



2013 Minerals Yearbook

PHOSPHATE ROCK [ADVANCE RELEASE]

PHOSPHATE ROCK

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Domestic phosphate rock production increased for the fifth year in a row to 31.2 million metric tons (Mt) in 2013, reaching levels last seen in 2005. World phosphate rock production was estimated to be 224 Mt, a 4% increase over that of 2012 and the highest production levels on record. Reported domestic use of phosphate rock increased to 28.8 Mt in 2013 from 27.3 Mt in 2012, because of higher production of phosphoric acid. Producer stocks of phosphate rock increased to 9.0 Mt, 34% more than at yearend 2012 (table 3). U.S. consumption increased by 3% to 31.3 Mt in 2013 from 30.4 Mt in 2012 (table 1).

Phosphorus is an essential element for plant and animal nutrition and is consumed primarily as a principal component of nitrogen-phosphorus-potassium (NPK) fertilizers. Phosphate rock minerals are the only significant global resources of phosphorus. In this report (unless noted otherwise), mine production is reported in terms of marketable production, which refers to beneficiated phosphate rock with a suitable phosphorus pentoxide (P_2O_5) content for wet-process phosphoric acid or elemental phosphorus manufacturing. Percentages have been calculated using unrounded data.

Domestic production of phosphoric acid for agricultural use in 2013 increased to 8.22 Mt of P_2O_5 from 7.89 Mt in 2012. Combined production of diammonium phosphate (DAP) and monoammonium phosphate (MAP), the major fertilizer products manufactured from phosphoric acid, was 10.2 Mt, which was 4% lower than that in 2012 (Fertilizer Institute, The, 2014a).

Production

The U.S. Geological Survey domestic phosphate rock production data were obtained from monthly and semiannual voluntary canvasses of five companies that mined phosphate rock. All companies responded to the canvasses, representing 100% of production data. In 2013, phosphate rock was produced at six mines in Florida, three in Idaho, and one each in North Carolina and Utah (table 2).

The U.S. phosphate industry in Florida is concentrated in the counties of Hamilton, Hardee, Hillsborough, Manatee, and Polk. In 2013, the mines in Florida accounted for 65% of domestic annual production capacity. The Mosaic Company operated four mines, and CF Industries Holdings, Inc. and PCS Phosphate Co., Inc. each operated one mine (table 2).

In November, Mosaic announced it would acquire the phosphate operation of CF Industries in Florida. The acquisition included the CF Industries phosphate rock mine in Hardee County and the phosphoric acid and fertilizer plant in Plant City, Hillsborough County. Upon approval of the purchase by Federal regulatory officials, Mosaic would have 55% of U.S. phosphate rock production capacity. The acquisition was expected to be approved in the first quarter of 2014 (Green Markets, 2013b).

In Beaufort County, NC, PCS Phosphate operated a large integrated production facility that included a mine, as well as animal feed, fertilizer, and phosphoric acid plants.

In the Western Phosphate Field of Idaho, Montana, Utah, and Wyoming, four mines were active in 2013—three in Idaho and one in Utah (table 2). In Idaho, phosphate rock was mined in Caribou County by Nu-West Industries, Inc. (a subsidiary of Agrium Inc., Calgary, Alberta, Canada); P4 Production, LLC. (a subsidiary of Monsanto Co.); and J.R. Simplot Co. Simplot, which also operated the Vernal Mine in Uintah County, UT.

All three active producers in Idaho were involved in developing new mines to replace existing mines in Caribou County. In May, Monsanto opened the Blackfoot Bridge Mine, which replaced the depleted South Rasmussen Mine that closed in May 2013. Agrium applied for a State permit to develop the Lanes Creek Mine as a replacement for current operations at the North Rasmussen Ridge Mine. Simplot continued with construction at the Dairy Syncline Mine to replace the Smoky Canyon Mine. The Agrium and Simplot mines were expected to begin production by 2016 (Green Markets, 2013a).

