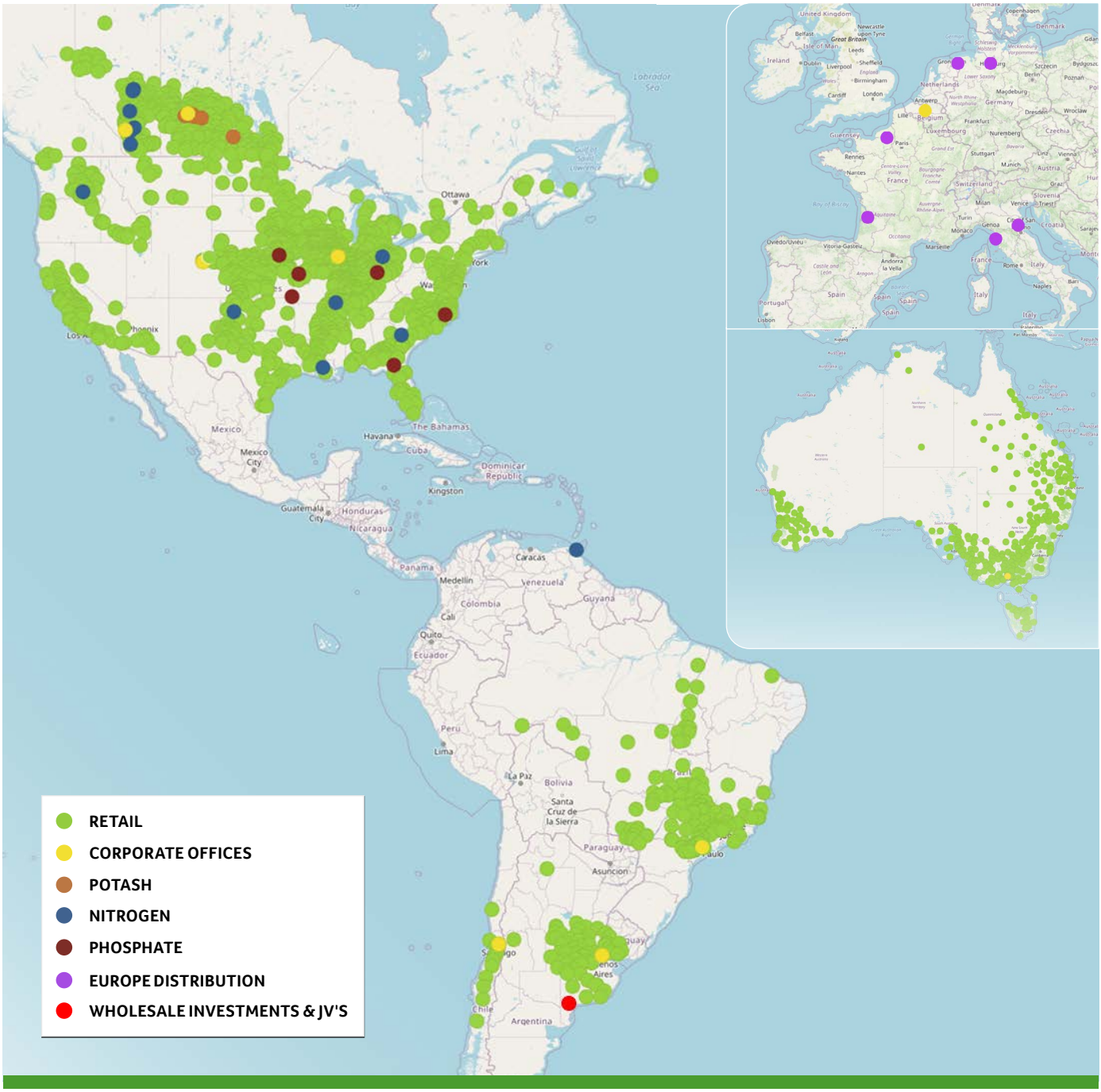
2023 Fact Book

Nutrien®
Feeding the Future™

TABLE OF CONTENTS

NUTRIEN – A GLOBAL PRESENCE



North America

Wholesale Fertilizer

6 potash mines, 8 primary nitrogen production facilities, 5 nitrogen processing plants, 2 phosphate mines and primary production facilities, 4 mineral processing/feed plants and an extensive storage and distribution network.

Nutrien Ag Solutions

~1,450 Retail locations.

South America

Wholesale Fertilizer

1 nitrogen production facility located in Point Lisas, Trinidad and Tobago.

Profertil S.A. is 50 percent owned by Nutrien Ltd. YPF S.A., a state-controlled oil and gas company in Argentina, owns the other half.

Nutrien Ag Solutions

> 250 Retail locations.

Australia

Nutrien Ag Solutions

~375 Retail locations.

Europe

Wholesale Fertilizer

Distribution network which includes storage and sales offices in 4 countries (Belgium, France, Germany, and Italy.)

NUTRIEN IS...

As the world's largest provider of crop inputs and services, Nutrien plays a critical role in Feeding the Future by helping growers increase food production in a sustainable manner.

With 24,700 employees and a global footprint of operations and investments, Nutrien's crop inputs and services reach major growing regions around the world.

Nutrien produces and distributes approximately 25 million tonnes of potash, nitrogen and phosphate products for agricultural, industrial and feed customers globally. Combined with its leading agriculture retail network that services approximately 500,000 grower accounts worldwide, we are well positioned to create value for our stakeholders.

Nutrien™
Feeding the Future™

WHAT IS FERTILIZER?

Potash

Potassium plays an important role in the growth and development of plants by activating enzymes, enhancing photosynthesis, aiding nitrogen uptake as well as increasing test weights and helping the plant withstand stress. It also aids in water retention and improves the quality of crops.

Potassium chloride (KCl), commonly called potash, is mined from ore deposits located deep underground or extracted from salt lakes or seas. Conventional underground mines account for nearly 80 percent of global potassium chloride capacity, and underground solution mines for about 6 percent. The remainder is obtained by harvesting natural brines from potassium-rich water bodies, typically using solar evaporation.

Potash is sold into the agricultural market primarily as solid granular and standard products. Granular product has a larger and more uniformly-shaped particle that can be easily blended with solid nitrogen and phosphate fertilizers; it is typically used in more advanced agricultural markets such as the US and Brazil. Standard product is more commonly used in major Asian markets.

POTASH

Nitrogen

Nitrogen (N) is required by every living cell and is part of the genetic blueprints RNA and DNA. It is a fundamental building block of plant proteins that improve crop yield and quality. Nitrogen is also essential for proper animal nutrition and maturation.

Ammonia (NH_3) is synthesized from hydrogen sources (primarily natural gas or coal), steam and nitrogen from the air. It is the basic feedstock for all upgraded nitrogen products (urea, UAN, etc.). Ammonia is used as a direct-application fertilizer and also to make industrial products.

The most commonly used nitrogen fertilizer is urea, which is also the feedstock for industrial products such as plastics, resins, adhesives and increasingly for emissions control. Liquid forms of urea and ammonium nitrate are combined into Urea Ammonia Nitrate (UAN) solution, which is used in agriculture. Ammonium nitrate is made by combining ammonia with nitric acid and has both industrial and agricultural uses.

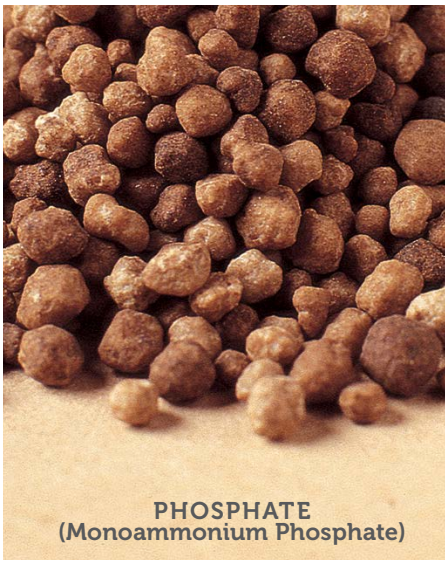
NITROGEN
(Urea)

Phosphate

Phosphate (P) is the major source of phosphorus, the energizer of plant production. It is crucial to key energy reactions in plants (such as photosynthesis), speeding maturity and reproduction, and increasing yield. In animals, phosphate is a critical component in biochemical reactions essential to muscle contraction and normal body growth, maintenance and repair. Phosphate is also used in industrial products such as soft drinks, food products, metal treatment, and increasingly as a raw material for lithium iron phosphate (LFP) batteries for electric vehicles.

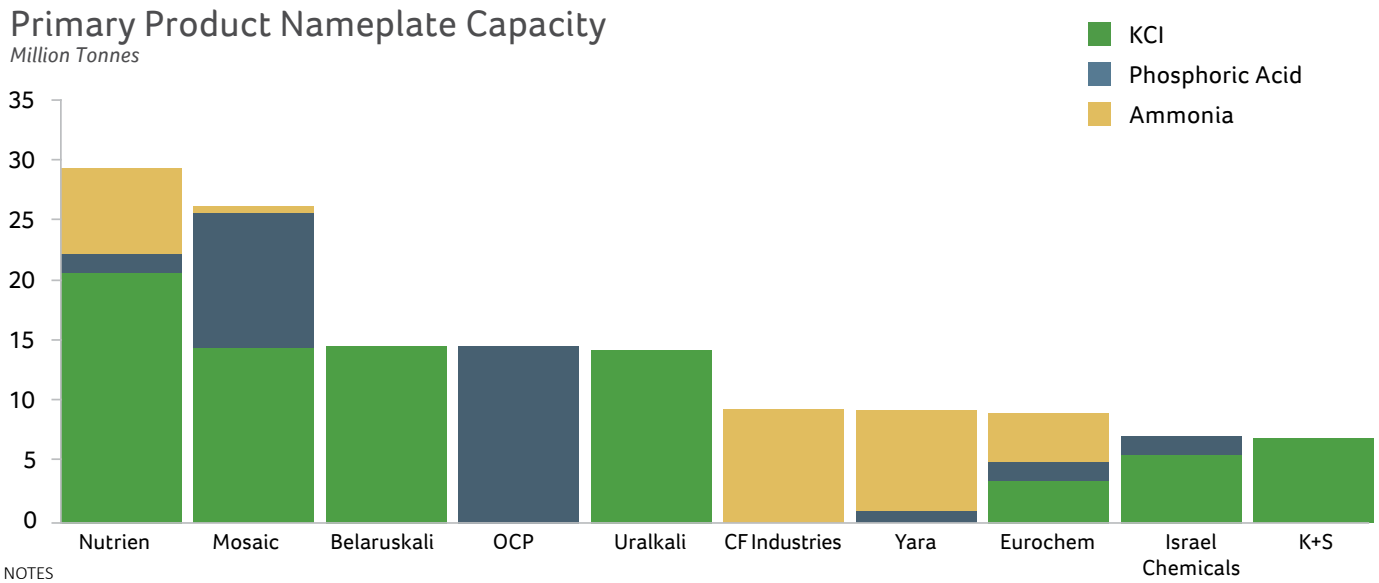
Phosphate rock is mined from underground ore deposits and dissolved in a mixture of phosphoric and sulfuric acids. This results in production of additional phosphoric acid, which is the feedstock for most fertilizer, industrial and feed phosphate products.

This phosphoric acid can be combined with ammonia and granulated to produce the solid fertilizers DAP and MAP, evaporated to produce merchant-grade phosphoric acid (MGA), or further evaporated to produce superphosphoric acid (SPA), which is then converted into liquid fertilizer.



PHOSPHATE
(Monoammonium Phosphate)

Largest Global Crop Nutrient Producer



NOTES
- Nutrien capacities shown are based on internal calculation methods.
- All capacities shown are nameplate capacities as of most recent company release or CRU capacity estimates for CY 2022.
- Nameplate capacities may exceed operational capacity.
- Includes proportional share of equity stakes where control or marketing rights exist, excluding Nutrien's Profertil joint venture.
- Phosphoric acid capacity is adjusted to a merchant grade acid (MGA) basis of 56% P2O5.
- Excluding Chinese companies/capacity.

Source: Company Reports, CRU

Nutrient Overview

	Potash	Nitrogen	Phosphate
How it's Produced	Mined from evaporated sea deposits	Synthesized from hydrogen source, steam and air	Mined from sea fossils
Number of Major Producing Countries[1]	10	38	11
Nutrien Percent of World Capacity	21%	3%	3%
Percent of Global Production Traded	78%	30%	46%
Largest Importers	Brazil, China, US	US, India, Brazil	India, Brazil
Cost for Greenfield[6, 7] (including infrastructure)	$5.5-$7.0 billion 3.0 million tonnes[2]	$3.3-$3.6 billion 1.3 million tonnes[3]	$6.0 billion 2.0 million tonnes[4, 5]
Time for Greenfield (including ramp-up)	Minimum 10 years	Minimum 4 years	Minimum 6 years

See note pertaining to qualified person review under National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101) on page 15.

(1) Countries producing more than 500,000 tonnes annually.
(2) Conventional potash mine in Saskatchewan, Canada.
(3) Ammonia/urea complex in the US on the Gulf of Mexico, volume of 1.3 Mmt refers to combined finished products.
(4) DAP/MAP complex in the US based on 1 Mmt of P_2O_5 produced.
(5) Includes phosphate rock mine (~20 years), rock handling, ore benefication, phos acid plants, sulfuric acid plants, MAP granulation, and purified acid plants. Does not include time permitting, research and engineering or ammonia plant.
(6) Includes rail, utility systems, port facilities and, if applicable, cost of deposit.
(7) All cost estimates are shown in US dollars.

Source: CRU, Nutrien

Nutrien Ag Solutions™ Nutrien Soluções Agrícolas™

Our Retail Business

Nutrien operates the largest global direct-to-grower agricultural retail distribution network – known as Nutrien Ag Solutions in the United States, Canada, Australia, Argentina Chile and Uruguay, and Nutrien Soluções Agrícolas in Brazil. Our focus is to help our customers meet the ever-growing demand for food, and advance the efficiency, profitability, and sustainability of their operations.

As of December 31, 2022, Nutrien operated 1,175 retail selling locations in the United States, 275 in Canada, 250 in South America and 375 in Australia. Nutrien's Retail operations offer farmers a complete range of seed, liquid and dry fertilizer products, primary crop protection products including herbicides, insecticides, fungicides, specialty nutrition products and biologicals, as well as a range of related services and solutions including Echelon™ precision agriculture.

Our supply chain and strategic partnerships, including over 1,000 crop input suppliers, ensure reliable delivery of crop inputs when our grower customers need them, where they need them. We have greater than 4,000 crop consultants who provide critical advice from the crop planning stage right through to harvest.

We are committed to supporting the increase of global food production, including the adoption of sustainable agricultural products and practices on **75 million acres** globally by 2030.

