

Potash

Kevin Stone

*The author is with the Minerals and Metals Sector,
Natural Resources Canada.*

Telephone: 613-992-5199

E-mail: kevin.stone@nrcan-rncan.gc.ca

HIGHLIGHTS

- Canada is the world's largest potash producer and exporter, accounting for more than one third of the world's potash production and exports.
- Global potash prices had a remarkable run in 2008. Continuous increases in demand drove potash prices upward to reach a record high of US\$1050/t.
- While Canadian producers were forced to scale back production for 2009 by as much as 3-4 Mt, demand is expected to recover, perhaps as early as in the second half of 2009, which will contribute to a strong 2010 season.

INTRODUCTION

Potash is a generic term used to describe a variety of mined minerals and manufactured chemicals that contain potassium. Potash includes potassium chloride (sylvite), potassium magnesium chloride (carnallite), potassium magnesium sulphate (langbeinite), potassium sulphate, and potassium nitrate. The dominant potash product is potassium chloride (KCl) or muriate of potash (MOP), a naturally occurring pink, salty mineral of which Canada is the leading producer and exporter.

Potash used as an agricultural fertilizer accounts for 95% of production worldwide. Potassium, nitrogen, and phosphorus are the three basic and important nutrients for plants. Potash supports plant growth and enhances the absorption of other nutrients. There is no substitute for potash. Smaller amounts are used for the manufacture of potassium-bearing chemicals, detergents, ceramics, and pharmaceuticals; as water conditioners; or as an alternative to de-icing salt.

Potash is a limited resource that is found in only a few places in the world. Canada has the world's largest known potash resource. The Prairie Evaporite Deposit, the largest in the world, lies underneath the southern plains of Saskatchewan and western Manitoba, and extends into northeastern Montana and North Dakota. A 1973 Saskatchewan government report estimated potash reserves and resources in the province to be around 107 billion t, sufficient to mine for several thousand years at the current production level. In addition, potash deposits are found in Alberta, Manitoba, and New Brunswick.

The second largest deposit is in Russia. The brine of the Dead Sea in the Middle East is rich in potassium. Most of the potash is mined by conventional underground or solution mining. A portion of potash is also recovered from brine by solar evaporation.

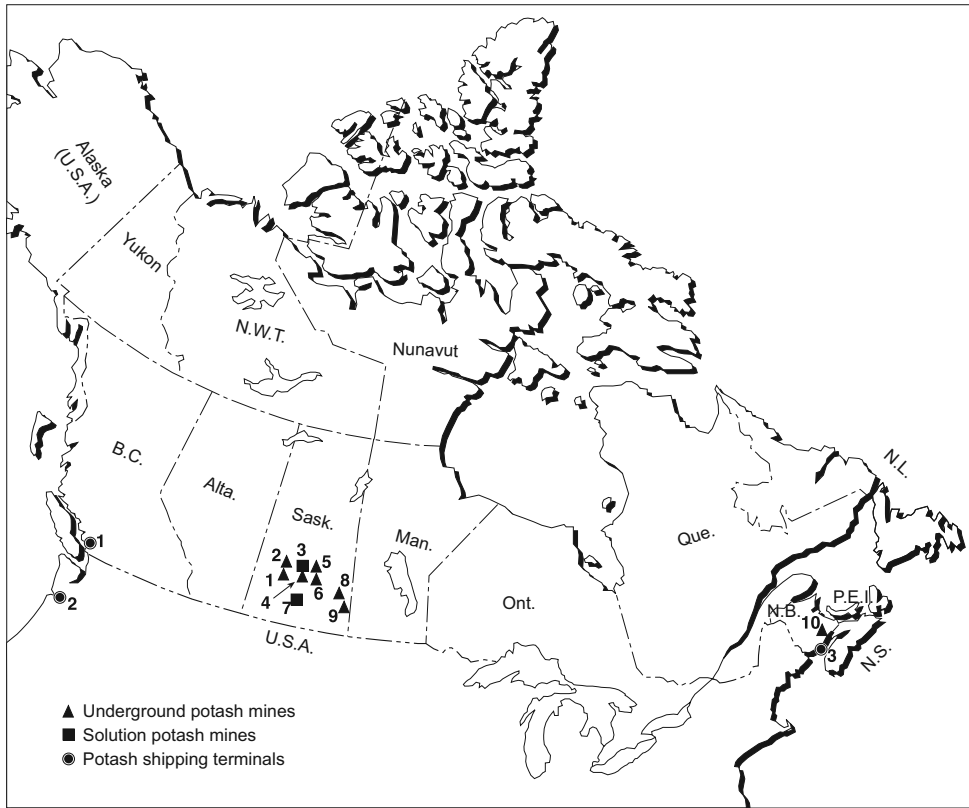
Canada is the world's largest potash producer and exporter, accounting for more than one third of the world's potash production and exports. Canada exports more than 95% of its potash output and has a work force of more than 4000 employees. The industry is a significant contributor to Canada's Gross Domestic Product.