Stonegate Agricom Ltd. (Toronto, Ontario, Canada) continued to develop the Paris Hills phosphate project in Bear Lake County in southeastern Idaho. The company planned to open an underground phosphate rock mine in a 1,010-hectare area where three mines operated intermittently during the 20th century. The Bloomington Canyon Mine operated from 1942 to 1943 and from 1973 to 1975, the Consolidated Mine operated from 1930 to 1932, and the Paris Canyon Mine operated from 1917 to 1926 (Jasinski and others, 2004). In May 2013, Stonegate obtained mineral leases for the Paris Hills phosphate project and expected to receive all permits and begin mining by early 2015. The mine has total measured and indicated mineral reserves of 16.7 Mt of marketable rock, with an average grade of 29.5% P_2O_5 . The ore would not require beneficiation. Stonegate planned to have an average production of 904,000 metric tons per year (t/yr) of phosphate rock for about 19 years (Green Markets, 2013c).

Consumption

Phosphate rock was used primarily for production of wet-process phosphoric acid for fertilizer applications, which accounted for more than 90% of domestic consumption. The remainder was used for animal feed supplements, direct application to soil, and elemental phosphorus production. Domestic apparent consumption of phosphate rock was 31.3 Mt compared with 30.4 Mt in 2012 (table 1).

All phosphate rock mining companies were vertically integrated, having one or more fertilizer plants, usually located near the mine. No sales of domestically mined phosphate rock were reported by producers. Mosaic was the leading company with about 46% of domestic phosphoric acid production

capacity and 8% of world capacity. In 2013, Mosaic operated three wet-process phosphoric acid plants and three fertilizer plants in Florida and one of each in Louisiana (Mosaic Company, The, 2013, p. 4).

PCS Phosphate had phosphoric acid and fertilizer production facilities near its mines in Florida and North Carolina. In Idaho, Simplot sent ore from its Smoky Canyon Mine by slurry pipeline to its fertilizer plant in Pocatello, ID; Simplot sent ore by pipeline from the Vernal Mine in Utah to its plant in Rock Springs, WY.

Two companies—Mississippi Phosphates Corp. (Pascagoula, MS) and PCS Nitrogen, Inc. (Geismar, LA)—manufactured wet-process phosphoric acid using imported phosphate rock from Morocco. Mississippi Phosphates produced phosphate fertilizer products for domestic and export markets. PCS Nitrogen sold merchant-grade phosphoric acid to Innophos Holdings, Inc., which had a nearby facility for upgrading into high-purity phosphoric acid for technical- and food-grade applications (Innophos Holdings, Inc., 2014, p.16).

Monsanto operated the only elemental phosphorus plant in the United States in Soda Springs, ID. The company used elemental phosphorus to manufacture phosphorus trichloride, which was used as a chemical intermediary for the production of glyphosate-base herbicides (Monsanto Co., 2013, p. 6). In other countries, elemental phosphorus was used chiefly to manufacture high-purity phosphoric acid by burning the phosphorus in water, producing what is known as thermal acid. Worldwide, there has been a gradual shift to manufacturing high-purity phosphoric acid from wet-process acid, which has lower production costs and none of the hazardous waste disposal issues that are associated with elemental phosphorus. Thermal acid, however, still accounted for more than 50% of annual world production capacity of high-purity phosphoric acid, primarily in China. The only other operating elemental phosphorus facilities in the world were located in Kazakhstan and Vietnam.

The United States is considered a mature market for phosphate fertilizers, with average annual consumption of slightly more than 4.0 Mt from 1992 to 2012. Fertilizer consumption information is collected by the American Association of Plant Food Officials on a crop year (July 1 to June 30) basis. The most recent data, for crop year 2012 (July 1, 2011, to June 30, 2012), indicate that consumption of P_2O_5 in fertilizers was 3.95 Mt compared with 3.90 Mt in 2011 (Slater and Kirby, 2014, p. 6).

Transportation

In Florida and North Carolina, crude phosphate rock ore was sent by slurry pipeline from the mines to the processing plants. All beneficiated phosphate rock was used internally to manufacture wet-process phosphoric acid; the beneficiated phosphate rock was sent by conveyers to acid plants. In central Florida, animal feed products, fertilizers, and phosphoric acid were sent by rail to domestic customers or to the Port of Tampa for export.