Nutrien Ag Solutions Retail Locations Worldwide

United States

Locations: 1,273

Farm Centers: 685
Satellites: 491
Selling Location Total: 1,176
Terminals: 77
Distribution Centers: 15
Plants: 5

Canada

Locations: 295

Farm Centers: 192
Satellites: 83
Selling Location Total: 275
Terminals: 14
Distribution Centers: 6

South America

Locations: 262

Farm Centers: 55
Satellites: 14
Warehouses: 182
Blending Facilities: 5
Selling Location Total: 256
Plants: 6

Australia

Locations: 411

Farm Centers: 263
Joint Ventures: 116
Selling Location Total: 379
Franchises: 13
Distribution Centers: 12
Terminals: 4
Plants: 3

(As of Dec 31, 2022)

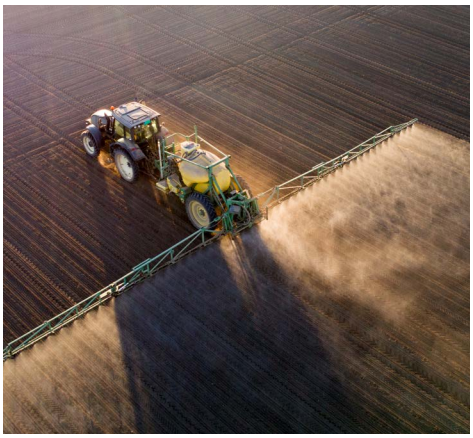
NUTRIEN AG SOLUTIONS: SNAPSHOT

Complete Ag Solutions Offering
Gross Margin[1] for 2022 (US$ Billions)

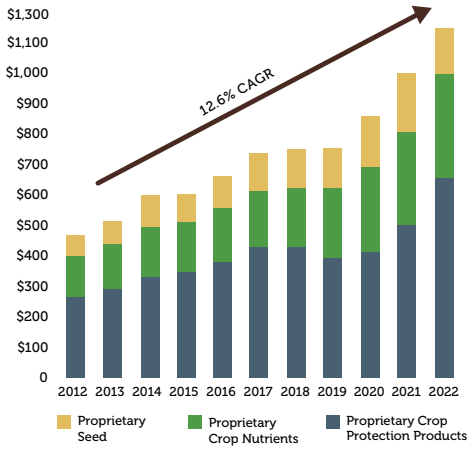
$5.18 Billion

- 3% Merchandise
- 8% Seed
- 18% Services/Other
- 34% Crop Nutrients
- 37% Crop Protection

Everything growers need to maximize yields with > 4,000 crop consultants

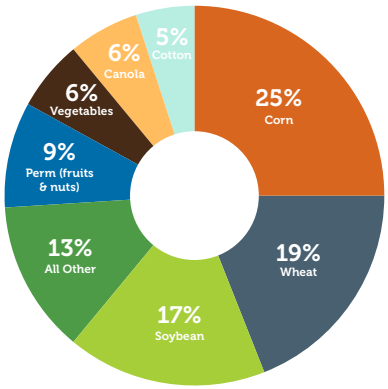


Proprietary Products
Gross Margin[2] (US$ Millions)



Consistent growth platform of higher margin products valued by growers

Revenue by Crop for 2022



Crop inputs & services for over 100 different crops

(1) Services/Other includes Nutrien Financial and eliminations.
(2) 2012-2017 data is based upon Agrium Inc. financials. Excludes Dalgety animal health products.

Top US Retail Ag Companies - 2022

(by total sales)

Rank	Company	HQ Location	# States Served	# Retail Outlets	Years in CropLife 100	Crop Protection Sales %	Fertilizer Sales %	Seed Sales %	Custom App. Sales %
1	Nutrien Ag Solutions	Loveland, CO	45	1000+ (1)	39	32	49	12	7
2	Helena Agri-Enterprises	Collierville, TN	48	457	38	38	44	14	4
3	Simplot Grower Solutions	Boise, ID	33	235	38	40	49	9	2
4	GROWMARK, Inc.	Bloomington, IL	20	590	36	24	56	11	9
5	Wilbur-Ellis Co.	Aurora, CO	23	136	37	48	38	9	5
6	CHS	Inver Grove Heights, MN	16	270	36	24	55	15	6
7	GreenPoint AG	Decatur, AL	10	89	5	32	65	2	1
8	MFA Inc.	Columbia, MO	4	166	30	20	64	11	5
9	Co-Alliance LLP	Indianapolis, IN	3	45	23	23	63	9	5
10	Agtegra Cooperative	Aberdeen, SD	2	60	32	24	55	15	6
11	Central Valley Ag Cooperative	York, NE	3	60	19	23	63	10	4
12	NEW Cooperative	Fort Dodge, IA	1	65	13	23	61	11	5
13	Ceres Solutions Inc.	Crawfordsville, IN	2	47	12	25	61	9	5
14	Hefty Seed Co.	Baltic, SD	11	50	21	75	3	22	0
15	Valley Agronomics LLC	Nampa, ID	4	35	11	27	67	3	3
16	Effingham Equity	Effingham, IL	2	27	33	26	57	10	7
17	Aurora Cooperative	Aurora, NE	6	80	31	42	44	8	6
18	Southern States Co-op	Richmond, VA	8	84	32	18	67	11	4
19	Sunrise Cooperative	Fremont, OH	1	26	6	27	58	9	6
20	Ag Partners Coop	Goodhue, MN	2	26	1	20	63	12	5

(1) 1000+ as per Crop Life: Nutrien has a total of 1,175 US retail selling locations
Source: CropLife Magazine, CropLife 100 Report, December 2022

Production Facilities and Annual Production Capacities

Production Capacity

(product tonnes per year)

Potash Based Fertilizers

Canada	Red	White	Total Nameplate Capacity[1]	Total Operational Capability[2] (2022)	Total Operational Capability[2] (2023F)
Allan, Saskatchewan					
Potash KCl	3,600,000	400,000	4,000,000	2,900,000	3,000,000
Cory, Saskatchewan					
Potash KCl	2,200,000	800,000	3,000,000	2,100,000	2,100,000
Lanigan, Saskatchewan					
Potash KCl	3,800,000	-	3,800,000	2,800,000	3,100,000
Patience Lake, Saskatchewan					
Potash KCl	-	300,000	300,000	300,000	300,000
Rocanville, Saskatchewan					
Potash KCl	6,500,000	-	6,500,000	5,200,000	5,200,000
Vanscoy, Saskatchewan					
Potash KCl (MOP)	3,025,000	-	3,025,000	1,300,000	1,400,000
Total	**19,125,000**	**1,500,000**	**20,625,000**	**14,600,000**	**15,100,000**

See Note pertaining to qualified person under NI 43-101 on page 15

(1) Represents estimates of nameplate capacity as at December 31, 2022. Estimates based on capacity as per design specifications or Canpotex entitlements once determined. In the case of Patience Lake, estimate reflects current operational capability. Estimates for all other facilities do not necessarily represent operational capability.

(2) Estimated annual achievable production level at current staffing and operational readiness (2023 was estimated at the beginning of the year, and may vary during the year, and year-to-year, including between our facilities). Estimate does not include inventory-related shutdowns and unplanned downtime. In 2022, we increased capability by 0.3 million tonnes as part of our announced operational capability ramp-up plan.

NITROGEN PRODUCTION FACILITIES

Production Facilities and Annual Production Capacities

PRODUCTION CAPACITY
(product tonnes per year)

Nitrogen Based Fertilizers

Canada	
Carseland, Alberta	
Ammonia[1] *(gross)*	540,000
Ammonia[2] *(net)*	120,000
Solid Urea[3]	525,000
Joffre, Alberta	
Ammonia[1] *(gross)*	490,000
Ammonia[2] *(net)*	490,000
Fort Saskatchewan, Alberta	
Ammonia[1] *(gross)*	450,000
Ammonia[2] *(net)*	200,000
Solid Urea[3]	425,000
Redwater, Alberta	
Ammonia[1] *(gross)*	951,000
Ammonia[2] *(net)*	256,000
Solid Urea[3]	635,000
UAN[5]	220,000
Ammonium Nitrate[6]	115,000
Ammonium Sulfate	710,000
Upgrade Facilities[(7)]	
Carseland, Alberta	
ESN®	200,000
Standard & Granum, Alberta	
UAN[5]	120,000
Total Canada	
Ammonia[1] *(gross)*	2,431,000
Ammonia[2] *(net)*	1,066,000
Solid Urea[3]	1,585,000
UAN[5]	340,000
Ammonium Nitrate[6]	115,000
Ammonium Sulfate	710,000
ESN®	200,000

Equity Investments	
Argentina	
Bahía Blanca (Profertil S.A. 50% ownership)	
Ammonia[1] *(gross)*	405,000
Ammonia[2] *(net)*	15,000
Solid Urea[3]	670,000

PRODUCTION CAPACITY
(product tonnes per year)

Nitrogen Based Fertilizers

US	
Augusta, Georgia	
Ammonia[1] *(gross)*	765,000
Ammonia[2] *(net)*	200,000
Solid Urea[3]	260,000
Nitric Acid[4]	40,000
UAN[5]	400,000
Ammonium Nitrate[6]	415,000
Borger, Texas	
Ammonia[1] *(gross)*	470,000
Ammonia[2] *(net)*	95,000
Solid Urea[3]	613,000
Geismar, Louisiana[(8)]	
Ammonia[1] *(gross)*	535,000
Nitric Acid[4]	525,000
UAN[5]	915,000
Lima, Ohio	
Ammonia[1] *(gross)*	725,000
Ammonia[2] *(net)*	365,000
Solid Urea[3]	350,000
Nitric Acid[4]	30,000
UAN[5]	150,000
Ammonium Nitrate[6]	55,000
Upgrade Facilities[(7)]	
Kennewick, Washington	
Nitric Acid[4]	5,000
UAN[5]	320,000
Ammonium Nitrate[6]	100,000
New Madrid, Missouri	
ESN®	265,000
Total US	
Ammonia[1] *(gross)*	2,495,000
Ammonia[2] *(net)*	660,000
Solid Urea[3]	1,223,000
Nitric Acid[4]	600,000
UAN[5]	1,785,000
Ammonium Nitrate[6]	570,000
ESN®	265,000

South America	
Point Lisas, Trinidad and Tobago	
Ammonia[1] *(gross)*	2,200,000
Ammonia[2] *(net)*	1,805,000
Solid Urea[3]	680,000

(1) Annual capacity estimates include allowances for normal operating plant conditions.
(2) Net ammonia reflects gross ammonia capacity less ammonia used to produce upgraded products based on product mix shown.
(3) Solid urea reflects gross urea liquor capacity less urea used to produce UAN, ESN® and DEF based on product mix shown.
(4) Nitric Acid reflects net capacity of nitric acid based on product mix shown. Net capacity shown on 100% nitric acid basis. Finished goods typically 70% nitric acid basis.
(5) Reflects tonnes of UAN on a 32% Nitrogen basis.
(6) Ammonium nitrate reflects net capacity of AN based on product mix shown. Includes prilled products and solutions produced for sale.
(7) Upgrade facility that uses ammonia and urea from other sources. Upgrade facilities use ammonia, they do not purchase natural gas to produce their own ammonia and urea.
(8) Full production requires certain amount of ammonia from external sources.
Note: Table excludes sales of urea solutions into the DEF market based on product mix shown

PHOSPHATE PRODUCTION FACILITIES

Production Facilities and Annual Production Capacities

PRODUCTION CAPACITY
(product tonnes per year)

Phosphate Based Fertilizers

US	
Aurora, North Carolina	
Ore Concentrate	5,400,000
Phosphoric Acid (P_2O_5)	1,200,000
DAP/MAP	800,000
Liquids	2,000,000
SPA[(1)]	700,000
Purified Acid	300,000
White Springs, Florida	
Ore Concentrate	2,000,000
Phosphoric Acid (P_2O_5)	500,000
MAP	765,000
MAP+MST®	325,000
SPA	700,000
Cincinnati, OH | Joplin, MO | Marseilles, IL Weeping Water, NE	
Phosphates	700,000

Nutrien Global Nitrogen and Phosphate Capacity
('000 product tonnes per year)

Ammonia[2] *(gross)*	7,126
Ammonia *(net)*	3,531
Urea[3]	3,488
Ammonium Nitrate	850
Ammonium Sulphate	710
Solutions/Other/ESN®	2,884
Phospohoric Acid (P_2O_5)	1,700
DAP/MAP	1,565

(1) Represents annual superphosphoric acid capacity. A substantial portion is consumed internally in the production of downstream products. The balance is exported to phosphate fertilizer producers and sold domestically in North America to dealers who custom-mix fertilizer.
(2) Excludes share of Nutrien's Joint Venture ammonia capacity.
(3) Solid urea reflects gross urea liquor capacity less urea used to produce UAN, ESN® and DEF.

2022 Potash Operational Capabilities[1] and Locations

('000 tonnes of KCl per year)

	Company	Site	Capability
Canada	Nutrien	Allan, SK	2,900
	Nutrien	Cory, SK	2,100
	Nutrien	Lanigan, SK	2,800
	Nutrien	Patience Lake, SK	300
	Nutrien	Rocanville, SK	5,200
	Nutrien	Vanscoy, SK	1,300
	K+S	Bethune, SK	2,315
	Mosaic	Belle Plaine, SK	3,000
	Mosaic	Colonsay, SK	1,350
	Mosaic	Esterhazy, SK	5,435
Total			**26,700**
US	Intrepid Potash	Cane Creek, UT	95
	Intrepid Potash	Carlsbad HB, NM	155
	Intrepid Potash	Wendover, UT	85
Total			**335**
Total All			**24,770**
Iran	Iran Potash Mineral & Industrial Co	Iljaq	15
	IMPASCO	Khor	25
Total			**40**
Israel	ICL Group	Sdom	4,160
Jordan	Arab Potash Co	Safi	2,700
Total All			**6,900**
Laos	CNAMPGC	Nongbok (Sino-Agri)	1,035
	Sichuan Kaiyuan Group	Thakhek	525
	Yuntianhua (YTH)	Thong Mang	0
	Gov. of Laos, Qinghai Kunlun Investment & Dev Co, Sinohydro Corp	Xaythany	0
Total All			**1,560**

	Company	Site	Capability
Germany	Siem Industries	Bleicherode	110
	K+S	Hattorf	600
	K+S	Neuhof-Ellers	200
	K+S	Sigmundshall	-
	K+S	Unterbreizbach	440
	K+S	Wintershall	480
	K+S	Zielitz	1,880
Total			**3,710**
Spain	ICL Group	Sallent	-
	ICL Group	Suria	1,045
Total			**1,045**
UK	ICL Group	Boulby	0
Total All			**4,775**
Belarus[2]	Belaruskali	Petrikov	1,045
	Belaruskali	Soligorsk-1	3,010
	Belaruskali	Soligorsk-2	2,765
	Belaruskali	Soligorsk-3	3,270
	Belaruskali	Soligorsk-4	3,505
Total			**13,595**
Russia[2]	Uralkali	Berezniki-2	1,900
	Uralkali	Berezniki-3	2,280
	Uralkali	Berezniki-4	3,230
	Uralkali	Solikamsk-1	950
	Uralkali	Solikamsk-2	1,125
	Uralkali	Solikamsk-3	3,135
	EuroChem	Usolsky Potash	2,425
	Eurochem	Volgakaliy	320
Total			**15,365**
Turkmenistan	Turkmenhimiya	Garlyk	100
Uzbekistan	Uzkimyosanoat	Dekhkanabad	600
Total All			**29,660**
Bolivia	Comibol	Uyuni	60
Brazil	Mosaic Fertilizantes	Taquari	555
Chile	SQM	Atacama	1,730
	Rockwood Holdings	Atacama South	160
Total			**1,890**
Total All			**2,505**
China	QSL Industry	Qarhan	5,775
	Others	Qinghai	2,190
Total			**7,965**
Total World			**80,380**

See Note pertaining to qualified person review under NI 43-101 on page 15.

(1) Operational capability usually accounts for normal maintenance routines but without further allowance for unplanned interruptions. Nutrien capabilities are from 2022.
Source: CRU Potassium Chloride Market Outlook February 2023 Supply Database "Effective Capacity Forecasts"
(2) Country is producing below its operational capabilities in 2023.