There are eleven potash mining and processing operations in Canada. Nine operations extract potassium ore by conventional underground mining and two by solution mining. Ten of the mining/processing operations are located in Saskatchewan and one is in New Brunswick.

Potash Corporation of Saskatchewan Inc. (PotashCorp), based in Saskatoon, Saskatchewan, is the world's largest publicly owned potash producer with six Canadian operations: Allan Division, Cory Division, Lanigan Division, Rocanville Division, New Brunswick Division, and Patience Lake Division (a solution mine). PotashCorp has also invested in other global fertilizer companies; it owns 32% of Sociedad Quimica y Minera de Chile S.A. (SQM) in Chile, 28% of Arab Potash Co. Ltd. (APC) in Jordan, 11% of Israel Chemical Limited in Israel, and 22% of Sinochem Hong Kong Holdings Limited (Sinofert). PotashCorp owns 25% of the reserves at Esterhazy, Saskatchewan, which are mined by Mosaic Potash Esterhazy Limited Partnership under a long-term agreement.

The Mosaic Company (Mosaic), whose head office is located in Plymouth, Minnesota, has four potash operations

Figure 1
Location of Potash Mines in Canada and Shipping Terminals, 2008



Numbers refer to locations on map above.

UNDERGROUND POTASH MINES

1. Agrium Inc., Vanscoy, Saskatchewan
2. Potash Corporation of Saskatchewan Inc., Cory Division, Saskatoon, Saskatchewan
4. Potash Corporation of Saskatchewan Inc., Allan Division, Allan, Saskatchewan
5. Mosaic Potash Colonsay ULC, Colonsay, Saskatchewan
6. Potash Corporation of Saskatchewan Inc., Lanigan Division, Lanigan, Saskatchewan
8. Mosaic Potash Esterhazy Limited Partnership (K1 and K2 mines), Esterhazy, Saskatchewan
9. Potash Corporation of Saskatchewan Inc., Rocanville Division, Rocanville, Saskatchewan
10. Potash Corporation of Saskatchewan Inc., New Brunswick Division, Sussex, New Brunswick

SOLUTION MINING OPERATIONS

3. Potash Corporation of Saskatchewan Inc., Patience Lake Division, Patience Lake, Saskatchewan
7. Mosaic Potash Canada Ltd., Belle Plaine, Saskatchewan

POTASH SHIPPING TERMINALS

1. Neptune Bulk Terminals, Vancouver, British Columbia
2. Portland Bulk Terminals, Portland, Oregon
3. Barrack Point Terminal, Saint John, New Brunswick

in Saskatchewan: Mosaic Potash Canada Ltd. for the mine at Belle Plaine (a solution mine), Mosaic Potash Esterhazy Limited Partnership for the two mines at Esterhazy (K1 and K2), and Mosaic Potash Colonsay ULC for the mine at Colonsay.

Agrium Inc. (Agrium), based in Calgary, Alberta, has one mine in Vanscoy, Saskatchewan.

Canpotex Limited (Canpotex), owned by potash producers Agrium, Mosaic, and PotashCorp, is an exclusive offshore marketing and distribution company for handling Canadian potash destined for overseas markets. Canpotex's potash sales are currently in the range of 8-10 Mt/y. A corporate office in Singapore directs Canpotex's international marketing activities and ocean transportation function worldwide. Offices in Hong Kong and Tokyo maintain direct

contact with Asian buyers. A corporate office in Saskatoon, Saskatchewan, maintains daily operations, including product supply, inland transportation, terminal services, corporate finance, and administration. Canpotex also offers comprehensive ocean freight services to customers through its in-house Ocean Transportation group and its exclusive chartering and brokerage networks.

Most Canadian potash exports were shipped out of ocean terminals in Vancouver, British Columbia, and Portland, Oregon, in the northwestern United States. PotashCorp's New Brunswick Division production was shipped from Saint John, New Brunswick.

CANADIAN DEVELOPMENTS

Preliminary figures indicate that Canada's potash production was 17.4 Mt of KCl (10.6 Mt of K₂O equivalent) in 2008. This output was slightly lower than the 17.8 Mt of KCl (10.9 Mt of K₂O equivalent) produced in 2007.

PotashCorp reported its output as 8.7 Mt of KCl (including a 25% share from the Esterhazy partnership), a 5% decline compared to 9.2 Mt of KCl in 2007. Production from Mosaic's Canadian operations remained the same in 2008 at 8 Mt of KCl, including a 25% share to PotashCorp from its Esterhazy partnership. Agrium produced 1.8 Mt of KCl in 2008, a 40 000-t increase over its 2007 production.