In northern Florida, PCS Phosphate transported its fertilizer products by rail to consumers; some materials, however, were

sent by rail to the PCS Phosphate port facility at Morehead City, NC, for export. PCS Phosphate transported products from its Aurora, NC, complex to the Port of Morehead City by barge for export or delivery by rail to domestic consumers. Phosphoric acid producers along the Gulf of Mexico received imported phosphate rock by ship and transported their products by barge on the Mississippi River and its tributaries or by rail to domestic consumers. In Idaho and Utah, phosphate rock was transported to the processing facility from the mine by way of rail, slurry pipeline, and truck.

Prices

Price data were collected through the semiannual canvass of producers and reflected the value of phosphate rock used for production of phosphoric acid and elemental phosphorus. Because phosphate rock produced in the United States is all used internally, it is not a good indicator of actual world price trends. The total value of phosphate rock used in the United States decreased slightly from that of 2012, although the average unit value decreased by 6% to \$90.72 per metric ton from \$96.12 per metric ton in 2012 (table 1). Unlike many other mineral commodities, no standard domestic or world price for phosphate rock exists. Average ranges of world prices were published in various industry trade journals based on a sample of transactions. The average unit value of \$120.72 per metric ton of imported phosphate rock was determined based on the U.S. Census Bureau customs value and included cost, insurance, and freight (table 1). The import price was in range of average world prices.

Foreign Trade

U.S. producers reported no exports of phosphate rock in 2013. The United States is the leading importer of phosphate rock in the world. In 2013, about 64% of imported phosphate rock was from Morocco with the rest from Peru. All imported phosphate rock was consumed by phosphoric acid producers located along the Gulf of Mexico—Mississippi Phosphates (Mississippi), Mosaic (Louisiana), and PCS Nitrogen (Louisiana). In 2013, U.S. imports were estimated to be 3.17 Mt, based on data from the U.S. Census Bureau. U.S. import tonnage of other phosphate fertilizers was insignificant compared with exports of the same materials (tables 5–7, 9).

The United States is the leading exporter of phosphate fertilizers in the world, accounting for about 25% of world P_2O_5 contained in processed phosphate exports in 2013. In total, exports of phosphoric acid and phosphate fertilizers decreased by 7% from 2012, in terms of P_2O_5 content (Fertilizer Institute, The, 2014b). India was the leading destination for U.S. phosphate exports (tables 5–7).

World Review

World production of phosphate rock increased by 3% in 2013 compared with that of 2012. China (108 Mt), the United States (31.2 Mt), and Morocco (26.4 Mt) were the leading producing countries, accounting for 74% of the world total (table 10). In 2013, major projects were under development in

Morocco (capacity expansion), Namibia (new offshore mining operation), and Saudi Arabia (new mining operation). New mines were under various stages of development in Angola, Australia, Brazil, Canada, Congo (Brazzaville), Guinea-Bissau, Jordan, Kazakhstan, Mali, Mozambique, New Zealand, Peru, and Uganda. Expansion of production capacity was planned in Egypt, Senegal, South Africa, Tunisia, and Togo. However, many of the projects were not expected to begin operations until after 2016 (Fertilizer International, 2013).

Canada.—Arianne Phosphate Inc. completed a feasibility study of its Lac a Paul Phosphate Mine project in northeastern Quebec. Based on the reserves delineated in the study, the company planned to produce up to 76 Mt of phosphate rock concentrate, with an average grade of 38.6% P_2O_5 over a 25-year life span for the mine. Arianne expected to start production in 2016 (Arianne Phosphate Inc., 2013).

Agrium Inc. closed its phosphate rock mine in Kapuskasing, Ontario, in the third quarter of 2013 after the reserves were exhausted. Agrium began importing phosphate rock from Morocco to supply its phosphate fertilizer plant in Redwater, Alberta (Agrium Inc., 2014, p. 48).