2022 Ammonia Plant Capacities[1] and Locations

('000 tonnes of ammonia per year)

	Company	Site	Capacity
Canada	Nutrien	Carseland, AB	540
	Nutrien	Fort Saskatchewan, AB	450
	Nutrien	Joffre, AB	490
	Nutrien	Redwater, AB	951
	CF Industries Inc.	Courtright, ON	455
	CF Industries Inc.	Medicine Hat, AB	1,135
	Koch Fertilizer Canada Inc.	Brandon, MB	550
	Sherritt International Inc.	Fort Saskatchewan, AB	280
	Yara Belle Plaine Inc.	Belle Plaine, SK	680
Total Canada			**5,531**
US	Nutrien	Augusta, GA	765
	Nutrien	Borger, TX	470
	Nutrien	Geismar, LA	535
	Nutrien	Lima, OH	725
	Advansix	Hopewell, VA	515
	Austin Powder (US Nitrogen)	Greeneville, TN	60
	CF Industries Inc.	Donaldsonville, LA	3,935
	CF Industries Inc.	Port Neal, IA	1,150
	CF Industries Inc.	Verdigris, OK	1,100
	CF Industries Inc.	Woodward, OK	435
	CF Industries Inc.	Yazoo City, MS	510
	Chevron Chem. Co.	El Segundo, CA	25
	Coffeyville Resources	Coffeyville, KS	425
	Coffeyville Resources	E. Dubuque, IL	350
	Dakota Gasification Co	Beulah, ND	365
	Dyno Nobel Inc.	Cheyenne, WY	175
	Dyno Nobel Inc.	St. Helens, OR	100
	Dyno Nobel Inc.	Waggaman, LA	800
	Green Valley Chemical	Creston, IA	32
	Iowa Fertilizer Co. (OCI N.V.)	Wever, IA	915
	J.R. Simplot Co.	Rock Springs, WY	210
	Koch Industries Inc.	Beatrice, NE	250
	Koch Industries Inc.	Dodge City, KS	280
	Koch Industries Inc.	Enid, OK	1,015
	Koch Industries Inc.	Fort Dodge, IA	340
	LSB Industries	Cherokee, AL	170
	LSB Industries	El Dorado, AK	445
	LSB Industries	Pryor, OK	225
	Mosaic Company	Faustina, LA	510
	Nebraska Nitrogen	Geneva, NE	90
	OCI Beaumont LLC	Beaumont, TX	330
	Shoreline Chemical	Gordon, GA	30
	Yara/BASF JV	Freeport, TX	725
Total US			**18,007**
Total Canada and US			**23,538**
Trinidad and Tobago	Nutrien	Point Lisas	2,200
	Caribbean Nitrogen Co. Ltd.	Point Lisas	650
	Methanol Holdings (Trinidad) Ltd.	Point Lisas	650
	Nitrogen (2000) Unlimited	Point Lisas	650
	Point Lisas Nitrogen Ltd. (CF/Koch)	Point Lisas	655
	Trinidad Nitrogen Co. Ltd.	Point Lisas	995
Total Trinidad and Tobago[3]			**5,800**

(1) Capacities for Nutrien are based on internal calculation method.
Source: CRU Ammonia Market Outlook June 2023 Capacity Database "Capacity Forecasts".

2022 Urea Plant Capacities[1] and Locations

('000 tonnes of urea per year, represents full urea synthesis capacity including solid urea and urea liquor for UAN, DEF and other products)

	Company	Site	Capacity
Canada	Nutrien	Carseland, AB	725
	Nutrien	Ft. Saskatchewan, AB	425
	Nutrien	Redwater, AB	715
	CF Industries Inc.	Courtright, ON	290
	CF Industries Inc.	Medicine Hat, AB	735
	Koch Fertilizer Canada Inc.	Brandon, MB	215
	Yara Belle Plaine Inc.	Belle Plaine, SK	1,070
Total Canada			**4,175**
US	Nutrien	Augusta, GA	630
	Nutrien	Borger, TX	613
	Nutrien	Geismar, LA	400
	Nutrien	Lima, OH	515
	CF Industries Inc.	Donaldsonville, LA	2,570
	CF Industries Inc.	Port Neal, IA	1,570
	CF Industries Inc.	Verdigris, OK	625
	CF Industries Inc.	Woodward, OK	815
	CF Industries Inc.	Yazoo City, MS	290
	Coffeyville Resources	Coffeyville, KS	760
	Coffeyville Resources	E. Dubuque, IL	175
	Dakota Gasification Co	Beulah, ND	350
	Dyno Nobel Inc.	Cheyenne, WY	110
	Dyno Nobel Inc.	St. Helens, OR	105
	Iowa Fertilizer Co. (OCI N.V.)	Wever, IA	435
	Koch Industries Inc.	Beatrice, NE	185
	Koch Industries Inc.	Dodge City, KS	100
	Koch Industries Inc.	Enid, OK	1,370
	Koch Industries Inc.	Fort Dodge, IA	305
	LSB Industries	Pryor, OK	220
	LSB Industries	Cherokee, AL	85
Total US			**12,230**
Total Canada and US			**16,405**
Trinidad and Tobago	Nutrien	Point Lisas	680
	Methanol Holdings (Trinidad) Ltd.	Point Lisas	695
Total Trinidad and Tobago			1,375

(1) Capacities for Nutrien are based on internal calculation method.
Source: CRU Urea Market Outlook June 2023 Capacity Database "Capacity Forecasts"

2022 Phosphoric Acid Plant Capacities[1] and Locations

('000 tonnes of P_2O_5 per year)

	Company	Site	Capacity
US	Nutrien	Aurora, NC	1,200
	Nutrien	White Springs, FL	500
	Itafos	Conda, ID	350
	J.R. Simplot Company	Pocatello, ID	460
	J.R. Simplot Company	Rock Springs, WY	370
	Mosaic Company	Bartow, FL	1,100
	Mosaic Company	New Wales, FL	1,720
	Mosaic Company	Tampa, FL	880
	Mosaic Company	Uncle Sam, LA	800
Total US			**7,380**

2022 DAP/MAP Plant Capacities and Locations

('000 tonnes of DAP/MAP per year)

	Company	Site	Capacity
US	Nutrien	Aurora, NC	800
	Nutrien	White Springs, FL	765
	Itafos	Conda, ID	355
	J.R. Simplot Company	Pocatello, ID	420
	J.R. Simplot Company	Rock Springs, WY	350
	Mosaic Company	Bartow, FL	1,675
	Mosaic Company	New Wales, FL	2,820
	Mosaic Company	Tampa, FL	1,200
	Mosaic Company	Faustina, LA	960
Total US			**9,345**

Note: The scientific and technical information with respect to Nutrien's potash operations on page 5, 9 and 12 of this Fact Book has been reviewed and approved by Craig Funk, Director, GeoSciences & Land of Nutrien who is a qualified person within the meaning of NI 43-101.

(1) Capacities figures are on a P_2O_5 basis. Capacities for Nutrien are based on internal calculation method.
Source: CRU Phosphate Fertilizer Market Outlook May 2023 Outlook Capacity "Capacity Forecasts"

Fertilizer Consumption by Region

('000 tonnes nutrient)

Forecast Consumption 2022/2023 Fertilizer Year

Region[1]	N	P	K	Total NPK	% share of world consumption NPK
Western and Central Europe	10,008	2,332	2,690	15,031	8%
Eastern Europe and Central Asia	6,229	1,763	1,530	9,522	5%
North America	14,754	4,983	5,512	25,249	14%
Latin America and the Caribbean	10,034	7,516	8,270	25,820	14%
Africa	4,039	1,766	663	6,468	3%
West Asia	2,897	792	275	3,964	2%
South Asia	25,724	9,834	2,219	37,776	20%
East Asia	29,466	13,821	13,842	57,129	31%
Oceania	2,292	1,373	478	4,143	2%
World	**105,444**	**44,180**	**35,478**	**185,102**	

(1) See Constants and Conversions for IFA Regional Classifications.
Source: IFA Medium-Term Fertilizer Outlook 2023-2027, June 2023

Fertilizer Consumption by Country

('000 tonnes nutrient per year)

Consumption Estimated 2022 - Top Ten

Rank		N		P		K		Total NPK
1	China	25,304	China	10,246	China	8,405	China	43,956
2	India	20,400	India	6,959	Brazil	6,765	India	29,681
3	United States	10,556	Brazil	6,584	United States	3,769	Brazil	18,353
4	Brazil	5,004	United States	3,577	India	2,322	United States	17,902
5	Pakistan	3,568	Indonesia	1,312	Indonesia	1,986	Indonesia	6,850
6	Indonesia	3,552	Canada	1,174	Malaysia	1,448	Russia	4,834
7	Canada	3,172	Russia	1,097	Russia	764	Canada	4,772
8	Russia	2,972	Pakistan	1,030	Vietnam	489	Pakistan	4,598
9	France	1,923	Bangladesh	886	Bangladesh	444	Australia	2,869
10	Turkey	1,907	Australia	863	Poland	443	Turkey	2,794
Top 10		**78,359**		**33,728**		**26,836**		**136,609**
World		**105,444**		**44,180**		**35,478**		**185,102**

Sources: IFA Medium-Term Fertilizer Outlook 2023-2027, June 2023
CRU Ammonia Market Outlook June 2023, CRU Potassium Chloride Market Outlook May 2023, CRU Phosphate Fertilizer Market Outlook May 2023

Fertilizer Nameplate Capacity by Region

('000 tonnes nutrient per year)

Nameplate Capacity Estimated 2022

Region	N	P	K	Total NPK	% share of world capacity NPK
Western Europe	9,955	565	3,955	14,475	5%
Central Europe	5,809	796	-	6,605	2%
Eastern Europe & Central Asia	27,002	5,889	21,545	54,436	17%
North America	18,656	8,705	23,293	50,654	16%
Latin America	9,365	2,759	2,270	14,394	5%
Africa	11,080	11,961	11	23,053	7%
West Asia	17,982	5,492	4,145	27,619	9%
South Asia	21,224	2,144	75	23,443	7%
East Asia	67,755	22,802	7,893	98,450	31%
Oceania	1,862	600	95	2,557	1%
World	**190,691**	**61,713**	**63,282**	**315,686**	**100%**

Source: IFA Medium-Term Fertilizer Outlook 2023-2027, June 2023

Fertilizer Nameplate Capacity by Country

('000 tonnes nutrient per year)

Nameplate Capacity Estimated 2022 - Top Ten

Rank		N		P		K		Total NPK
1	China	54,258	China	20,876	Canada	22,646	China	80,971
2	Russia	16,391	Morocco	7,635	Russia	10,889	Russia	31,462
3	India	15,643	USA	7,462	Belarus	8,949	Canada	27,117
4	USA	14,759	Russia	4,182	China	5,838	USA	22,668
5	Indonesia	6,741	Saudi Arabia	3,107	Germany	2,818	India	18,336
6	Iran	5,452	India	2,693	Israel	2,684	Belarus	10,053
7	Saudi Arabia	5,202	Tunisia	2,123	Jordan	1,586	Saudi Arabia	8,309
8	Egypt	4,829	Brazil	1,621	Chile	1,510	Morocco	7,635
9	Canada	4,471	Jordan	1,093	Laos	1,068	Indonesia	7,341
10	Ukraine	4,465	Mexico	878	Turkmenistan	854	Iran	5,625
Top 10		**132,211**		**51,669**		**58,840**		**219,518**
World		**190,691**		**61,713**		**63,282**		**315,686**

Source: CRU Potassium Chloride Market Outlook May 2023 Capacity Database "Nameplate Capacity Forecasts"
CRU Phosphate Fertilizer Market Outlook May 2023 Capacity Database "Capacity Forecasts"
CRU Ammonia Market Outlook June 2023 Capacity Database "Capacity Forecasts"
IFA Medium-Term Fertilizer Outlook 2023-2027, June 2023

Potash: Imports/Exports

('000 tonnes per year of KCl)

Total Exports					Top Three Destinations (2022)		
Rank	**Exporting Regions**	**2022**	**2021**	**2020**	**1st**	**2nd**	**3rd**
1	Canada	20,830	22,009	22,448	United States	Brazil	China
2	Russia	7,964	11,409	10,813	Brazil	China	Indonesia
3	Belarus	4,935	12,343	11,759	China	Brazil	Russia
4	Israel	3,529	3,504	3,702	Brazil	China	India
5	Germany	3,240	3,221	3,167	Brazil	Poland	France
6	Jordan	2,405	2,400	2,334	China	India	Malaysia
7	Laos	1,352	782	668	China	Indonesia	Vietnam
8	Chile	595	623	559	Brazil	South Africa	Mexico
9	Spain	567	454	395	Brazil	United Kingdom	Norway
10	Uzbekistan	222	243	178	Indonesia	Malaysia	Thailand
Total	**Top 10**	**45,640**	**56,988**	**56,023**			
Total	**World**	**45,739**	**57,061**	**56,056**			

Total Imports					Top Three Sources (2022)		
Rank	**Importing Regions**	**2022**	**2021**	**2020**	**1st**	**2nd**	**3rd**
1	Brazil	11,066	12,555	10,946	Canada	Russia	Belarus
2	China	8,031	7,413	8,588	Canada	Belarus	Russia
3	United States	7,242	10,200	9,509	Canada	Russia	Israel
4	Indonesia	3,133	4,221	3,038	Canada	Russia	Laos
5	India	2,708	3,127	5,147	Canada	Israel	Jordan
6	Malaysia	1,369	1,987	1,345	Canada	Jordan	Russia
7	Bangladesh	936	988	947	Canada	Russia	Belarus
8	Thailand	736	980	747	Canada	Belarus	Germany
9	Vietnam	680	1,131	1,141	Canada	Laos	Russia
10	South Korea	652	1,045	966	Canada	Israel	Laos
Total	**Top 10**	**36,554**	**43,647**	**42,374**			
Total	**World**	**45,739**	**57,061**	**56,056**			

Source: CRU Potassium Chloride Database, May 2023

Ammonia: Imports/Exports

('000 tonnes per year of ammonia)

Total Exports					Top Three Destinations (2022)		
Rank	**Exporting Regions**	**2022**	**2021**	**2020**	**1st**	**2nd**	**3rd**
1	Trinidad	3,584	3,912	3,975	United States	Morocco	Mexico
2	Saudi Arabia	2,733	1,241	1,898	Morocco	India	South Korea
3	Indonesia	1,872	1,736	1,616	South Korea	India	Taiwan
4	Algeria	1,346	1,364	920	Spain	Morocco	France
5	Canada	1,184	1,228	1,071	United States	-	-
6	United States	992	351	508	Germany	Belgium	Norway
7	Russia	783	4,424	4,183	Morocco	Sweden	Belgium
8	Egypt	675	549	454	India	Turkey	Italy
9	Qatar	564	579	617	India	Turkey	Bulgaria
10	Netherlands	477	345	313	Germany	Belgium	France
Total	**Top 10**	**14,210**	**15,729**	**15,555**			
Total	**World**	**17,420**	**19,214**	**18,419**			

Total Imports					Top Three Sources (2022)		
Rank	**Importing Regions**	**2022**	**2021**	**2020**	**1st**	**2nd**	**3rd**
1	United States	2,420	2,600	2,388	Canada	Trinidad	Saudi Arabia
2	India	2,135	2,328	2,565	Saudi Arabia	Indonesia	Iran
3	Morocco	1,966	1,725	1,855	Trinidad	Saudi Arabia	Algeria
4	South Korea	1,317	1,401	1,199	Indonesia	Saudi Arabia	Australia
5	Turkey	909	853	1,185	Saudi Arabia	Qatar	Egypt
6	Belgium	802	937	774	United States	Trinidad	Netherlands
7	Germany	742	668	615	United States	Netherlands	Belgium
8	Norway	571	668	538	United States	Trinidad	Algeria
9	France	501	631	532	Algeria	Netherlands	United Kingdom
10	Taiwan	470	625	563	Indonesia	Saudi Arabia	Iran
Total	**Top 10**	**11,363**	**11,811**	**11,651**			
Total	**World**	**17,420**	**19,214**	**18,419**			

Source: CRU Ammonia Market Outlook Trade Matrices, June 2023.