Canada's potash sales were 17 Mt of KCl (10.4 Mt of K₂O equivalent) in 2008, a decline of 5.7% compared to 18.1 Mt of KCl (11.1 Mt of K₂O equivalent) in 2007. Exports were 16.5 Mt of KCl, of which about 60% was shipped to off-shore markets and 40% was shipped to the United States.

Production Capacity and Usage

In 2008, Canada's production capacity remained at 23.9 Mt of KCl, the world's largest, accounting for 36% of total world capacity of approximately 65.6 Mt of KCl. The average capacity usage rate was 73%. PotashCorp reported its annual nameplate production capacity was 13.2 Mt of KCl in 2008. The production capacity for Mosaic's Canadian potash operations was 8.6 Mt of KCl in 2008. Agrium's production capacity increased to 2.1 Mt of KCl in 2008.

Expansions

Growing potash demand worldwide and record prices boosted interest in potash exploration and development. In Canada, potash production capacity expansions began in April 2005 following a tax incentive measure announced by the Saskatchewan government. Mosaic has added 1.5 Mt of KCl production capacity to its Esterhazy mine, and Agrium increased its production capacity by 0.31 Mt of KCl at the Vanscoy mine. PotashCorp completed the Rocanville, Allan, and Lanigan expansion/debottlenecking

projects in July 2008. The company has effectively expanded its product capacity by 2.65 Mt of KCl and its compaction capacity by 2.75 Mt between 2005 and 2008 at a cost of \$750 million.

All three producers announced new expansion plans in 2008.

PotashCorp has five projects ongoing: debottlenecking at Patience Lake, a debottlenecking/expansion at Cory, an expansion at Allan, a replacement mine and expanded mill at New Brunswick, and a mine and mill expansion at Rocanville. These projects will add 7.46 Mt of KCl production capacity together with significant compaction capability. The expansions will increase PotashCorp's production capacity to 18 Mt of KCl by the end of 2012.

The following table shows the details of debottlenecking/expansions by PotashCorp:

Mine Location	Capacity Increases		Investment (\$ millions)	Expected Completion
	Mining Capacity (Mt KCl)	Compaction (Mill) Capacity (Mt KCl)		
Patience Lake	0.36	—	110	2009
Cory (Phase I)	1.20	0.75	890	Q2 2010
New Brunswick	1.20	1.75	1 660	Q4 2011
Rocanville	2.70	2.70	2 800	Q4 2012
Cory (Phase II)	1.00	..	220	Q4 2012
Allan	1.00	..	350	Q4 2012
Total	7.46	..	6 030	

Source: PotashCorp.
— Nil; .. Not available.

Mosaic announced its redefined long-term capacity expansion plan in Saskatchewan in April 2008. Mosaic will add production capacity of 5.1 Mt of KCl at an estimated cost of US\$3.2 billion under the plan. Upon completion, Mosaic's total annual capacity will approximate 15.5 Mt of KCl.

The following table shows the announced expansions by Mosaic:

Mine Location	Mining Capacity To Be Added	Investment (US\$ millions)	Expected Completion
	(Mt KCl)		
Esterhazy	0.90	700	2012
Esterhazy	0.90	1 000	2020
Belle Plaine	0.10	20	2010
Belle Plaine	0.40	100	2012
Belle Plaine	1.50	800	2014-17
Colonsay	0.30	30	2009
Colonsay	1.00	500	2013-16
Total	5.10	3 150	

Source: Mosaic.

Agrium is also considering a 350 000- to 400 000-t expansion of its KCl capacity at Vanscoy at an estimated cost of US\$250 million scheduled for 2011-12. In addition, the company is evaluating a greenfield project in Saskatchewan or Manitoba with a production capacity of 2 Mt/y of KCl at an estimated cost of US\$2.5 billion targeted for 2015-17.

Exploration in Saskatchewan

Saskatchewan has become the centrepoint for potash exploration interest and activities. The Government of Saskatchewan issues Potash Leases (KLs) and Potash Permits (KPs). A KL is for potash production and a KP is for potash exploration. At the end of 2008, 11 KLs and 174 KPs had been issued by the Saskatchewan government. The 11 KLs are held by PotashCorp, Mosaic, and Agrium. The 174 KPs are held by 21 exploration companies, existing potash-producing companies, and investment prospectors.

BHP Billiton Diamonds Inc. (BHP) completed its acquisition of Anglo Potash Ltd. on July 10, 2008, and became the sole owner of the previous joint venture. BHP has 32 exploration permits in Saskatchewan covering 1.8 million acres of land that contain potash resources. BHP submitted its Jansen project proposal to the Saskatchewan Ministry of Environment in November 2008. The Jansen project is located 140 km east of Saskatoon, adjacent to PotashCorp's Lanigan mine. The project area is covered by four potash exploration permits: KP285, 286, 287, and 290. BHP has proposed an underground mine greenfield project with an annual production capacity of 8 Mt. The company suggests that it could start the ground freezing in 2009-10 and construction could follow in July 2011. The mine will be a long room and pillar. BHP intends to begin production in January 2015 with expected production of 2.5 Mt/y by February 2016. The preliminary design for the Jansen plant includes conventional wet milling, flotation, and dry compaction. The life of the project is expected to exceed 50 years.