Kazakhstan.—In October, MCC EuroChem OJSC (Russia) began operations at a new phosphate rock mine in the Jambyl region. EuroChem expected to produce about 150,000 metric tons of phosphate concentrate in 2014 and gradually increase output to full capacity of 650,000 t/yr in 2016. The company planned to increase production capacity to 1.5 million metric tons per year (Mt/yr) after 2018. The phosphate rock concentrate would be shipped by rail to the EuroChem phosphate plant in Byelorchensk, Russia (MCC EuroChem OJSC, 2013).

Russia.—EuroChem completed an increase in beneficiation capacity at the Kovdorskiy GOK open pit phosphate rock mine. Capacity increased from 15 Mt/yr to 18 Mt/yr. The company planned to increase capacity to 20 Mt/yr by 2018 (MCC EuroChem OJSC, 2014, p. 31).

Saudi Arabia.—Ma'aden Phosphate Co. (MPC) began development work at the Umm Wu'al Phosphate Mine on the Al Khabra deposit. The mine was part of the Wa'ad Al Shamal phosphate project joint venture among MPC (60%), Mosaic (25%), and Saudi Arabian Basic Industries Corp. (15%). The project would include the phosphate rock mine and beneficiation plant, and production facilities for phosphoric acid, animal feed, purified phosphoric acid, sodium tripolyphosphate, and sulfuric acid. The phosphate products would be sent by rail to Ras Al Khair to be processed into fertilizers. Existing fertilizer plants would be expanded at Ras Al Khair as part of the project. Production capacity was planned to be 5.3 Mt/yr of phosphate concentrate, 1.5 Mt/yr of phosphoric acid, and 3.5 Mt/yr of phosphate fertilizers. The project was expected to be completed in late 2016 (Ma'aden Phosphate Company, 2013).

Outlook

World phosphate rock production capacity is projected to increase slightly in 2014. The increase will be from a combination of new mines and expansions of existing operations, which would offset lower production in North Africa, Syria, and the United States. The bulk of the new capacity will be in China, Jordan, and Morocco (Fertilizer

International, 2013). U.S. production capacity will likely remain the same or decrease slightly through 2015, depending on whether three new mines under development in Florida are able to receive permits to operate. Three new mines are planned in Idaho, but two would be as replacements for existing mines and would not significantly change domestic production capacity.

The projected increases in annual production capacity for phosphate rock will supply the associated increase in phosphoric acid and fertilizer production. World population growth ensures the need for phosphate fertilizer to grow crops for food and biofuels. According to the International Fertilizer Industry Association, world consumption of P_2O_5 in fertilizer is projected to increase slightly over the next several years to 45.9 Mt in 2018 from 41.8 Mt in 2013. Phosphoric acid production capacity is expected to increase gradually to 57.6 of Mt P_2O_5 in 2015 from 54.9 Mt of P_2O_5 in 2013 (Heffer and Prud'homme, 2014).

Domestic production and consumption of phosphate rock in 2014 are expected to be lower than those in 2013, owing to a projected decrease in phosphoric acid production and phosphate fertilizer production.

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TABLE 1
SALIENT PHOSPHATE ROCK STATISTICS¹

(Thousand metric tons and thousand dollars unless otherwise specified)

	2009	2010	2011	2012	2013
United States:					
Mine production (crude ore)	107,000	106,000	129,000	150,000	139,000
Marketable production:					
Quantity:					
Gross weight	26,400	25,800	28,100	30,100	31,200
P ₂ O ₅ content	7,640	7,400	8,160	8,590	8,930
Value	3,360,000	1,980,000	2,720,000	3,080,000	2,850,000
Value, average ²	127.19	76.69	96.64	102.54	91.11
Sold or used by producers:					
Quantity:					
Gross weight	25,500	28,100	28,600	27,300	28,800
P ₂ O ₅ content	7,380	8,000	8,320	7,720	8,200
Value	3,250,000	2,210,000	2,850,000	2,620,000	2,610,000
Value, average	127.22	78.50	99.61	96.12	90.72
Imports for consumption ^{e, 3, 4}					
Quantity, gross weight	2,000	2,400	3,350	3,570	3,170
Value, cost, insurance, and freight ^e	161,000	211,000	392,000	481,000	382,000
Value, average	80.61	87.79	116.88	134.67	120.72
Consumption, gross weight ^{e, 5}	27,500	30,500	32,000	30,400	31,300
Stocks, December 31, producers	8,120	5,620	4,580	6,700	9,000
World, production, gross weight	161,000 ^r	184,000	199,000 ^r	217,000 ^r	224,000 ^e

^eEstimated. ^rRevised.