Urea: Imports/Exports

('000 tonnes per year of urea)

Total Exports					Top Three Destinations (2022)		
Rank	**Exporting Regions**	**2022**	**2021**	**2020**	**1st**	**2nd**	**3rd**
1	Russia	7,210	6,961	7,238	Brazil	India	United States
2	Qatar	6,050	5,269	5,696	United States	Brazil	India
3	Saudi Arabia	4,850	4,136	4,528	India	United States	Australia
4	Egypt	4,700	4,559	4,726	France	India	Italy
5	Iran	4,100	3,780	1,983	Brazil	India	Turkey
6	Oman	3,908	1,323	447	Brazil	India	Turkey
7	Algeria	3,150	3,241	3,343	Brazil	India	France
8	Nigeria	2,863	3,118	3,295	Brazil	United States	India
9	China	2,831	5,299	5,451	India	South Korea	Pakistan
10	Malaysia	1,720	2,210	2,308	Australia	Thailand	India
Total	**Top 10**	**41,382**	**39,896**	**39,015**			
Total	**World**	**53,295**	**52,388**	**52,032**			

Total Imports					Top Three Sources (2022)		
Rank	**Importing Regions**	**2022**	**2021**	**2020**	**1st**	**2nd**	**3rd**
1	India	9,469	7,019	10,213	China	Oman	Saudi Arabia
2	Brazil	8,100	8,726	7,054	Qatar	Oman	Nigeria
3	United States	5,417	6,087	4,496	Qatar	Saudi Arabia	Russia
4	Australia	2,700	2,705	2,405	Saudi Arabia	Qatar	United Arab Emirates
5	Turkey	2,425	2,503	2,436	Oman	Iran	Turkmenistan
6	Thailand	1,700	2,125	2,318	Saudi Arabia	Qatar	Malaysia
7	Mexico	1,500	1,588	1,817	Russia	Qatar	United States
8	France	1,490	1,141	1,017	Egypt	Algeria	Russia
9	Canada	1,160	860	994	United States	Algeria	Russia
10	South Africa	1,150	1,437	888	Qatar	Saudi Arabia	Oman
Total	**Top 10**	**35,110**	**34,191**	**33,638**			
Total	**World**	**53,295**	**52,388**	**52,032**			

Source: CRU Urea Market Outlook Trade Matrices, June 2023

Phosphate: Imports/Exports

('000 tonnes per year of DAP/MAP)

MAP and DAP

Total Exports					Top Three Destinations (2022)		
Rank	**Exporting Regions**	**2022**	**2021**	**2020**	**1st**	**2nd**	**3rd**
1	Morocco	6,189	6,703	8,179	India	Brazil	Bangladesh
2	China	5,707	9,862	8,182	India	Bangladesh	Brazil
3	Saudi Arabia	4,629	4,672	4,973	India	Brazil	United States
4	Russia	4,581	4,027	3,500	Brazil	India	Vietnam
5	United States	2,849	2,371	3,501	Canada	Brazil	Argentina
6	Jordan	436	807	781	India	Bangladesh	Australia
7	Australia	380	465	374	United States	India	Brazil
8	Tunisia	349	396	389	Turkey	India	Italy
9	Mexico	326	404	585	United States	India	Argentina
10	Kazakhstan	200	300	318	Uzbekistan	Russia	Ukraine
Total	**Top 10**	**25,647**	**30,007**	**30,782**			
Total	**World**	**26,224**	**31,081**	**31,707**			

Total Imports					Top Three Sources (2022)		
Rank	**Importing Regions**	**2022**	**2021**	**2020**	**1st**	**2nd**	**3rd**
1	India	7,188	4,844	6,515	Morocco	Saudi Arabia	China
2	Brazil	4,385	6,451	5,426	Russia	Morocco	Saudi Arabia
3	Bangladesh	1,763	1,817	1,284	China	Morocco	Saudi Arabia
4	Canada	1,550	1,828	1,702	United States	Morocco	Russia
5	Australia	1,247	1,465	1,171	China	Saudi Arabia	United States
6	United States	1,146	2,354	1,759	Saudi Arabia	Russia	Australia
7	Argentina	1,068	1,369	1,423	Morocco	United States	China
8	Pakistan	583	1,245	1,189	China	Saudi Arabia	Morocco
9	Vietnam	555	578	664	Russia	China	South Korea
10	Japan	502	541	497	China	Morocco	United States
Total	**Top 10**	**19,986**	**22,492**	**21,630**			
Total	**World**	**26,224**	**31,081**	**31,707**			

Source: CRU Phosphate Fertilizer Market Outlook Trade Matrices, May 2023

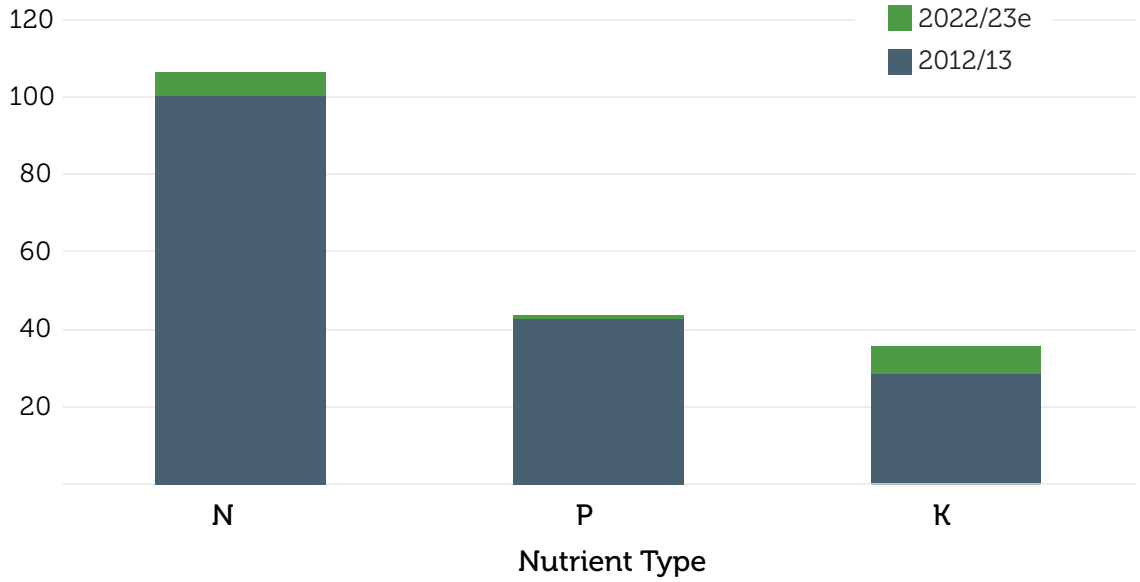
Global Nutrient Consumption

('000 tonnes nutrient per year. Does not include industrial use.)

	2022/23e	2021/22	2020/21	2019/20	2018/19	2017/18	2016/17	2015/16	2014/15	2013/14	2012/13
N	**105,444**	**108,620**	**111,394**	**108,212**	**104,089**	**105,867**	**107,208**	**105,802**	**103,105**	**104,083**	**101,194**
Growth	*-2.92%*	*-2.49%*	*2.94%*	*3.96%*	*-1.68%*	*-1.25%*	*1.33%*	*2.62%*	*-0.94%*	*2.85%*	*0.66%*
P	**44,180**	**46,620**	**48,705**	**47,152**	**45,519**	**46,273**	**45,417**	**45,262**	**44,570**	**44,998**	**43,690**
Growth	*-5.23%*	*-4.28%*	*3.29%*	*3.59%*	*-1.63%*	*1.88%*	*0.34%*	*1.55%*	*-0.95%*	*2.99%*	*1.80%*
K	**35,478**	**39,473**	**40,144**	**37,207**	**37,508**	**37,607**	**36,008**	**33,099**	**34,607**	**31,553**	**29,588**
Growth	*-10.12%*	*-1.67%*	*7.90%*	*-0.80%*	*-0.26%*	*4.44%*	*8.79%*	*-4.36%*	*9.68%*	*6.64%*	*1.89%*

Growth in Global Nutrient Consumption

(millions of nutrient tonnes)



Source: IFA Medium-Term Fertilizer Outlook 2023-2027, June 2023
Table: Fertilizer Consumption Forecasts by Region (Fertilizer Year)

2022 Global Potash Supply/Demand Balance

('000 tonnes per year of K_2O)

Region[1]	Capacity	Operational Capability	Non-Fertilizer Use	Fertilizer Demand	Total Demand
Western Europe	3,955	3,505	582	1,825	2,406
Central Europe	-	-	61	899	960
Eastern Europe & Central Asia	21,545	12,407	218	1,534	1,752
North America	23,293	18,192	1,362	4,976	6,338
Latin America	2,270	1,084	666	8,270	8,936
Africa	11	2	198	711	909
West Asia	4,145	4,202	137	290	427
South Asia	75	38	296	2,889	3,185
East Asia	7,893	7,293	2,484	13,840	16,325
Oceania	95	24	6	490	496
World	**63,282**	**46,747**	**6,010**	**35,724**	**41,734**

(1) See Constants and Conversions for IFA regional Classifications
Source: IFA Medium-Term Fertilizer Outlook 2023-2027, June 2023
Note: The global potash supply and demand balance shown is inclusive of all potash products such as MOP, SOP, NOP and others.

2022 Global Nitrogenous Fertilizer Supply/Demand Balance

('000 tonnes per year of N)

Region[1]	Capacity	Operational Capability	Non-Fertilizer Use	Fertilizer Demand	Total Demand
Western Europe	9,955	6,779	5,203	6,783	11,986
Central Europe	5,809	3,136	1,013	3,252	4,265
Eastern Europe & Central Asia	27,002	19,302	2,953	6,236	9,189
North America	18,656	18,222	6,531	14,181	20,712
Latin America	9,365	6,528	1,871	10,034	11,905
Africa	11,080	9,507	641	4,083	4,724
West Asia	17,982	16,874	990	2,933	3,923
South Asia	21,224	19,547	1,617	25,107	26,724
East Asia	67,755	55,170	23,452	29,452	52,903
Oceania	1,862	1,763	1,070	2,310	3,380
World	**190,691**	**156,828**	**45,340**	**104,370**	**149,710**

(1) See Constants and Conversions for IFA regional Classifications
Source: IFA Medium-Term Fertilizer Outlook 2023-2027, June 2023

2022 Global Urea Supply/Demand Balance

('000 tonnes per year of N)

Region[1]	Capacity	Operational Capability	Non-Fertilizer Use	Fertilizer Demand	Total Demand
Western Europe	3,623	2,739	2,204	3,110	5,314
Central Europe	1,383	234	128	953	1,081
Eastern Europe & Central Asia	9,396	6,490	434	2,088	2,522
North America	7,289	6,578	1,149	7,558	8,707
Latin America	3,218	1,815	339	6,465	6,804
Africa	7,480	6,385	83	2,683	2,766
West Asia	12,364	11,544	468	3,162	3,630
South Asia	17,378	16,126	240	20,739	20,979
East Asia	40,463	32,019	9,502	21,113	30,615
Oceania	270	190	147	1,554	1,701
World	**102,864**	**84,120**	**14,694**	**69,425**	**84,119**

(1) See Constants and Conversions for IFA regional Classifications
Source: Fertecon Urea Outlook, April 2023

2021 Global Phosphoric Acid Supply/Demand Balance

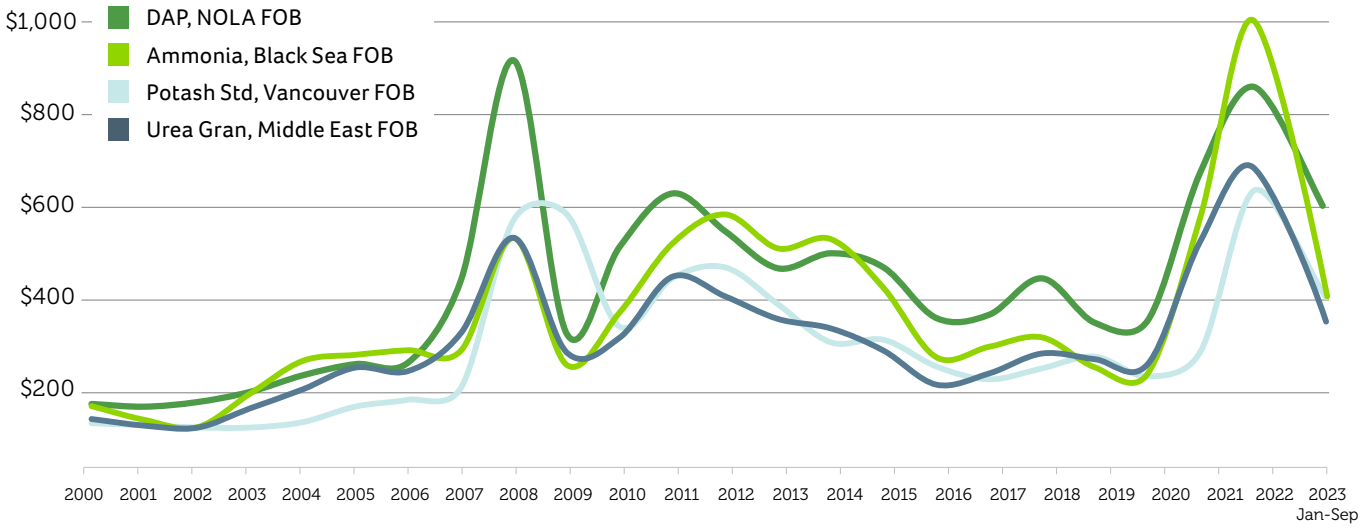
('000 tonnes per year of P_2O_5)

Region[1]	Capacity	Operational Capability	Non-Fertilizer Use	Fertilizer Demand	Total Demand
Western Europe	565	490	688	1,386	2,074
Central Europe	796	479	143	968	1,111
Eastern Europe & Central Asia	5,889	5,749	428	1,765	2,193
North America	8,705	7,835	898	4,590	5,488
Latin America	2,759	1,951	938	7,516	8,453
Africa	11,961	8,839	800	1,715	2,515
West Asia	5,492	4,760	365	770	1,135
South Asia	2,144	1,897	284	9,913	10,197
East Asia	22,802	18,862	2,285	13,816	16,101
Oceania	600	480	18	1,401	1,419
World	**61,713**	**51,342**	**6,847**	**43,839**	**50,686**

(1) See Constants and Conversions for IFA regional Classifications
Source: IFA Medium-Term Fertilizer Outlook 2023-2027, June 2023

International Benchmark Fertilizer Prices – Historical

(US$/tonne)



Source: CRU Fertilizer Week

Note: Fertilizer prices are all calendar year spot price averages. 2023 average price as of September 28, 2023.