Athabasca Potash Inc. (API) was formed in 2006. API acquired 23 permits totaling 1.7 million acres of land in Saskatchewan. The Burr project is located 107 km east of Saskatoon and covers an area of 79 946 acres of land. On September 29, 2008, API announced the confirmation of indicated mineral resources on the Burr project of 241 Mt with ore grading 23.3% K₂O, and inferred mineral resources of 183 Mt with ore grading 23.2% K₂O. API acquired 5420 acres of surface land for exploration, testing, and site study in August 2008. The company completed a NI 43-101 Technical Report in September 2007 and has engaged SNC-Lavalin to provide engineering services along with other consultants for a pre-feasibility study. The project's environmental impact study was submitted in early 2008. API (symbol API) is listed and traded on the Toronto Stock Exchange (TSX).

Potash One Inc. (Potash One) has acquired 100% ownership of KP 289, which covers an area of 97 240 acres of

land 80 km northwest of Regina. Currently, the company is focused on development of solution mining in the area of its Legacy project. Potash One completed a NI 43-101 Technical Report in February 2007 that estimated the indicated and inferred mineral resources at 397 Mt of K₂O. The company is currently preparing an environmental assessment and feasibility study. Potash One also acquired three additional exploration permits contiguous to the Legacy project covering an area of 230 000 acres of land. It has four permits totaling 336 000 acres of land. Potash One (symbol KCL) is listed and traded on the TSX.

Raytec Metals Corporation (Raytec) is a Vancouver-based mineral exploration and development company with an interest in uranium and potash in Saskatchewan. Raytec has acquired five KPs (KP441, KP455, KP466, KP467, and KP468) totaling 145 000 acres of land northwest of Saskatoon. The area is referred to as the Spar property. Raytec filed a NI 43-101 Technical Report on July 7, 2008, that calculated a compliant resource based on two historic holes drilled by Canadian Exploration Ltd. in 1969. The report, which covers only 17% of the Spar property, estimated a net recoverable indicated resource of 12.5 Mt of K₂O and an inferred resource of 12.2 Mt. Raytec has engaged the services of Kinetix Inc. to conduct 2D seismic work on the Spar property.

Potash North Resource Corp. has two permits totaling 185 000 acres of land. The permit areas lie 20 km northeast of the Esterhazy mines and 45 km north of the Rocanville mine. Potash North completed a NI 43-101 Technical Report in July 2008 that suggested an exploration plan, including: the design and implementation of a 2D seismic survey, drilling of 3-5 core holes and completion of a preliminary assessment, completion of a 3D seismic survey, drilling additional holes to confirm the extent of potash, providing the preliminary input for shaft design and groundwater control, and completing a preliminary feasibility study to establish project costs and define reserves.

Exploration in Manitoba

Agrium obtained a five-year exploration permit from the Manitoba government to explore for potash in the St. Lazare area in October 2005. The permit covers 117 000 acres of land and allows Agrium to conduct seismic exploration work to determine whether there are sufficient reserves to warrant potash mining. Agrium has the option of converting the exploration permit to a potash mineral lease within five years. The company is considering a \$2.5 billion greenfield project with a production capacity of 2 Mt/y of KCl and is targeting completion between 2015 and 2017.

Western Potash Corp. has three potash exploration permits in southwestern Manitoba along the Saskatchewan border. The Russell-Miniota property covers an area of 247 105 acres of land adjacent to two potash deposits that are estimated to contain over 1 billion t of potash. Seismic studies and drilling results in 2008 confirmed the

continuation of potash mineralization throughout Western Potash's property. The company has also applied for approximately 370 000 acres of land in southern Manitoba. In addition, Western Potash has acquired three exploration permits covering an area of 123 548 acres in Saskatchewan. Western Potash completed its Initial Public Offering in May 2008 and its stock (symbol WPX) is listed and traded on the TSX.

The Manitoba government gave the go-ahead for BHP to conduct exploration work on the Russell-Binscarth potash deposit in February 2007. The deposit is located about 40 km east of the Esterhazy mines, adjacent to the Saskatchewan border. It is owned by Manitoba Potash Corp., which is owned by BHP (51%) and the Province of Manitoba (49%).

Alix Resources Corp. (Alix) and GEO Minerals Ltd. (GEO) signed an agreement with a private company to obtain approximately 14 000 acres of land in June 2008. The agreement included a potash claim of 640 acres along the Manitoba-Saskatchewan border and adjoining Potash North, Western Potash, and BHP Manitoba's Russell-Binscarth deposit. Alix and GEO submitted an exploration application on their Manitoba claim in July 2008. The application proposed a drilling program to test the formerly targeted potash zone. Canadian Exploration Ltd. drilled a hole in 1965 and reported encountering two zones of potash.

