in crop year 2017, from 9.34 Mt in crop year 2016 (table 1).

The average unit value of marketable phosphate rock used in the United States was \$74.20 per metric ton, a decrease of 11% compared with \$83.80 per metric ton in crop year 2016 (table 1). Imports of phosphate rock increased by 4% to 1.79 Mt compared with 1.72 Mt in crop year 2016 (table 1). Mining companies reported no exports of phosphate rock in crop year 2017.

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 460,000 metric tons (t) of K₂O equivalent in crop year 2017 compared with 680,000 t in crop year 2016. Sales of potash were 520,000 t in crop year 2017 compared with 590,000 t in crop year 2016 (table 4). Production and sales of potash were lower owing in part to Intrepid Potash Inc., the leading U.S. producer, ceasing production of muriate of potash (MOP) from its underground mines in New Mexico at the end of December 2016.

Exports of potash increased by 24% to 95,000 t of K₂O from 85,000 t in crop year 2016 (tables 4, 6). Imports increased by 20% to 5.21 Mt of K₂O from 4.36 Mt in crop year 2016. The total customs value of potash imports decreased by 15% to \$1.81 billion from \$2.13 billion in crop year 2016 (tables 4, 7).

The total value of potash sales decreased by 16% to \$380,000 from \$450,000 in crop year 2016. The average unit value for all forms of potash decreased by 5%. The average unit value for MOP, standard and granular grade combined, dropped by 18% from that in crop year 2016.

Apparent consumption of all forms of potash increased by 14% to 5.6 Mt of K₂O from 4.9 Mt in crop year 2016, 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	
	2016	2017
Mine production (crude ore)	127,000	118,000
Marketable phosphate rock production	26,200	28,400
P ₂ O ₅ content	7,410	7,910
Value	2,140,000	2,380,000
Average, dollars per metric ton ³	81.71	83.77
Sold or used by producers	26,000	25,900
P ₂ O ₅ content	7,340	7,300
Value	2,180,000	1,930,000
Average, dollars per metric ton ³	83.78	74.59
Imports for consumption: ^{e, 4}	1,720	1,790
Cost, insurance, and freight value	193,000	160,000
Average, dollars per metric ton	112.13	89.87
Consumption ^{e, 5}	27,700	27,700
Stocks, June 30, producers'	9,340	10,900

^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 2016	127,000	15,400	26,200	7,410	2,140,000	9,340
Crop Year 2017:						
July–December 2016	65,300	4,980	14,500	4,040	1,070,000	9,620
January–June 2017	52,800	4,240	13,900	3,860	1,310,000	10,900
Total	118,000	9,220	28,400	7,910	2,380,000	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 2016	26,000	7,340	2,180,000
Crop Year 2017:			
July–December 2016	14,000	3,950	1,090,000
January–June 2017	11,900	3,350	842,000
Total	25,900	7,300	1,930,000

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	
	2016	2017
United States:		
Production: ³		
Gross weight	1,700	1,300
K ₂ O equivalent	680	460
Sales by producers:		
Quantity: ³		
Gross weight	1,500	1,300
K ₂ O equivalent	590	520
Value ^{3,4}	450,000	380,000
Average value: ⁵		
Gross weight	dollars per metric ton	305
K ₂ O equivalent	do.	725
Exports:		
Gross weight	314	388
K ₂ O equivalent	85	95
Imports for consumption: ^{6,7}		
Quantity:		
Gross weight	7,190	8,640
K ₂ O equivalent	4,360	5,210
Value, customs	2,130,000	1,810,000
Consumption, apparent: ^{3,8}		
Gross weight	8,400	9,600
K ₂ O equivalent	4,900	5,600

⁶Estimated. 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 2016		Crop Year 2017	
	July– December 2015	January– June 2016	July– December 2016	January– June 2017
Muriate, 60% K ₂ O minimum:				
Standard	395 ^f	585 ^f	370	400
Granular	395 ^f	465 ^f	305	400

^fRevised.

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 2016			January–June 2017			Year ending June 30, 2017		
		Product	K ₂ O		Product	K ₂ O		Product	K ₂ O	
			equivalent ^e	Value (thousands)		equivalent ^e	Value (thousands)		equivalent ^e	Value (thousands)
Potassium chloride, all grades	61	11,100	6,790	\$6,400	11,500	7,000	\$5,450	22,600	13,800	\$11,800
Potassium nitrate	45	3,830	1,720	3,370	3,580	1,610	3,030	7,400	3,330	6,410
Potassium sulfate ²	27	182,000	45,900	59,600	176,000	49,200	53,300	358,000	95,100	113,000
Total	XX	197,000	54,400	69,400	191,000	57,800	61,800	388,000	112,000	131,000

^eEstimated. 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 2016			January–June 2017			Year ending June 30, 2017		
		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	3,660,000	2,230,000	\$751,000	4,710,000	2,870,000	\$957,000	8,370,000	5,110,000	\$1,710,000
Potassium sulfate	51	52,700	26,900	18,200	63,500	32,400	23,600	116,000	59,300	41,800
Potassium nitrate	45	41,600	18,700	27,800	39,700	17,900	23,300	81,300	36,600	51,200
Potassium nitrate mixtures	14	33,100	4,640	5,180	33,000	4,620	5,340	66,100	9,260	10,500
Total	XX	3,790,000	2,280,000	802,000	4,850,000	2,930,000	1,010,000	8,640,000	5,210,000	1,810,000

^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.