Fertilizer and Energy Prices

(US$/tonne, annual average, unless otherwise noted)

Year	Gran KCl CFR Brazil	Gran KCl US Midwest	STD KCl SE Asia	STD KCl China	STD KCl India	Gran. Urea FOB Middle East	Gran Urea FOB Barge NOLA	Gran Urea W Canada	Ammonia FOB Yuzhnyy	Ammonia CFR Tampa	UAN FOB Midwest	DAP FOB Barge NOLA	Phos Acid CFR India	Liquid Sulfur CFR Tampa	Natural Gas NYMEX (US$/ Mmbtu)	Oil Brent (US$/ barrel)
1999	145	132	135	114	-	94	104	150	110	112	94	255	416	69	2.3	18
2000	147	130	130	115	-	131	158	180	159	151	125	225	370	59	4.3	29
2001	140	130	129	115	121	117	149	209	130	178	160	199	349	38	4.0	24
2002	136	126	120	114	119	113	127	182	114	121	119	168	338	44	3.4	25
2003	143	129	130	119	121	154	190	256	186	190	158	187	341	65	5.5	29
2004	163	174	185	150	162	195	225	282	257	255	191	228	384	66	5.9	38
2005	216	228	218	212	210	242	284	323	270	289	234	253	426	66	8.7	55
2006	199	223	221	220	220	235	255	385	280	339	214	256	454	67	6.7	65
2007	273	286	293	235	249	317	381	431	279	325	322	432	533	73	7.0	72
2008	775	804	836	508	540	522	557	653	522	462	468	915	1714	359	8.9	97
2009	635	641	625	587	523	275	303	443	248	429	235	323	619	21	3.9	62
2010	399	462	402	350	382	307	347	437	361	408	296	509	742	118	4.4	80
2011	521	606	493	435	417	438	471	532	509	575	411	617	994	208	4.0	111
2012	513	567	511	470	480	396	523	611	572	605	408	539	909	175	2.8	112
2013	404	466	408	400	424	347	376	496	499	543	361	456	715	123	3.7	109
2014	350	426	321	310	335	327	392	487	519	545	353	489	715	126	4.4	99
2015	325	393	317	313	329	279	317	414	414	454	322	458	799	131	2.6	52
2016	232	263	247	269	277	205	228	351	265	276	225	349	626	76	2.5	44
2017	263	277	241	224	232	230	228	342	287	277	206	356	566	79	3.0	54
2018	320	310	279	246	257	273	285	379	307	312	237	435	732	122	3.2	71
2019	330	333	294	290	288	260	270	367	243	247	206	339	691	84	2.6	64
2020	238	280	245	243	248	249	250	327	229	233	164	343	628	53	2.0	43
2021	534	565	389	244	290	515	536	566	567	595	374	664	1073	166	3.9	71
2022	857	801	785	550	573	674	665	821	991	1162	572	848	1541	317	6.5	101
2023 (Jan-Sep)	409	475	400	467	465	347	398	582	405	486	307	606	957	97	2.4	81

Source: CRU; EIA; NASDAQ

Total Consumption of Fertilizers – North America

('000 tonnes nutrient per year)

	N	P_2O_5	K_2O	Total
US				
2021/2022 (a)	11,105	3,935	4,139	19,179
2020/2021 (a)	11,506	4,373	4,869	20,748
2019/2020	10,774	4,285	4,986	20,045
2018/2019 (b)	11,549	3,978	4,268	19,795
2017/2018	11,967	4,327	4,738	21,032
2016/2017	11,879	4,213	4,825	20,917
2015/2016	11,684	3,920	4,472	20,076
2014/2015	11,809	3,871	4,273	19,953
2013/2014	12,212	4,339	4,819	21,370
2012/2013	12,188	4,289	4,385	20,862
Canada				
2021/2022	2,726	1,033	808	4,567
2020/2021	2,934	1,127	885	4,946
2019/2020	2,876	1,207	729	4,812
2018/2019 (c)	2,660	1,144	574	4,378
2017/2018	2,614	1,080	419	4,113
2016/2017	2,390	947	418	3,755
2015/2016	2,537	1,025	374	3,936
2014/2015	2,570	945	394	3,909
2013/2014	2,472	885	373	3,730
2012/2013	2,507	836	361	3,704

(a) Estimate on CRU calendar year consumption
(b) estimated via AAPFCO Commercial Fertilizers Report and IFA data and Nutrien estimates
(c) potash values estimated via CRU fiscal year estimates
Source: CRU Ammonia Market Outlook June 2023; CRU Phosphate Fertilizer Market Outlook May 2023; CRU Potassium Chloride Database May 2023
Source(1965-2014): IFADATA
Source(2014/2015 - 2021/2022): Stats Canada Table: 32-10-0039-01 (formerly: CANSIM Table 001-0069): Fertilizer shipments to Canadian agriculture markets, by nutrient content and fertilizer year, cumulative data (x 1,000)

Total Shipments of Fertilizers and Plant Nutrients – Canada[1, 2]

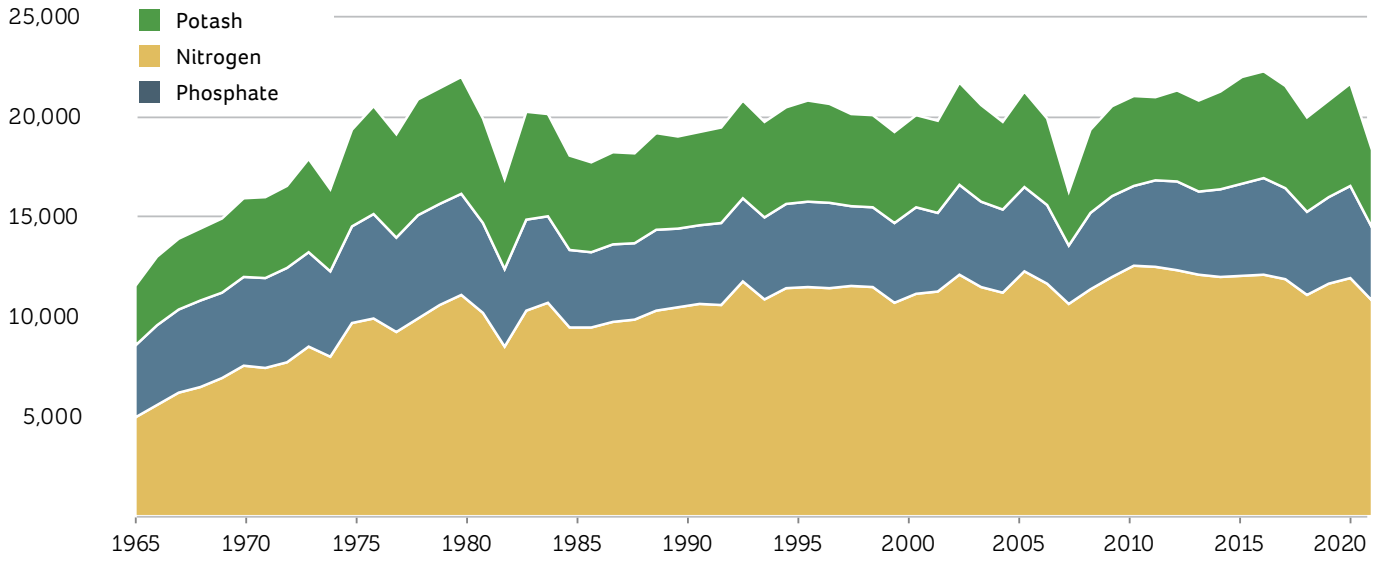
('000 tonnes nutrient per year)

	N	P_2O_5	K_2O [1]	Total
Western Canada				
2021/2022	2,237	787	236	3,260
2020/2021	2,465	875	355	3,695
2019/2020	2,366	975	316	3,657
2018/2019	2,255	915	258	3,428
2017/2018	2,210	839	209	3,258
2016/2017	2,032	716	193	2,941
2015/2016	2,132	775	183	3,090
2014/2015	2,238	756	206	3,200
2013/2014	2,103	700	173	2,976
2012/2013	2,126	649	174	2,949
Eastern Canada				
2021/2022	489	246	572	1,307
2020/2021	469	252	530	1,251
2019/2020	510	232	412	1,154
2018/2019	405	229	316	950
2017/2018	403	240	210	853
2016/2017	358	231	225	814
2015/2016	405	249	191	845
2014/2015	350	189	193	732
2013/2014	369	182	194	745
2012/2013	379	168	179	726

(1) 2006/2007 to 2020/2021 data are derived from fertilizer shipments to Canadian agriculture markets reports. Data prior to 2007/2008 was collected by Canadian Fertilizer Institute. Different coverage and reporting methods of the data will affect the comparability of the data.
(2) 2018/19 potash values are estimated based on CRU fiscal year data and historical ratios, due to data unavailability from StatsCanada
Source(2006/2007 - 2021/2022): Stats Canada Table: 32-10-0039-01 (formerly: CANSIM Table 001-0069): Fertilizer shipments to Canadian agriculture markets, by nutrient content and fertilizer year, cumulative data (x 1,000)

Fertilizer Consumption – US

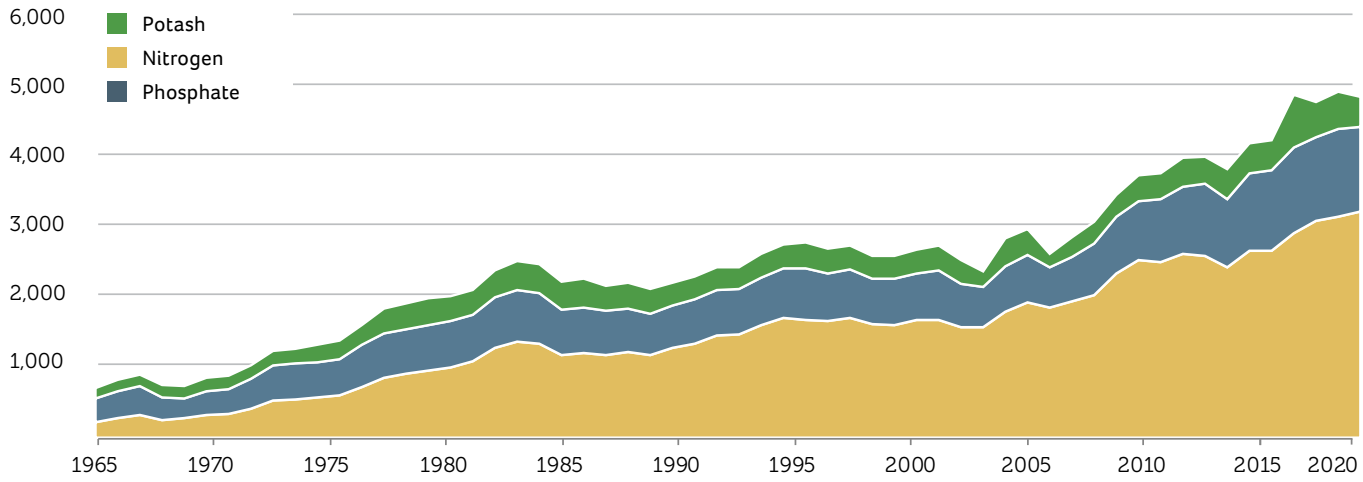
('000 tonnes nutrient)



Source: (1965-2019): IFADATA
Source: (2020-2022e): CRU Ammonia Market Outlook June 2023, CRU Potassium Chloride Market Outlook May 2023, CRU Phosphate Fertilizer Market Outlook May 2023

Fertilizer Consumption – Canada

('000 tonnes nutrient)



Source (1965-2019): IFADATA
Source (2020- 2022e): CRU Urea Fertilizer Market Outlook February 2022, CRU Potassium Chloride Market Outlook February 2022, CRU Phosphate Fertilizer Market Outlook February 2022

Fertilizer Consumption – Europe

('000 tonnes nutrient per year. Includes West, Central and Eastern Europe)

	Primary Nutrient Consumption			
	N	P_2O_5	K_2O	Total
France				
2022e	1,919	404	311	2,634
2021	2,069	435	474	2,978
2020	2,017	430	526	2,972
2019	2,141	413	460	3,013
2018	2,168	433	458	3,059
2017	2,243	427	444	3,114
2016	2,241	359	390	2,990
2015	2,212	429	370	3,011
Germany				
2022e	1,261	221	410	1,892
2021	1,281	236	461	1,977
2020	1,265	217	447	1,929
2019	1,373	248	420	2,040
2018	1,342	201	410	1,953
2017	1,497	209	392	2,097
2016	1,658	231	430	2,319
2015	1,712	288	398	2,398
Poland				
2022e	1,160	296	443	1,899
2021	1,097	305	668	2,070
2020	1,088	346	569	2,003
2019	1,034	359	559	1,952
2018	994	344	568	1,906
2017	1,179	339	559	2,077
2016	1,152	344	557	2,052
2015	1,043	326	527	1,896
Russia				
2022e	2,972	1,097	764	4,834
2021	2,878	1,102	525	4,505
2020	2,795	1,129	524	4,448
2019	2,532	967	581	4,080
2018	2,203	809	534	3,547
2017	1,907	792	434	3,133
2016	2,149	693	319	3,162
2015	1,807	554	295	2,656
Spain				
2022e	1,026	422	354	1,802
2021	1,079	450	421	1,950
2020	1,052	448	428	1,928
2019	1,023	496	395	1,914
2018	1,054	449	378	1,882
2017	1,090	427	414	1,931
2016	1,019	432	390	1,841
2015	987	388	372	1,747
United Kingdom				
2022e	950.3	219	265	1,434
2021	951	231	253	1,435
2020	925	176	271	1,372
2019	962	174	253	1,389
2018	1,038	186	267	1,491
2017	1,033	188	262	1,483
2016	1,041	195	276	1,512
2015	1,026	197	270	1,493

Fertilizer Consumption – Latin America

('000 tonnes nutrient per year)

	Primary Nutrient Consumption			
	N	P_2O_5	K_2O	Total
Argentina				
2022e	1,477	728	81	2,286
2021	1,628	777	79	2,484
2020	1,454	790	58	2,301
2019	1,272	745	45	2,062
2018	1,154	681	47	1,882
2017	970	630	47	1,647
2016	992	758	67	1,817
2015	602	443	49	1,094
Brazil				
2022e	4,999	6,584	6,765	18,348
2021	5,011	7,566	7,375	19,952
2020	4,855	6,505	6,759	18,118
2019	4,358	5,417	6,102	15,877
2018	4,287	5,157	6,064	15,507
2017	4,377	5,126	5,853	15,356
2016	4,366	4,974	5,728	15,068
2015	3,533	4,401	5,162	13,096
Chile				
2022e	256	132	138	525
2021	268	146	139	553
2020	228	107	87	422
2019	216	126	96	438
2018	213	133	101	447
2017	194	151	96	441
2016	198	126	98	422
2015	196	125	97	418
Mexico				
2022e	1,596	466	400	2,462
2021	1,678	490	333	2,501
2020	1,572	486	293	2,352
2019	1,452	407	255	2,115
2018	1,436	437	261	2,134
2017	1,522	418	266	2,206
2016	1,531	384	214	2,130
2015	1,398	361	243	2,002

(e) estimated

Source (2020-2022e): CRU Urea Fertilizer Market Outlook March 2023, CRU Potassium Chloride Market Outlook February 2023, CRU Phosphate Fertilizer Market Outlook May 2023

Source: IFADATA (2015-2019)

Fertilizer Consumption – Africa and the Middle East

('000 tonnes nutrient per year)

	Primary Nutrient Consumption			
	N	P_2O_5	K_2O	Total
Egypt				
2022e	1,317	356	82	1,754
2021	1,282	351	120	1,753
2020	1,332	342	79	1,753
2019	1,253	279	92	1,625
2018	1,334	222	76	1,632
2017	1,316	264	62	1,641
2016	1,282	229	59	1,571
2015	1,221	333	63	1,616
Iran				
2022e	1,160	78	28	1,266
2021	1,144	83	40	1,267
2020	1,152	42	42	1,236
2019	952	139	92	1,183
2018	959	97	32	1,089
2017	910	140	67	1,116
2016	859	50	89	998
2015	594	102	31	726
Morocco				
2022e	210	224	74	508
2021	217	225	80	522
2020	229	217	81	526
2019	186	121	82	388
2018	212	132	90	434
2017	251	158	32	442
2016	188	150	38	376
2015	196	227	34	457
Nigeria				
2022e	400	106	90	596
2021	523	152	113	788
2020	500	124	122	746
2019	375	27	18	420
2018	436	136	114	686
2017	453	145	136	734
2016	265	98	59	422
2015	185	57	25	267
South Africa				
2022e	424	315	155	895
2021	453	328	172	952
2020	511	390	188	1,088
2019	452	253	242	947
2018	521	268	289	1,078
2017	710	199	221	1,129
2016	521	247	225	992
2015	418	273	257	948

Fertilizer Consumption – Asia

('000 tonnes nutrient per year)