Mantra Mining Inc. has a potash exploration permit for 276 480 acres of land in Manitoba. The Elkhorn Potash Permit is located in southwestern Manitoba along the Manitoba-Saskatchewan border. A large potash resource has been identified by historical drillings grading 21-25% K₂O on nearby properties.

Exploration in Alberta

CanAsia Industries Corporation (Canasia), a Vancouver-based exploration company, was granted 21 Alberta metallic and industrial minerals (MAIM) permits consisting of approximately 453 058 acres of land in the Eyehill Creek area in May and June 2008. The Eyehill Creek potash property is along the Alberta-Saskatchewan border. Historical drilling records indicated the potential for potash mineralization. The company filed a NI 43-101 Technical Report in October 2008. The Eyehill Creek potash property is an early-stage exploration project, and the company indicated that there is insufficient information to formulate an estimate of potash resources for the property at the present time.

Terminals Expansion

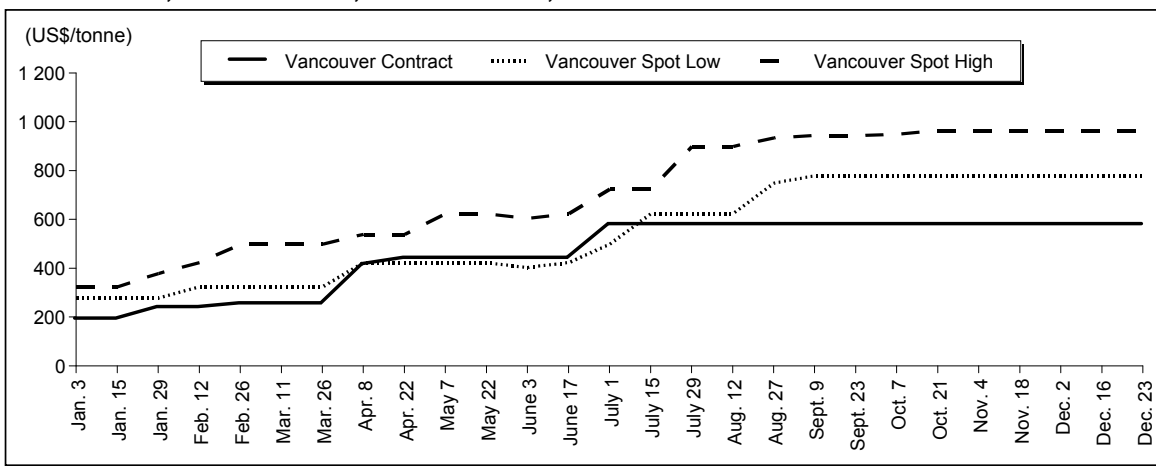
In May 2008, Canpotex announced its US\$500 million expansion plan. The plan includes the expansion of the Neptune Terminals in Vancouver to 10 Mt/y and a new 10-Mt terminal in Prince Rupert, B.C. The expansion projects almost double Canpotex's shipping capacity from the current 12 Mt to 20 Mt at West Coast ports. This expansion will ensure sufficient capacity to foster Canadian export growth and to meet the global demand for potash.

PRICES

Global potash prices had a remarkable run in 2008. Continuous increases in demand drove potash prices upward to reach a record high of US\$1050/t.

Most exports of Canadian potash to offshore markets are managed by Canpotex. Most of the products are sold on an annual contract basis. The annual contract price settlement

Figure 2
Potash Prices, Standard Grade, f.o.b. Vancouver, 2008



Sources: Natural Resources Canada; FERTECON Limited.

with China is typically considered a benchmark price for the sales contracts of the year. In April, Canpotex settled the 2008 contract price with China at US\$576/t for standard grade KCl on an f.o.b. basis for shipment in the 2008 calendar year. A small amount of Canadian potash was also sold on spot markets. The spot market prices for standard grade KCl f.o.b. Vancouver ranged from a low of US\$280/t to a high of US\$965/t during 2008.

The average realized Canadian potash export price was \$418/t KCl f.o.b. in 2008 based on the customs recorded product value. The 2008 average realized price showed an increase of \$239/t from the previous year's \$179/t KCl on an f.o.b. basis. The realized price differs from the contract settlement price because, among other factors, the shipment value also included carried-over volume and different grades of products.

Canadian potash producers individually sell potash directly to clients in the North American market. The average realized potash sales price to North American market clients was \$355/t KCl f.o.b. in 2008, almost double the realized 2007 average price of \$170/t KCl.