¹Data are rounded to no more than three significant digits, except average values per metric ton.

²Average value based on the sold or used values.

³Sources: U.S. Census Bureau and PIERS.

⁴Includes some estimated phosphate rock tonnage imported from Morocco but not reported by the U.S. Census Bureau.

⁵Expressed as sold or used plus imports.

TABLE 2
ACTIVE PHOSPHATE ROCK MINES IN THE UNITED STATES IN 2013

Owner	Mine	County and State
CF Industries Holdings, Inc.	South Pasture	Hardee, FL.
Mosaic Company, The	Four Corners	Hillsborough/Manatee/Polk, FL.
Do.	Hookers Prairie	Polk, FL.
Do.	South Fort Meade	Do.
Do.	Wingate	Manatee, FL.
Nu-West Industries, Inc. (Agrium Inc.)	Rasmussen Ridge	Caribou, ID.
P4 Production, LLC. (Monsanto Co.)	Blackfoot Bridge	Do.
Do.	South Rasmussen ¹	Do.
PCS Phosphate Co., Inc.	Aurora	Beaufort, NC.
Do.	Swift Creek	Hamilton, FL.
Simplot, J.R., Co.	Smoky Canyon	Caribou, ID.
Do.	Vernal	Uintah, UT.

Do. Ditto.

¹Closed May 2013.

TABLE 3
PRODUCTION OF PHOSPHATE ROCK IN THE UNITED STATES, BY PERIOD¹

(Thousand metric tons and thousand dollars)

Period	Mine production, crude ore		Marketable production, beneficiated			Ending stocks, rock
	Rock	P ₂ O ₅ content	Rock	P ₂ O ₅ content	Value ²	
2012:						
January–June	71,900	7,430	14,500	4,150	1,500,000	5,570
July–December	78,500	8,160	15,600	4,440	1,580,000	6,700
Total	150,000	15,600	30,100	8,590	3,080,000	XX
2013:						
January–June	71,700	7,510	16,300	4,680	1,590,000	8,770
July–December	67,200	6,950	14,900	4,250	1,250,000	9,000
Total	139,000	14,500	31,200	8,930	2,850,000	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 4
PHOSPHATE ROCK SOLD OR USED BY PRODUCERS
IN THE UNITED STATES, BY PERIOD¹

(Thousand metric tons and thousand dollars)

Period	P ₂ O ₅		Value ²
	Rock	content	
2012:			
January–June	13,200	3,760	1,280,000
July–December	14,100	3,960	1,340,000
Total	27,300	7,720	2,620,000
2013:			
January–June	14,300	4,100	1,380,000
July–December	14,500	4,100	1,230,000
Total	28,800	8,200	2,610,000

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

²Free on board mine.

TABLE 5
U.S. EXPORTS OF DIAMMONIUM PHOSPHATE^{1,2}

(Thousand metric tons and thousand dollars)

Country	2012		2013	
	Quantity	Value	Quantity	Value
Argentina	179	92,000	244	102,000
Australia	147	78,200	102	48,600
Brazil	521	242,000	583	253,000
Canada	134	46,100	106	36,200
China	40	22,600	163	62,200
Colombia	123	63,000	120	52,300
India	1,060	557,000	709	315,000
Japan	209	110,000	209	87,300
Mexico	406	134,000	262	101,000
Peru	130	65,400	141	61,800
Other	674 ^r	328,000 ^r	623	268,000
Total	3,630	1,740,000	3,260	1,390,000

^rRevised.

¹Presentation of annual data is based on the top 10 quantities (gross weight) of the leading countries in 2013.

²Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 6
U.S. EXPORTS OF MONOAMMONIUM PHOSPHATE^{1,2}

(Thousand metric tons and thousand dollars)

Country	2012		2013	
	Quantity	Value	Quantity	Value
Argentina	245	123,000	168	103,000
Australia	340	176,000	168	73,500
Brazil	597	306,000	433	192,000
Canada	824	473,000	702	391,000
Chile	4	2,000	8	3,450
Colombia	113	52,200	103	45,800
Japan	109	54,600	103	46,800
Mexico	68	35,600	62	24,800
Peru	15	7,870	11	57,500
Uruguay	6	3,100	41	17,500
Other	86 ^r	43,500 ^r	100	12,000
Total	2,410	1,280,000	1,900	915,000

^rRevised.

¹Presentation of annual data is based on the top 10 quantities (gross weight) of the leading countries in 2013.

²Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 7
U.S. EXPORTS OF PHOSPHORIC ACID^{1,2}

(Thousand metric tons and thousand dollars)

Country	2012		2013	
	Quantity	Value	Quantity	Value
Brazil	104	43,000	113	40,500
Canada	22	6,530	11	3,410
India	540	221,000	609	191,000
Mexico	93	27,400	90	26,800
Other	29 ^r	14,600 ^r	2	765
Total	788	313,000	825	263,000

^rRevised.

¹Excludes superphosphoric acid tonnage.

²Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 8
U.S. EXPORTS OF ELEMENTAL PHOSPHORUS¹

Country	2012		2013	
	Quantity (metric tons)	Value ² (thousands)	Quantity (metric tons)	Value ² (thousands)
Brazil	15,700	\$54,100	15,500	\$50,600
Canada	865	2,790	1,210	3,290
Mexico	26	58	30	57
Netherlands	2,440	5,010	2,800	5,420
Other	45	108	477	2,060
Total	19,100	62,000	20,000	61,400

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

²Free alongside ship values.

Source: U.S. Census Bureau.

TABLE 9
U.S. IMPORTS FOR CONSUMPTION OF PHOSPHATE ROCK AND PHOSPHATIC
MATERIALS¹

(Thousand metric tons and thousand dollars)

Phosphatic materials	2012		2013	
	Quantity	Value ²	Quantity	Value ²
Phosphate rock:				
Unground	3,190 ^r	406,000 ^r	2,690	294,000
Ground	385	75,200 ^r	476	88,500
Total	3,570 ^r	481,000 ^r	3,170	382,000
Dicalcium phosphate	7	11,200	10	18,200
Elemental phosphorus	11	43,000	15	54,000
Normal superphosphate	1	337	1	460
Triple superphosphate	209	104,000	236	105,000
Diammonium phosphate	92	52,500	142	74,600
Monoammonium phosphate	477	268,000	669	342,000
Fertilizer containing nitrates and phosphates	3	1,320	10	1,270
Phosphoric acid	2	598	2	548

^rRevised.

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

²Declared cost, insurance, freight values.

Sources: U.S. Census Bureau.

TABLE 10
PHOSPHATE ROCK: WORLD PRODUCTION, BY COUNTRY^{1,2}

(Thousand metric tons)