	Primary Nutrient Consumption			
	N	P_2O_5	K_2O	Total
China				
2022e	25,284	10,246	8,405	43,935
2021	25,036	10,077	10,385	45,499
2020	25,034	10,114	10,250	45,398
2019	24,853	11,231	10,721	46,805
2018	23,283	12,056	9,418	44,758
2017	23,061	12,120	9,907	45,088
2016	26,341	12,301	9,961	48,603
2015	29,287	14,011	10,075	53,374
India				
2022e	20,384	6,959	2,322	29,665
2021	19,658	7,283	2,876	29,817
2020	20,404	7,978	3,154	31,536
2019	19,101	7,662	2,607	29,370
2018	17,638	6,910	2,680	27,228
2017	16,959	6,854	2,780	26,593
2016	16,735	6,705	2,508	25,949
2015	17,372	6,979	2,402	26,753
Indonesia				
2022e	3,551	1,312	1,986	6,849
2021	3,481	1,371	2,075	6,927
2020	3,344	1,268	1,883	6,494
2019	3,453	1,250	1,602	6,304
2018	3,541	1,385	2,290	7,216
2017	3,492	1,475	2,006	6,973
2016	3,248	1,209	1,600	6,056
2015	3,532	1,267	1,635	6,434
Pakistan				
2022e	3,562	1,030	62	4,654
2021	3,765	1,351	64	5,179
2020	3,708	1,211	93	5,012
2019	3,411	1,071	74	4,556
2018	3,408	1,153	75	4,636
2017	3,435	1,279	75	4,788
2016	3,730	1,269	62	5,061
2015	2,672	1,007	35	3,715
Vietnam				
2022e	1,157	715	489	2,361
2021	1,148	757	509	2,414
2020	1,146	729	680	2,556
2019	1,477	652	419	2,548
2018	1,609	817	490	2,915
2017	1,651	805	600	3,056
2016	1,599	769	658	3,026
2015	1,798	828	507	3,133

(e) estimated

Source (2020-2022e): CRU Urea Fertilizer Market Outlook March 2023, CRU Potassium Chloride Market Outlook February 2023, CRU Phosphate Fertilizer Market Outlook May 2023

Source: IFADATA (2015-2019)

Fertilizer Consumption – Oceania

('000 tonnes nutrient per year)

	Primary Nutrient Consumption			
	N	P_2O_5	K_2O	Total
Australia				
2022e	1,700	863	254	2,817
2021	1,698	894	239	2,832
2020	1,608	788	281	2,677
2019	1,324	923	290	2,537
2018	1,242	910	274	2,426
2017	1,534	999	276	2,810
2016	1,514	880	254	2,647
2015	1,347	953	247	2,547
New Zealand				
2022e	441	323	115	879
2021	445	346	131	922
2020	443	325	156	923
2019	470	338	148	956
2018	451	352	158	961
2017	458	339	155	952
2016	443	313	147	904
2015	427	318	131	877

(e) estimated

Source (2020-2022e): CRU Urea Fertilizer Market Outlook March 2023, CRU Potassium Chloride Market Outlook February 2023, CRU Phosphate Fertilizer Market Outlook May 2023

Source: IFADATA (2009-2019)

Fertilizer Application Rates – US[(1)]

(years ended June 30)

		N	P	K	Total
Corn	lbs/acre	150	64	77	
	% of area applied	95%	75%	65%	
	lbs applied/acre	143	48	50	241
Cotton	lbs/acre	95	51	77	
	% of area applied	71%	46%	37%	
	lbs applied/acre	67	23	28	119
Soybeans	lbs/acre	17	55	89	
	% of area applied	32%	42%	44%	
	lbs applied/acre	5	23	39	68
Spring Wheat	lbs/acre	80	34	19	
(excl. durum)	% of area applied	96%	82%	12%	
	lbs applied/acre	77	28	2	107
Winter Wheat	lbs/acre	72	33	52	
	% of area applied	80%	60%	19%	
	lbs applied/acre	58	20	10	87

(1) Soybean data is for the year 2020. Corn and Cotton data is for the year 2021. Spring Wheat and Winter Wheat data are for the year 2022.

Source: USDA NASS Agricultural Chemical Use Survey- 2021 Corn, May 2022
USDA NASS Agricultural Chemical Use Survey- 2020 Soybeans, May 2021
USDA NASS Agricultural Chemical Use Survey- 2022 Wheat, May 2023
USDA NASS Agricultural Chemical Use Survey- 2021 Cotton, May 2022

Fertilizer Application Rates – Australia

		N	P	K
Wheat	lbs/acre	35	22	3
Oil Crops	lbs/acre	35	18	5
(including Canola)				
Other Cereals	lbs/acre	30	23	2
Cotton	lbs/acre	163	52	30

Source: IFA Assessment of Fertilizer Use by Crop

Note: Application rates are estimated based on the total volume of nutrients applied

Fertilizer Application Rates – Canada

		N	P	K
Wheat	lbs/acre	75	26	7
Canola	lbs/acre	94	29	7
Other Cereals	lbs/acre	64	24	5
Pulses	lbs/acre	8	24	5

Source: IFA Assessment of Fertilizer Use by Crop

Note: Application rates are estimated based on the total volume of nutrients applied

Fertilizer Application Rates – Brazil

		N	P	K
Soybean	lbs/acre	13	82	76
Corn	lbs/acre	61	38	40
Cotton	lbs/acre	201	118	167
Rice	lbs/acre	65	34	34
Wheat	lbs/acre	50	32	39

Source: IFA Assessment of Fertilizer Use by Crop

Note: Application rates are estimated based on the total volume of nutrients applied

Nutrient Uptake and Removal by Field Crops – US

*(pounds per acre of nutrient uptake/removal)**

		N	P_2O_5	K_2O
Corn				
176 bu/acre	Uptake	229	92	245
	Removal[1]	229	95	241
Cotton				
800 lb/acre	Uptake	96	34	67
	Removal	51	21	24
Soybeans				
50 bu/acre	Uptake	245	54	115
	Removal	190	42	65

Source: Nutrien Ekonomics, IPNI

Nutrient Uptake and Removal by Field Crops – Brazil

*(pounds per acre of nutrient uptake/removal)**

		N	P_2O_5	K_2O	S
Soybean					
53 bu/acre	Uptake	261	59	122	12–14
	Removal	176	39	64	6–8
Corn					
36 bu/acre	Uptake	36	20	51	17–21
	Removal	24	13	9	10–12
Wheat					
45 bu/acre	Uptake	99	34	68	12–15
	Removal	68	26	15	5–6
Cotton					
1580 lbs/acre	Uptake	214	99	198	8–10
	Removal	105	46	63	4–5

Source: Nutrien Ekonomics, IPNI

Nutrient Uptake and Removal by Field Crops – Western Canada

*(pounds per acre of nutrient uptake/removal)**

		N	P_2O_5	K_2O	S
Barley					
70 bu/acre	Uptake	91	31	77	12–14
	Removal	62	27	20	6–8
Canola					
41 bu/ac	Uptake	90	57	180	17–21
	Removal	77	32	16	10–12
Soybeans					
44 bu/acre	Uptake	255	57	120	12–15
	Removal	161	45	60	5–6
Sping Wheat (excl durum)					
52 bu/acre	Uptake	114	40	78	8–10
	Removal	76	28	14	4–5

Source: Nutrien Ekonomics, IPNI

Nutrient Uptake and Removal by Field Crops – Australia

*(pounds per acre of nutrient uptake/removal)**

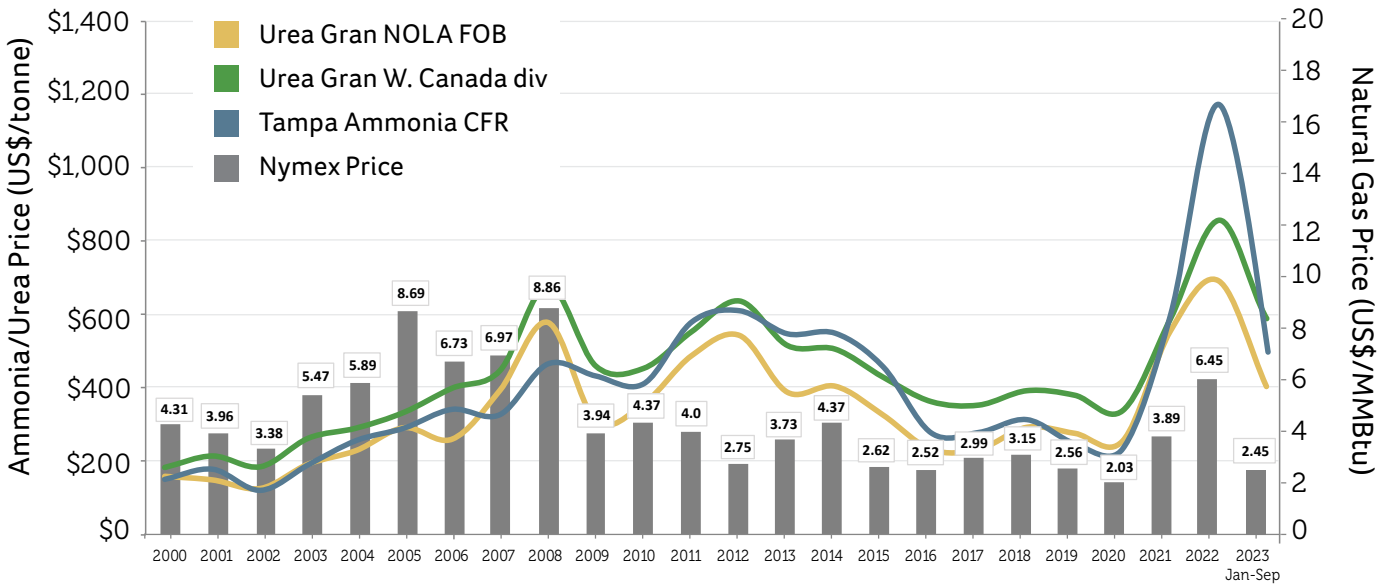
		N	P_2O_5	K_2O	S
Soybean					
35 bu/acre	Uptake	66	23	69	12–14
	Removal	41	17	10	6–8
Corn					
25 bu/acre	Uptake	55	35	110	17–21
	Removal	40	20	10	10–12
Wheat					
47 bu/acre	Uptake	60	20	51	12–15
	Removal	46	19	15	5–6
Cotton					
1734 lbs/acre	Uptake	235	108	217	8–10
	Removal	116	51	69	4–5

Source: Nutrien Ekonomics, IPNI

1. Corn removal includes grain only

* Total nutrient uptake refers to the quantity of nutrient accumulated in the above ground portion, and harvested portions, of the plant by the time of sampling, usually physiological maturity or when uptake is at its maximum. Removal is measured as nutrient removed in harvested portion.

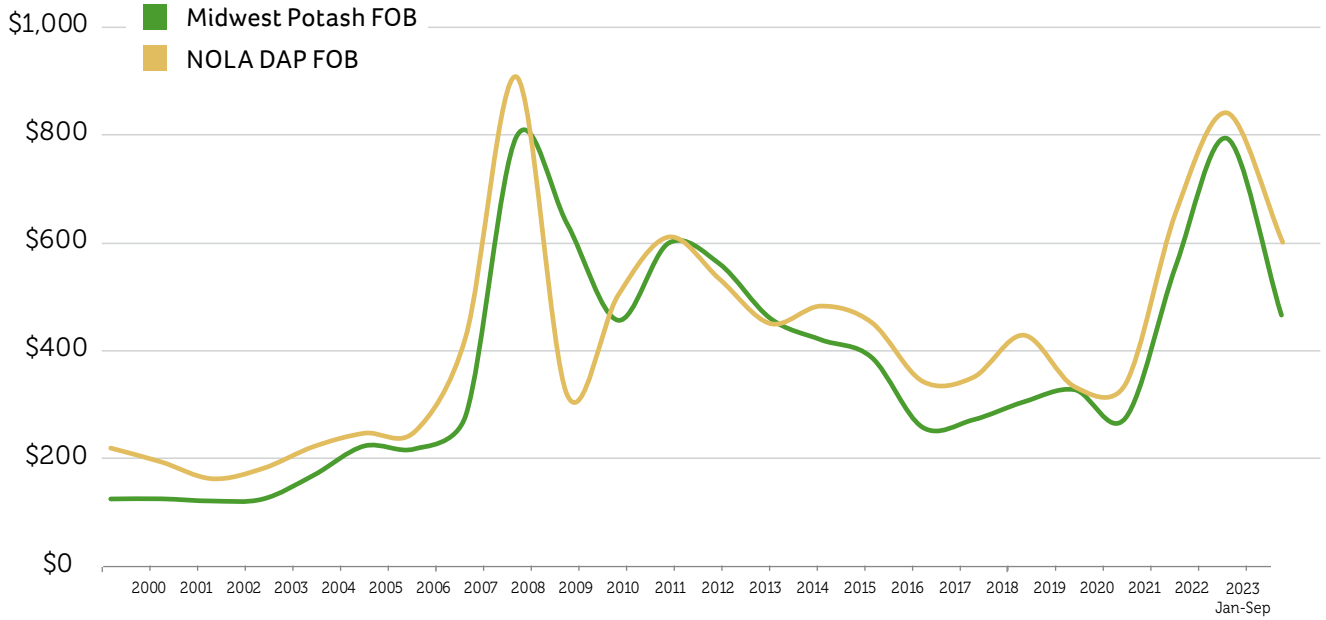
Historical Nitrogen Fertilizer and Gas Benchmark Prices – North America



Note: Fertilizer prices are all spot averages before any discounts, year average refers to calendar year. NOLA refers to US Gulf port, New Orleans, Louisiana. Gas prices are Henry Hub Gulf Coast Natural Gas Spot Prices.
Source: US Energy Information Administration
CRU Fertilizer Week

Historical P & K Fertilizer Benchmark Prices – North America

(US$/tonne)



Note: Fertilizer prices are all calendar year spot price averages. 2023 average price is as of September 28, 2023.
Source: CRU Fertilizer Week

AGRICULTURE STATISTICS

Corn – US

Year	Planted Acres	Yield	Production	Domestic Consump.	Exports	Ending Stocks	Stocks/ Use Ratio	Avg. Price
	Mill Acres	Bu/Acre	Mill Bu	Mill Bu	Mill Bu	Mill Bu	%	US$/Bu
2010/11	88.2	152.6	12,425	11,202	1,831	1,128	9%	5.18
2011/12	91.9	146.8	12,314	10,943	1,539	989	8%	6.22
2012/13	97.3	123.1	10,755	10,353	730	821	7%	6.89
2013/14	95.4	158.1	13,831	11,535	1,921	1,232	9%	4.46
2014/15	90.6	171.0	14,217	11,883	1,867	1,731	13%	3.70
2015/16	88.0	168.4	13,602	11,765	1,899	1,737	13%	3.61
2016/17	94.0	174.6	15,148	12,355	2,294	2,293	16%	3.36
2017/18	90.2	176.6	14,609	12,360	2,438	2,140	14%	3.36
2018/19	88.9	176.4	14,340	12,222	2,066	2,221	16%	3.61
2019/20	89.7	167.5	13,620	12,186	1,777	1,919	14%	3.56
2020/21	90.7	171.4	14,111	12,068	2,753	1,235	8%	4.53
2021/22	93.3	176.7	15,074	12,484	2,471	1,377	9%	6.00
2022/23(e)	88.6	173.3	13,730	12,030	1,665	1,452	11%	6.55
2023/24(f)	94.9	173.8	15,134	12,340	2,050	2,221	15%	4.90