CONSUMPTION AND TRADE

Potash is a limited resource and is only found in several countries around the world. It is one of the three essential nutrients facilitating plant growth and is needed throughout the world. More than 95% of the world's potash is consumed as agricultural fertilizer. Global leading potash-consuming countries have large agricultural sectors or agriculture-based economies and typically lack potash resources. China, the United States, Brazil, and India are the leading potash-consuming countries. In recent years,

Malaysia and Indonesia have also emerged as significant potash-consuming countries.

China's potash consumption has been steadily increasing over the last two decades. China does not have sufficient domestic potash resources and its production can only meet about 25% of its demand. Three quarters of China's potash demand is provided by imports. In 2008, China's apparent potash consumption was estimated at 8.7 Mt of KCl, a 31% drop compared to the apparent consumption of 12.7 Mt in 2007. China imported 5.4 Mt of KCl in 2008, a decline of 4.3 Mt from 2007's 9.7 Mt. The collapse of demand in China was the direct result of the global financial crisis and economic downturn.

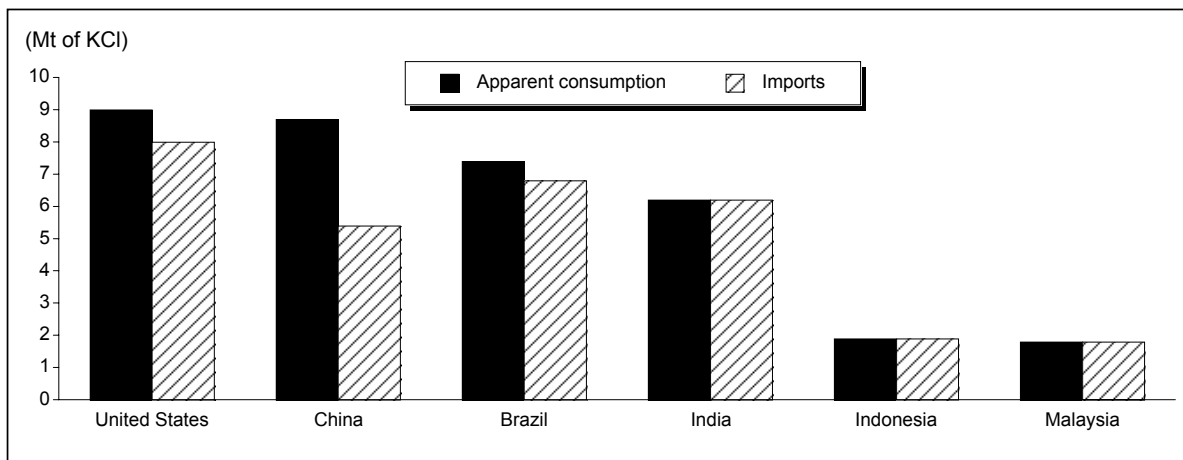
The apparent consumption for the United States was estimated at 9 Mt of KCl in 2008, a similar level to that in 2007. Imports were estimated at 7.8 Mt of KCl.

Brazil is the world's third largest consumer of potash and its apparent consumption was 7.4 Mt of KCl in 2008. The main source of Brazilian potash supply was from imports, which totaled 6.7 Mt of KCl in 2008. Domestic supply accounted for 600 000 t of KCl. With biofuel development, Brazil's potash consumption is expected to increase.

India's apparent potash consumption increased significantly in 2008; its consumption was estimated at 6.2 Mt of KCl. India relied entirely upon imports to meet its domestic demand.

The drive towards biofuel development continues to boost potash consumption in Malaysia and Indonesia. The growth of palm trees relies heavily on potassium fertilizer. Indonesia's potash imports were reported at 2 Mt of KCl in 2008 and Malaysia's were 1.6 Mt.

Figure 3
Major Potash Consumers and Imports, by Country, 2008

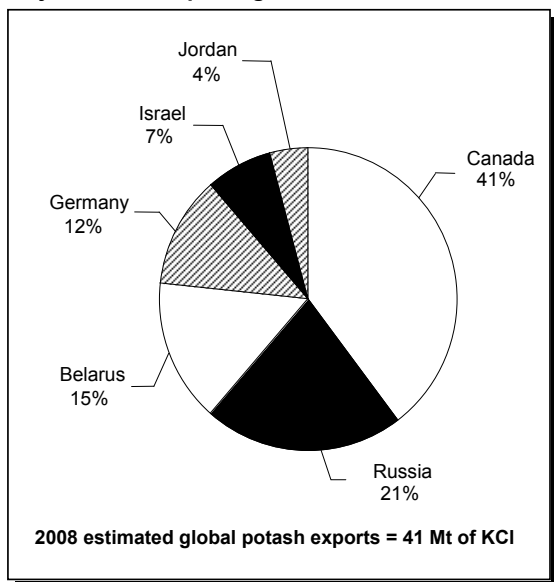


Source: Natural Resources Canada.

More than 80% of global potash production is traded internationally. In 2008, the global potash trade volume was 41 Mt. The six leading potash-producing countries (Canada, Russia, Belarus, Germany, Israel, and Jordan) accounted for 97% of global potash trade. On the demand side, the world's leading potash consumers are also the leading potash importers.