Commodity and country ³	Gross weight					P ₂ O ₅ content				
	2009	2010	2011	2012	2013 ^e	2009	2010	2011	2012	2013 ^e
Algeria	1,017 ^r	1,525	1,287 ^r	1,251	1,151 ⁴	305 ^e	458 ^e	386 ^e	375 ^e	345
Australia ^e	2,500	2,600	2,650	2,600	2,600	575	600	610	600	600
Brazil, concentrate	6,084	6,192	6,738	6,740	6,000	2,163	2,179	2,374	2,388	2,100
Canada ^e	990	980	1,100	900	400	240 ^r	240 ^r	260 ^r	220 ^r	97
Chile:										
Apatite	11	9	14	9	12 ⁴	3	3	4	3	4 ⁴
Guano	2	1	2	1	3 ⁴	NA	NA	NA	NA	NA
Phosphorite	1	41	--	6	--	NA	NA	--	NA	--
China	60,200	68,000	81,000	95,300	108,000	18,000	20,400	24,000	28,500	32,000
Colombia	45 ^r	45 ^r	30 ^r	30	30	14 ^r	14 ^r	9 ^r	9	9
Egypt, beneficiated	6,227 ^r	3,435	4,746	6,236	5,922 ⁴	1,868	1,030	1,400	1,835 ^r	1,777 ⁴
Finland	660 ^{r,e}	817	870	858 ^r	877 ⁴	234 ^r	289	307	302 ^r	309
India	1,230	1,240	1,250	1,150 ^r	1,200 ⁴	310 ^r	310 ^r	310 ^r	290 ^r	300
Indonesia ^e	1	1	1	1	1	(5)	(5)	(5)	(5)	(5)
Iran ^e	540	210	98 ⁴	100	100	62	24	11	11	11
Iraq, beneficiated	NA ^r	139	122	250	250	NA ^r	42	37	75	75
Israel	2,697	3,135	3,105	3,514 ^r	3,578 ⁴	740 ^e	860 ^e	850 ^e	960 ^e	960
Jordan	5,282	6,529	7,594 ^r	6,383	5,399 ⁴	1,690	2,090	2,430 ^r	2,043 ^r	1,728 ⁴
Kazakhstan ^e	1,225 ⁴	1,600	1,600	1,600	1,600	280	350	350	350	350
Korea, North ^e	300 ^r	300 ^r	300 ^r	300 ^r	300	95 ^r	95 ^r	95 ^r	95 ^r	95
Mexico	1,443	1,507	1,691	1,700 ^r	1,757 ⁴	427 ^r	452	507	517	473 ⁴
Morocco ⁶	18,307	26,603	28,052	27,060 ^r	26,400 ⁴	6,000	8,500	8,977 ^r	8,659 ^r	8,448 ⁴
Pakistan	30	88	31 ^r	69 ^r	58 ⁴	5	16	6 ^r	12 ^r	10 ⁴
Peru	--	2,470	2,540	2,560	2,580 ⁴	--	741	762	768	774 ⁴
Philippines	2	2	3	3	3 ⁴	1	1	1	1	1 ⁴
Russia ^e	9,500	11,000	11,000	12,500 ^r	10,000	3,500	4,000	4,000	4,500 ^r	3,600
Saudi Arabia	100	1,000	1,000	3,000	3,000	15	330	330	960	845
Senegal	949	1,079	1,411	1,381	800	283	312	362	363	200
South Africa	2,237	2,494	2,565	2,242	2,132 ⁴	839	935	962	841	800 ⁴
Sri Lanka	42 ^r	50 ^r	51 ^r	52 ^r	53 ⁴	14	18	18	18	19
Syria	2,128	3,167	3,541	1,534	1,000	740	950	1,062	460	460
Tanzania	1 ^r	17	18 ^e	20 ^r	20	(5) ^r	5	5 ^e	6 ^r	6
Thailand	1	36	3	2	2	(5)	11	1	1	1
Togo	726	695	866	1,110	1,110	260	250	310 ^e	400 ^e	400
Tunisia, washed	7,409 ^r	8,149 ^r	2,479 ^r	2,762	3,283 ⁴	2,140 ^e	2,110 ^e	719 ^{r,e}	750 ^{r,e}	1,050
United States	26,400	25,800	28,100	30,100	31,200 ⁴	7,640	7,400	8,160	8,590	8,930 ⁴
Uzbekistan ^e	600	800	800	800	850	140	187	187	187	198
Venezuela	363 ^r	85 ^r	168 ^r	162 ^r	98 ⁴	98 ^r	23 ^r	45 ^r	44 ^r	27
Vietnam	2,047	2,325	2,395	2,365	2,400	614	680	720	710	720
Zimbabwe, concentrate ^e	20	63	60	24 ^r	30	6	20	19	8 ^r	10
Total	161,000 ^r	184,000	199,000 ^r	217,000 ^r	224,000	49,300 ^r	55,900 ^r	60,600 ^r	65,900	67,700

^eEstimated. ^rRevised. NA Not available. -- Zero.

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

²Includes data available through May 15, 2015. Figures are from official country sources where available.

³In addition to the commodities listed, Burkina Faso, Nauru, and Nigeria produced phosphate rock, but information is inadequate to estimate output

⁴Reported figure.

⁵Less than ½ unit.

⁶Includes production from Western Sahara.