Source: USDA

Soybeans – US

Planted Acres	Yield	Production	Domestic Consump.	Exports	Ending Stocks	Stocks/ Use Ratio	Avg. Price
Mill Acres	Bu/Acre	Mill Bu	Mill Bu	Mill Bu	Mill Bu	%	US$/Bu
77.4	43.5	3,331	1,777	1,505	215	7%	11.30
75.0	42.0	3,097	1,793	1,366	169	5%	12.50
77.2	40.0	3,042	1,784	1,328	141	5%	14.40
76.8	44.0	3,357	1,839	1,639	92	3%	13.00
83.3	47.5	3,928	2,021	1,842	191	5%	10.10
82.7	48.0	3,927	2,002	1,943	197	5%	8.95
83.5	51.9	4,296	2,047	2,166	302	7%	9.47
90.2	49.3	4,412	2,168	2,129	438	10%	9.33
89.2	50.6	4,428	2,219	1,752	909	23%	8.48
76.1	47.4	3,552	2,273	1,679	525	13%	8.57
83.4	51.0	4,216	2,243	2,261	257	6%	10.80
87.2	51.7	4,465	2,204	2,158	274	6%	13.30
87.5	49.5	4,276	2,220	1,990	245	6%	14.20
83.6	52.0	4,146	2,290	1,790	220	5%	12.90

Source: USDA

Cotton – US

Year	Planted Acres	Yield	Production	Domestic Consump.	Exports	Ending Stocks	Stocks/ Use Ratio	Avg. Price
	Mill Acres	LB/Acre	Mill Bales	Mill Bales	Mill Bales	Mill Bales	%	US¢/LB
2010/11	11.0	812	18.1	4.1	14.4	2.6	14%	85
2011/12	14.7	790	15.6	3.1	11.7	3.4	23%	94
2012/13	12.3	892	17.3	3.8	13.0	3.8	23%	76
2013/14	10.4	822	12.9	3.8	10.5	2.4	16%	84
2014/15	11.1	838	16.3	3.8	11.2	3.7	24%	66
2015/16	8.6	766	12.9	3.6	9.2	3.8	30%	65
2016/17	10.1	867	17.2	3.3	14.9	2.8	15%	71
2017/18	12.7	905	20.9	3.5	15.8	4.3	22%	72
2018/19	14.1	882	18.4	3.0	14.8	4.9	27%	70
2019/20	13.7	831	19.9	2.2	15.5	7.3	41%	60
2020/21	12.1	853	14.6	2.4	16.4	3.2	17%	66
2021/22	11.2	819	17.5	2.6	14.6	3.8	22%	91
2022/23(e)	13.8	950	14.5	2.1	12.8	4.3	29%	82
2023/24(f)	10.2	786	13.1	2.2	12.3	3.0	21%	80

Source: USDA

Canola – Canada

Planted Acres	Yield	Production	Domestic Consump.	Exports	Ending Stocks	Stocks/ Use Ratio	Avg. Price
Mill Acres	Bu/Acre	Mill Bu	Mill Bu	Mill Bu	Mill Bu	%	CN$/Bu
17.6	33.3	564	282	318	97	16%	12.07
19.0	34.3	644	331	383	31	4%	12.79
22.2	27.9	611	309	313	26	4%	13.96
20.4	40.2	818	310	405	133	19%	10.01
20.9	34.9	724	341	406	112	15%	9.99
20.8	39.2	810	381	453	92	11%	10.65
20.8	42.3	864	415	486	59	7%	10.98
23.0	41.3	946	416	478	110	12%	11.19
22.8	40.6	914	439	406	169	20%	10.29
21.2	41.9	878	486	443	151	16%	10.98
20.8	41.8	859	474	466	76	8%	16.56
22.3	27.5	606	420	231	38	6%	24.38
21.4	37.6	801	405	362	77	10%	19.44
22.1	38.0	829	439	397	75	9%	17.92

Source: Statistics Canada, USDA, ICE

Soybeans – Brazil

Year	Harvested Acres	Yield	Production	Domestic Consump.	Exports	Ending Stocks	Stocks/ Use Ratio	Avg. Price
	Mill Acres	Bu/Acre	Mill Bu	Mill Bu	Mill Bu	Mill Bu	%	BRL/Sack
2010/11	59.8	46.3	2,767	1,425	1,101	996	39%	$46
2011/12	61.8	39.6	2,443	1,491	1,332	621	22%	$48
2012/13	68.4	44.0	3,013	1,388	1,540	720	25%	$52
2013/14	74.4	42.8	3,186	1,450	1,721	758	24%	$63
2014/15	79.3	45.1	3,572	1,583	1,860	898	26%	$57
2015/16	82.3	43.1	3,546	1,558	1,998	902	25%	$71
2016/17	83.7	50.3	4,211	1,582	2,320	1,220	31%	$62
2017/18	86.8	51.6	4,483	1,708	2,799	1,203	27%	$63
2018/19	88.6	49.4	4,376	1,649	2,741	1,191	27%	$67
2019/20	91.2	51.7	4,722	1,815	3,385	735	14%	$72
2020/21	96.1	52.8	5,071	1,816	3,000	1,080	22%	$116
2021/22	102.8	46.6	4,795	1,983	2,905	1,014	21%	$162
2022/23(e)	108.5	52.8	5,732	2,087	3,491	1,174	21%	$172
2023/24(f)	112.7	53.2	5,989	2,194	3,564	1,422	25%	$127

Source: USDA, CONAB, Bloomberg

Wheat – Australia

Planted Acres	Yield	Production	Domestic Consump.	Exports	Ending Stocks	Stocks/ Use Ratio	Avg. Price
Mill Acres	Bu/Acre	Mill Bu	Mill Bu	Mill Bu	Mill Bu	%	AU$/Bu
33.4	30.2	1,007	208	683	301	34%	7.00
34.3	32.0	1,099	233	906	259	23%	6.17
32.1	26.2	840	237	685	171	19%	8.52
31.2	29.8	930	249	684	167	18%	8.60
30.6	28.5	872	263	609	172	20%	8.17
27.9	29.4	818	266	592	142	17%	8.25
30.1	38.8	1,169	287	832	211	19%	7.29
30.2	25.8	781	280	508	216	27%	8.38
25.7	24.7	636	338	331	200	30%	9.58
24.4	21.8	532	320	335	63	10%	10.12
31.8	38.5	1225	305	872	112	10%	9.53
31.5	42.3	1331	299	1,010	95	7%	13.42
32.2	45.2	1458	280	1,157	117	8%	14.23
31.1	30.0	933	279	689	83	9%	13.34

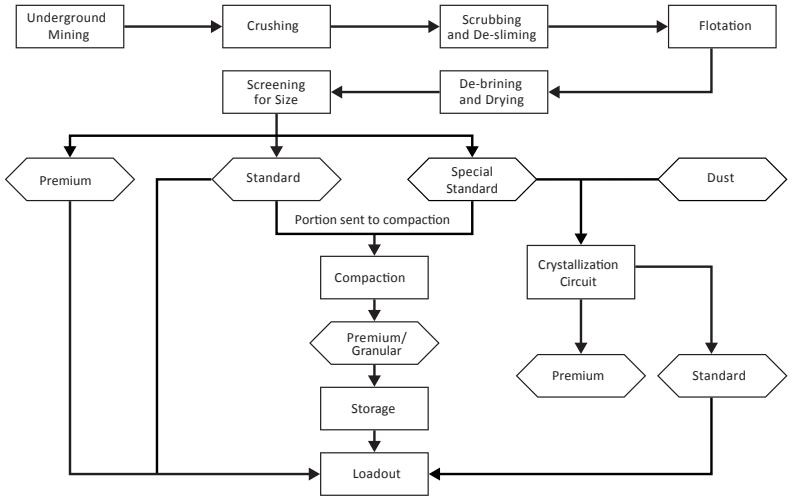
Source: ABARES, USDA

(e) Estimate

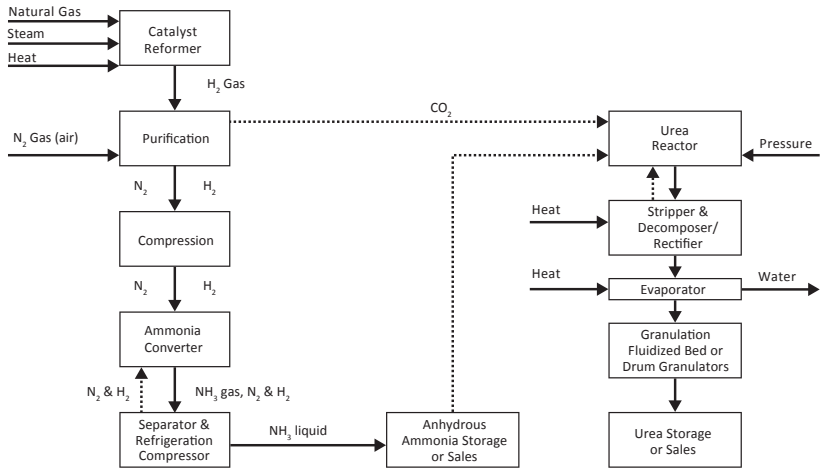
Note: 2022/23(f) prices for Brazil and Australia are indexed to Chicago futures market; 2023-24 figures are estimates only and not final.

FERTILIZER PRODUCTION PROCESS

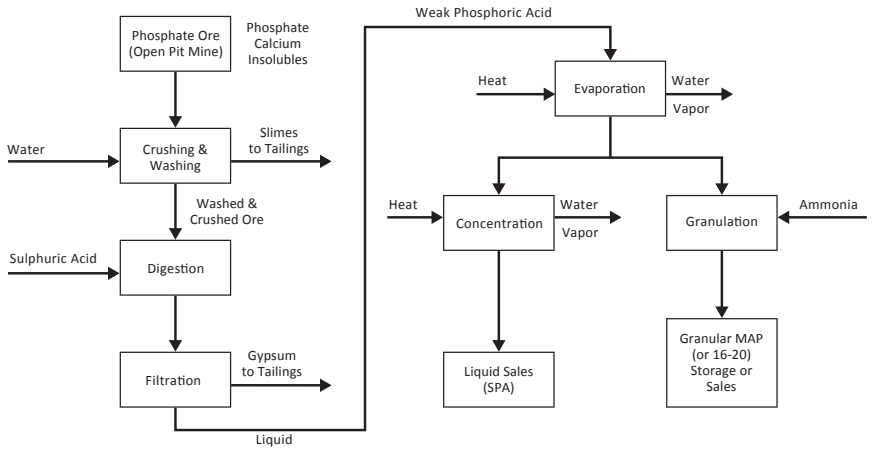
Potassium Fertilizer



Nitrogen Fertilizer



Phosphate Fertilizer



Underground Sources

- Usually deep deposits. First step is to mine the ore and get it to the surface
- Manufacturing process (remove unwanted minerals) clays, NaCl, MgCl2, de-sliming and froth flotation
- Sizing and granulation – made into final product

Potassium Rock Sources

- Sylvinite is composed of a mixture of KCl and NaCl crystals, 20–40% K2O (Saskatchewan mines)
- Sylvite is extracted from Sylvinite and is composed of primarily KCl, 63% K2O
- Langebeinite is composed primarily of K2SO4 and MgSO4, 23% K2O

Common Potassium Fertilizers

- Potassium Chloride (KCl) muriate of potash (MOP), 0-0-60 to 62 (accounts for 90% of potash sales in North America)
- Potassium Sulphate (K2SO4) or sulfate of potash, 0-0-50-18S
- Sulphate of Potash-Magnesia (K_2SO_4-2$MgSO_4$) or K-Mag, 0-0-22-22S-11 Mg
- Potassium Nitrate (KNO_3) 13-0-44 often used in foliar sprays

CONSTANTS & CONVERSIONS

RAW MATERIAL REQUIREMENTS

Ammonia (NH_3)

The production of 1 tonne of ammonia requires:

- 32–38 mmBtu natural gas
  or
- 0.9 tonnes naphtha
  or
- 1.05 tonnes fuel oil
  or
- 1.90 tonnes coal
  or
- 8,000–12,000 kWh (electrolysis)

Nitric Acid (HNO_3)

The production of 1 tonne of 100% HNO_3 requires:

- 0.29 tonnes ammonia

Ammonium Nitrate (34% N)

The production of 1 tonne of 34% N ammonium nitrate requires:

- 0.436 tonnes of total ammonia
- 0.21 tonnes ammonia
- 0.78 tonnes of 100% HNO_3 (0.226 tonne of ammonia)

Urea

The production of 1 tonne of urea requires:

- 0.58 tonnes of ammonia
- 0.76 tonnes of carbon dioxide

Ammonium Sulphate

The production of 1 tonne of ammonium sulphate requires:

- 0.26 tonnes ammonia
- 0.75 tonnes sulphuric acid

Sulphuric Acid (H_2SO_4)

The production of 1 tonne of 100% H_2SO_4 requires:

- 0.76 tonnes pyrites (48% S)
  or
- 0.33 tonnes sulphur

UAN

The production of 1 tonne of UAN requires:

- 28-0-0 Solution
  0.386 tonnes of 34-0-0
  0.310 tonnes of 46-0-0
- 32-0-0 Solution
  0.443 tonnes of 34-0-0
  0.354 tonnes of 46-0-0

Phosphoric Acid (H_3PO_4) (Wet Process)

The production of 1 tonne of 100% P_2O_5 as H_3PO_4 requires:

- 3.6 tonnes phosphate rock 63% BPL[(1)]
- 2.8 tonnes 100% H_2SO_4 or
- 2.3 tonnes 100% HCl

Phosphoric Acid (Thermal Process)

The production of 1 tonne of 100% P_2O_5 requires:

- 3.9 tonnes of phosphate rock 63% BPL[(1)]
- 1.3 tonnes of silica
- 0.60 tonnes of coke
- 13,000–15,000 kWh electricity

Superphosphate

The production of 1 tonne of 20% P_2O_5 single superphosphate requires:

- 0.71 tonnes of phosphate rock 63% BPL[(1)]
- 0.37 tonnes of 100% H_2SO_4

Triple Superphosphate

The production of 1 tonne of 46% P_2O_5 triple superphosphate requires:

- 0.43 tonnes of phosphate rock 63% BPL[(1)]
- 0.85 tonnes of 40% P_2O_5 phosphoric acid (0.34 tonne P_2O_5)

Monoammonium Phosphate

The production of 1 tonne of monoammonium phosphate (11-52-0) requires:

- 0.145 tonnes of ammonia
- 1.91 tonnes of phosphate rock at 63% BPL[(1)]
- 0.475 tonnes of sulphur
- 1.35 tonnes of 40% P_2O_5 phosphoric acid (0.54 tonne P_2O_5)

Diammonium Phosphate

The production of 1 tonne of diammonium phosphate (18-46-0) requires:

- 0.219 tonnes of ammonia
- 1.72 tonnes of phosphate rock at 63% BPL[(1)]
- 0.427 tonnes of sulphur
- 1.175 tonnes of phosphoric acid (0.470 tonne P_2O_5)

FERTILIZER MATERIALS

Sulphur Minerals		% S
Iron pyrites	FeS_2	40-53
Pyrrhotite	Fe_6S_7	40
Gypsum	$CaSO_4\,2H_2O$	19
Anhydrite	$CaSO_4$	24

Phosphate Rock		% P_2O_5
Tricalcium phosphate	$Ca_3(PO_4)_246$	46
Fluorapatite	$Ca_{10}(PO_4)_6F_2$	42
Carbonate apatite	$Ca_{10}(PO_4)_6CO_3$	41
Hydroxyapatite	$Ca_{10}(PO_4)_6(OH)_2$	42

Potash Minerals/Ores		% K_2O
Sylvite	KCl	63
Sylvinite	KCl NaCl	35
Carnallite	KCl $MgCl_2\,6H_2O$	17
Kainite	KCl $MgSO_4\,3H_2O$	19
Langbeinite	$K_2SO_4\,2MgSO_4$	23
Polyhalite	$K_2S4\,MgSO_4\,2CaSO_4\,H_2O$	16
Alunite	$K_2SO_4\,Al2(SO_4)_3\,4Al(OH)_3$	11

(1) 63% BPL = 29% P_2O_5.