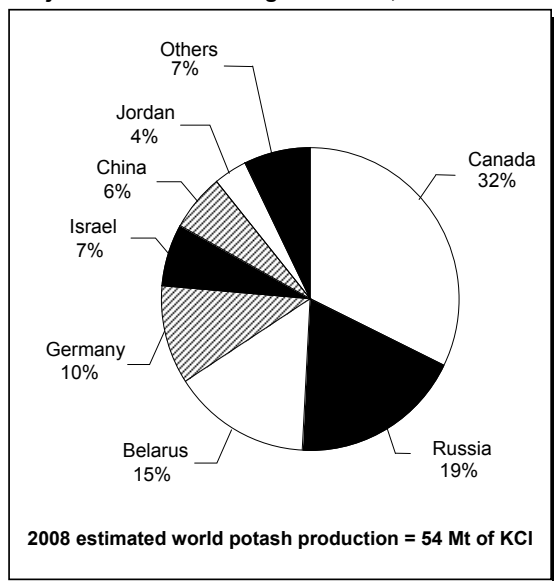
There are 12 countries producing potash globally. Canada is the world's largest producer, followed by Russia, Belarus, Germany, Israel, China, Jordan, the United States, the United Kingdom, Spain, Brazil, and Chile. In 2008, total global output was estimated at around 54 Mt of KCl, approximately 3% lower than the previous year's output of 56 Mt. Potash production declined in 10 of the 12 countries due to the global financial crisis resulting in a collapse in potash demand.

Figure 4
Major Potash-Exporting Countries, 2008



Sources: Natural Resources Canada; International Fertilizer Industry Association.

Figure 5
Major Potash-Producing Countries, 2008



Sources: Natural Resources Canada; International Fertilizer Industry Association.

OUTLOOK

The primary driver for potash production is the demand for food. The world's population reached 6.8 billion on January 1, 2009, and is forecast to reach 7 billion by 2011 and 8.06 billion by 2020. Not only will the global agricultural sector have to meet the need for food for this growing population, but it will also need to meet the demand for changes in dietary components, e.g., the move towards a high-protein diet from a carbohydrate diet. This propels the global agricultural sector to nurture the land to meet the increasing demand for foods that feed the world.

The global financial crisis and economic downturn are a temporary setback for the fertilizer industry. Global demand for potash will recover quicker than most of the other commodities and industries. The simple fact is that billions of mouths need to be fed and it is the potash industry's business to feed the lands that grow food. Potash is mainly used in growing rice, soybeans, sugar cane, corn, palm, rubber, bananas, oranges, and coffee. It is expected that global demand for potash will recover quickly and demand growth will increase at a rate higher than the historical annual growth rate of 3%. This bullish growth forecast is based on the fact that Asia, particularly China and India, is switching from traditional rice and grain-based diets to high-protein diets. Strong GDP growth in all developing countries is expected to continue once the current economic crisis is past. Increased income levels will further enable developing countries to enjoy improved and more balanced diets, higher protein (meat) intake, and an improved lifestyle. Increased meat consumption will continue to drive up the production of livestock, which consumes significant amounts of crops such as corn.

Demand will be further spurred by the increase in crops for biofuel production, including both ethanol and biodiesel. The drive for cleaner fuels will continue to boost the planting of grain crop, sugar cane, and palm oil seeds. These crops are used to produce ethanol, biodiesel, and other types of biofuels, all of which require the use of potash. The United States, the largest ethanol producer, uses mainly corn as the precursor feed material; Brazil, the second largest biofuel producer, relies on sugar cane while Malaysia and Indonesia produce palm oil seeds as the principal precursor in the production of biodiesel fuels. Predictions of higher price points for oil and fuel products will maintain the momentum for global biofuel programs. The

United States' 2007 energy bill committed the country to use 9 billion gallons of ethanol in 2008, 15 billion gallons of corn-based ethanol by 2015, and 36 billion gallons of renewable fuels by 2022. The 2015 and 2022 targets are more than double and five times the 2007 level, respectively. Biofuels are expected to be a necessary part of the energy equation for years to come. Brazil's farmers are expected to plant more sugar cane during the next few years to meet the anticipated growth in demand for ethanol in both domestic and export markets. High palm oil prices will continue to boost palm oil plantings in Malaysia and Indonesia to provide long-term supply for biodiesel production in Europe.

Consumption in China and India remains critical to forecasting future potash demand. It is forecast that China's potash demand will likely reach 15 Mt in 2010. Its demand for potash is driven largely by the Chinese government's policy on increasing agricultural production and achieving higher yields, and on improving farmers' income and living standards in the country. China could potentially use 25 Mt of potash if it follows agronomists' recommended nutrient levels. The same applies to India, which could potentially use 10 Mt, and to Brazil, which could use 11 Mt in its agricultural production.