CONSTANTS & CONVERSIONS

GENERAL CONVERSION FACTORS

1	Acre	=	0.4048	Hectares
1	Acre	=	4.048×10^{-3}	Sq. kilometers
1	Acre	=	43,560	Sq. feet
1	Atmosphere	=	14.696	Pounds/sq. inch
1	Atmosphere	=	1.033	Kilograms/sq. cm
1	Barrel (oil)	=	42	Gallons, US
1	Cubic foot	=	2.8317×10^{-2}	Cubic meter
1	Cubic foot	=	6.2291	Gallons, Imperial
1	Cubic foot	=	7.4805	Gallons, US
1	Cubic foot	=	28.3170	Liters
1	Cubic foot	=	0.025	Tons, US Shipping
1	Cubic meter	=	1.308	Cubic yards
1	Cubic meter	=	220	Gallons, Imperial
1	Cubic meter	=	265	Gallons, US
1	Cubic meter	=	6.289	Barrels (oil)
1	Cubic meter	=	3.5830×10^{11}	mmBtu
1	Degree Fahrenheit	=	(°F−32) x 0.556	Degree Centigrade
1	Degree Centigrade	=	(°C x 1.8) + 32	Degree Fahrenheit
1	Dollar/metric ton	=	0.90719	Dollars/short ton
1	Dollar/short ton	=	1.1023	Dollars/metric tonne
1	Gallon, Imperial	=	1.201	Gallons, US
1	Gallon, Imperial	=	4.5461	Liters
1	Gallon, US	=	3.7853	Liters
1	Grain/gallon	=	17.12	Parts/million
1	Grain	=	2.205×10^{-3}	Pounds
1	Sq. foot	=	9.29×10^{-6}	Hectares
1	Sq. meter	=	10.764	Sq. feet
1	Sq. meter	=	1.196	Sq. yards
1	Sq. mile	=	259.00	Hectares
1	Sq. mile	=	2.590	Sq. kilometers
1	Ton, long	=	1016.05	Kilograms
1	Ton, long	=	2,240	Pounds
1	Ton, long	=	1.0161	Tonnes
1	Ton, long	=	1.120	Tons, short
1	Ton, long/acre	=	2.511	Tonnes/hectare
1	Ton, long/sq. ft.	=	1.0937×10^{-4}	Kilograms/sq. meter
1	Ton, long/sq. inch	=	1.575	Kilograms/sq. mm
1	Ton, metric	=	2,204.6	Pounds
1	Tonne, metric	=	0.9842	L. tons
1	Tonne, metric	=	1.102	S. tons
1	Tonne, metric/hectare	=	0.3982	L. tons/acre
1	Tonne, metric/hectare	=	0.4460	S. tons/acre
1	Ton, short	=	907.19	Kilograms
1	Ton, short	=	2,000	Pounds
1	Ton, short/acre	=	2.242	Tonnes/hectare
1	Ton, Brit Shipping	=	1.050	Tons, US Shipping
1	Ton, US Shipping	=	40.0	Cubic Feet
1	Yard	=	0.9144	Meters

ENERGY CONVERSION FACTORS

1	Btu	=	0.252	kcal
1	Btu	=	2.931×10^{-4}	KWh
1	Btu/cu. ft.	=	8.90	$kcal/m^3$
1	Million Btu	=	1.055	GJ
1	Million Btu	=	0.9649	Mcf
1	GJ	=	0.9145	Mcf
1	Million Btu/tonne	=	0.90719	Million Btu/short ton
1	Million Btu/short ton	=	0.2777	Million kcal/tonne
1	Million Btu/long ton	=	0.248	Million kcal/tonne
1	Calorie	=	4.186	Joules
1	Horsepower hr	=	0.746	KWh
1	Million kcal/tonne	=	4.033	Million Btu/l. ton
1	Million kcal/tonne	=	3.601	Million Btu/s. ton
1	KWh	=	3.411	MBtu
1	KWh	=	859.6	kcal
1	KWh	=	1.34	Horsepower hrs
1	KWh	=	2.4	lb HP steam (42 atm)
1	KWh	=	3.0	lb HP steam (3 atm)
1	kWh/tonne	=	0.90719	kWh/short ton
1	kWh/short ton	=	1.1023	kWh/tonne
1	mcm	=	36.59	mmBtu at heat of 1,036.4 Btu/cf

PRODUCT ANALYSIS

	%N	$\%P_2O_5$	$\%K_2O$
Ammonia, anhydrous	82	0	0
Ammonia, aqua	20.5–28	0	0
Ammonium chloride	25–26	0	0
Ammonium nitrate	34.5	0	0
Ammonium phosphate sulphate	16	20	0
Ammonium sulphate	21	0	0
Ammonium polyphosphate solution	10	34	0
Monoammonium phosphate	11	52	0
	12	51	0
Diammonium phosphate	18	46	0
Nitric acid (100%)	22.2	0	0
Nitric acid (60%)	13	0	0
Sodium nitrate	16	0	0
Urea	46	0	0
Urea ammonium nitrate solutions	28–32	0	0
Urea ammonium phosphate	34	17	0
	33	20	0
	29	29	0
Calcium ammonium nitrate	20.5–28	0	0
Calcium nitrate	11.9–15.5	0	0
Dicalcium phosphate–anhydrous	0	52.2	0
Dicalcium phosphate–dihydrate	0	41.3	0
Single superphosphate	0	16–22	0
Triple superphosphate	0	44–48	0
Defluorinated phosphate	0	37	0
Fused magnesium phosphate	0	19–20	0
Phosphoric acid 100%	0	74.2	0
Phosphoric acid merchant grade	0	54	0
Superphosphoric acid	0	70	0
Muriate of potash	0	0	60
Potassium sulphate	0	0	50–54
Potassium nitrate	13	0	44
Potassium magnesium sulphate	0	0	21.9

CONSTANTS & CONVERSIONS

CROP WEIGHT CONVERSIONS

Crop	1 tonne =	1 bu =
Barley (Australia, New Zealand)	44.092 bu (50 lbs)	0.022680 tonne
Barley (United States, Canada)	45.931 bu (48 lbs)	0.021772 tonne
Canola/Rapeseed	44.092 bu (60 lbs)	0.022680 tonne
Flaxseed (United States, Canada, Australia)	39.368 bu (56 lbs)	0.025401 tonne
Corn (Maize) (United States, Canada, Australia, New Zealand)	39.368 bu (56 lbs)	0.025401 tonne
Oats (Australia, New Zealand)	55.116 bu (40 lbs)	0.018144 tonne
Oats (Canada)	64.842 bu (34 lbs)	0.015422 tonne
Oats (United States)	68.894 bu (32 lbs)	0.014515 tonne
Potatoes (United States, Canada)	36.744 bu (60 lbs)	0.027216 tonne
Rice, paddy (Australia)	52.490 bu (42 lbs)	0.019501 tonne
Rice, paddy (United States)	48.991 bu (45 lbs)	0.020412 tonne
Rye (Australia)	36.744 bu (60 lbs)	0.027216 tonne
Rye (United States, Canada, United Kingdom, New Zealand)	39.368 bu (56 lbs)	0.025401 tonne
Soya beans (United States)	36.744 bu (60 lbs)	0.027216 tonne
Wheat (generally applicable)	36.744 bu (60 lbs)	0.027216 tonne

NUTRIENT FACTORS

To Convert	To	Multiply By
P_2O_5	BPL	2.185
BPL	P_2O_7	0.4577
KCl	K_2O	0.61
K_2O (K)	KCl	1.6

FLORIDA ROCK:
Polk County = 68-70% BPL
Hardee County = 62-66% BPL

WESTERN US STATES
Phosphate Rock = 70% BPL

CALORIFIC VALUES

Natural gas	900–1,100 Btu/ft^3	Fuel oil	40 mmBtu/tonne
LNG	49-53 mmBtu/tonne	Coal	20-30 mmBtu/tonne
LPG	46 mmBtu/tonne	Methanol	21 mmBtu/tonne
Naphtha	44 mmBtu/tonne	Hydrogen	113 mmBtu/tonne

IFA REGIONAL CLASSIFICATION

WESTERN AND CENTRAL EUROPE

Albania
Austria*
Belgium* and Luxembourg*
Bosnia Herzegovina
Bulgaria*
Croatia*
Czech Republic*
Denmark*
Finland*
France*
Germany*
Greece*
Hungary*
Ireland*
Italy*
Netherlands*
Norway
Poland*
Portugal*
Romania*
Serbia
Slovakia*
Slovenia*
Spain*
Sweden*
Switzerland
United Kingdom
Others

EASTERN EUROPE

Armenia
Azerbaijan
Belarus
Estonia*
Georgia
Kazakhstan
Kyrgyzstan
Latvia*
Lithuania*
Moldova
Russian Federation
Tajikistan
Turkmenistan
Ukraine
Uzbekistan
Others

NORTH AMERICA

Canada
United States

OCEANIA

Australia
New Zealand
Papua New Guinea
Others

AFRICA

Algeria
Cameroon
Côte d'Ivoire
Egypt
Ethiopia
Kenya
Libya
Mauritius
Morocco
Nigeria
Senegal
South Africa
Sudan
Tanzania
Tunisia
Zambia
Zimbabwe
Others

LATIN AMERICA AND CARIBBEAN

Argentina
Brazil
Chile
Colombia
Costa Rica
Cuba
Dominican Republic
Ecuador
El Salvador
Guatemala
Mexico
Nicaragua
Peru
Trinidad and Tobago
Uruguay
Venezuela
Others

EAST ASIA

Cambodia
China
Indonesia
Japan
Korea D.P.R.
Korea, Republic of
Laos
Malaysia
Mongolia
Myanmar
Philippines
Singapore
Thailand
Taiwan/China
Vietnam
Others

WEST ASIA

Afghanistan
Bahrain
Cyprus*
Iran
Iraq
Israel
Jordan
Lebanon
Oman
Qatar
Saudi Arabia
Syria
Turkey
United Arab Emirates
Yemen
Others

SOUTH ASIA

Bangladesh
India
Nepal
Pakistan
Sri Lanka
Others

* States that are member of The European Union (EU)

Note: The designation employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the International Fertilizer Industry Association (IFA) concerning the legal status of any country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries.

Forward-Looking Statements

Certain statements and other information included in this document, constitute "forward-looking information" or "forward-looking statements" (collectively, "forward-looking statements") under applicable securities laws (such statements are often accompanied by words such as "anticipate", "forecast", "expect", "believe", "may", "will", "should", "estimate", "intend" or other similar words). All statements in this document, other than those relating to historical information or current conditions, are forward-looking statements, including, but not limited to: Nutrien's business strategies, plans, prospects and opportunities; expectations regarding our growth and capital allocation intentions and strategies; expectations regarding performance of our operating segments, including total operational capability, the anticipated supply and demand for our products and services; expected market and industry conditions; expectations regarding Nutrien's initiatives to promote sustainable and productive agriculture and food production and its commitments and goals related thereto; and expectations in connection with our ability to deliver long-term returns to shareholders. These forward-looking statements are subject to a number of assumptions, risks and uncertainties, many of which are beyond our control, which could cause actual results to differ materially from such forward-looking statements. As such, undue reliance should not be placed on these forward-looking statements.

All of the forward-looking statements are qualified by the assumptions that are stated or inherent in such forward-looking statements, including the assumptions referred to below and elsewhere in this document. Although we believe that these assumptions are reasonable, having regard to our experience and our perception of historical trends, this list is not exhaustive of the factors that may affect any of the forward-looking statements and the reader should not place undue reliance on these assumptions and such forward-looking statements. Current conditions, economic and otherwise, render assumptions, although reasonable when made, subject to greater uncertainty. The additional key assumptions that have been made include, among other things, assumptions with respect to our ability to successfully complete, integrate and realize the anticipated benefits of our already completed and future acquisitions and divestitures, and that we will be able to implement our standards, controls, procedures and policies in respect of any acquired businesses and to realize the expected synergies; that future business, regulatory and industry conditions will be within the parameters expected by us, including with respect to prices, margins, demand, supply, product availability, supplier agreements, availability and cost of labor and interest, exchange and effective tax rates; assumptions with respect to global economic conditions and the accuracy of our market outlook expectations for 2023 and in the future; our expectations regarding the impacts, direct and indirect, of the conflict between Ukraine and Russia on, among other things, global supply and demand, energy and commodity prices; interest rates, supply chains and the global economy; the adequacy of our cash generated from operations and our ability to access our credit facilities or capital markets for additional sources of financing; our ability to identify suitable candidates for acquisitions and divestitures and negotiate acceptable terms; our ability to maintain investment grade ratings and achieve our performance targets; our ability to successfully negotiate sales contracts; and our ability to successfully implement new initiatives and programs.

In respect of Nutrien's initiatives to promote sustainable and productive agriculture and food production and its commitments and goals related thereto and other sustainability and climate-related initiatives and targets, we have made assumptions with respect to, among other things: that such target is achievable by deploying capital into, among other things, our ability to successfully deploy capital and pursue other operational measures and opportunities, including the successful application to our current and future operations of existing and new technologies; the successful implementation by us of proposed or potential plans in respect thereof; projected capital investment levels, the flexibility of our capital spending plans and the associated sources of funding; our ability to otherwise implement all technology necessary to achieve our sustainability and climate-related initiatives and targets; and the development, availability and performance of technology and technological innovations and associated expected future results.

Events or circumstances that could cause actual results to differ materially from those in the forward-looking statements include, but are not limited to: general global economic, market and business conditions; failure to complete announced and future acquisitions or divestitures at all or on the expected terms and within the expected timeline; climate change and weather conditions, including impacts from regional flooding and/or drought conditions; crop planted acreage, yield and prices; the supply and demand and price levels for our products; governmental and regulatory requirements and actions by governmental authorities, including changes in government policy (including tariffs, trade restrictions and climate change initiatives), government ownership requirements, changes in environmental, tax and other laws or regulations and the interpretation thereof; political risks, including civil unrest, actions by armed groups or conflict and malicious acts including terrorism; the occurrence of a major environmental or safety incident; innovation and cybersecurity risks related to our systems, including our costs of addressing or mitigating such risks; counterparty and sovereign risk; delays in completion of turnarounds at our major facilities; interruptions of or constraints in availability of key inputs, including natural gas and sulfur; any significant impairment of the carrying amount of certain assets; risks related to reputational loss; certain complications that may arise in our mining processes; the ability to attract, engage and retain skilled employees and strikes or other forms of work stoppages; the conflict between Ukraine and Russia and its potential impact on, among other things, global market conditions and supply and demand, energy and commodity prices; interest rates, supply chains and the global economy generally; and other risk factors detailed from time to time in Nutrien reports filed with the Canadian securities regulators and the SEC in the United States.

The forward-looking statements in this document are made as of the date hereof and Nutrien disclaims any intention or obligation to update or revise any forward-looking statements in this document as a result of new information or future events, except as may be required under applicable Canadian securities legislation or applicable US federal securities laws.

Nutrien's registered head office is:

Suite 1700, 211 19th Street East
Saskatoon, Saskatchewan
Canada S7K 5R6

It also has corporate offices at:

13131 Lake Fraser Drive SE
Calgary, Alberta
Canada T2J 7E8

5296 Harvest Lake Drive
Loveland, Colorado
US 80538

NYSE / TSX: NTR

NOVEMBER 2023

facebook.com/nutrienltd
twitter.com/nutrienltd
linkedin.com/company/nutrien
youtube.com/nutrien
instagram.com/nutrienltd

Nutrien®
Feeding the Future™