Canada is expected to produce a lower volume of potash in 2009 as the demand in major consuming countries has collapsed. Canadian producers were forced to scale back production, and 2009 output could be 3-4 Mt lower than 2008's output. Natural Resources Canada is positive that demand for potash will recover, perhaps as early as in the second half of 2009, and Canadian production levels will return to 2007 levels by 2010.

RELEVANT CANADIAN POTASH WEB SITES

Potash Corporation of Saskatchewan Inc.
www.potashcorp.com
The Mosaic Company
www.mosaicco.com
Agrium Inc.
www.agrium.com
Canpotex Limited
www.canpotex.com
Canadian Fertilizer Institute
www.cfi.ca
International Fertilizer Industry Association Ltd.
www.fertilizer.org
International Plant Nutrition Institute
www.ipni.net

Notes: (1) For definitions and valuation of mineral production, shipments and trade, please refer to Chapter 58. (2) Information in this review was current as of March 31, 2009. (3) This and other reviews, including previous editions, are available on the Internet at www.nrcan-rncan.gc.ca/mms-smm/busi-indu/cmy-amc/com-eng.htm.

NOTE TO READERS

The intent of this document is to provide general information and to elicit discussion. It is not intended as a reference, guide or suggestion to be used in trading, investment, or other commercial activities. The author and Natural Resources Canada make no warranty of any kind with respect to the content and accept no liability, either incidental, consequential, financial or otherwise, arising from the use of this document.

TARIFFS

Item No.	Description	Canada			United States	EU	Japan
		MFN	GPT	USA	Canada	Conventional Rate (1)	WTO (2)
2815.20	Sodium hydroxide (caustic soda); potassium hydroxide (caustic potash); peroxides of sodium or potassium: potassium hydroxide (caustic potash)	Free	Free	Free	Free	5.5%	3.9%
2834.21	Nitrates: nitrates: nitrates: of potassium	Free	Free	Free	Free	5.5%	3.9%
2835.24	Phosphinates (hypophosphates), phosphonates (phosphites) and phosphates; polyphosphates, whether or not chemically defined: phosphates: of potassium	3%	Free	Free	Free	5.5%	3.9%
2836.40	Carbonates; peroxocarbonates (percarbonates); commercial ammonium carbonate containing ammonium carbamate: potassium carbonates	Free	Free	Free	Free	5.5%	3.9%
2839.90.10	Silicates; commercial alkali metal silicates: other	Free-3%	Free	Free	Free	5%	3.3%
31.04	Mineral or chemical fertilizers, potassic						
3104.20	Potassium chloride	Free	Free	Free	Free	Free	Free
3104.30	Potassium sulphate	Free	Free	Free	Free	Free	Free
3104.90	Other	Free	Free	Free	Free	Free	Free

Sources: Canadian *Customs Tariff*, effective January 2009, Canada Border Services Agency; *Harmonized Tariff Schedule of the United States*, 2009; *Official Journal of the European Union* (Tariff Information), September 19, 2008 edition; *Customs Tariff Schedules of Japan*, 2009.

(1) The customs duties applicable to imported goods originating in countries that are Contracting Parties to the General Agreement on Tariffs and Trade or with which the European Community has concluded agreements containing the most-favoured-nation tariff clause shall be the conventional duties shown in column 3 of the Schedule of Duties.

(2) WTO rate is shown; lower tariff rates may apply circumstantially.

TABLE 1. CANADA, POTASH PRODUCTION, SHIPMENTS AND TRADE, 2006-08

	2006		2007		2008 (p)	
	(tonnes)	(\$000)	(tonnes)	(\$000)	(tonnes)	(\$000)
PRODUCTION, Potassium chloride						
Gross weight	13 669 909	..	17 816 913	..	17 397 590	..
K ₂ O equivalent	8 369 105	..	10 890 795	..	10 641 770	..
SHIPMENTS						
K ₂ O equivalent	8 518 418	2 240 660	11 084 939	2 814 563	10 454 961	8 243 156
EXPORTS (1,2)						
2815.20 Potassium hydroxide (caustic potash)	625	1 743	486	1 883	677	1 688
2834.21 Potassium nitrate	...	...	...	...	15	8
2835.24 Potassium phosphate	19	22	-	-	...	...
2836.40 Potassium carbonates	...	3	-	-	1	2
2839.20 Potassium silicates	20	35	-	-	-	-
3104.20 Potassium chlorides						
United States	7 989 360	1 408 514	10 022 928	1 705 926	9 490 570	3 369 920
India	657 153	118 478	998 841	177 442	1 508 179	688 024
China	1 337 873	243 837	2 347 815	414 630	1 104 338	534 825
Brazil	1 175 359	211 219	1 179 028	215 302	1 134 214	421 297
Indonesia	497 498	91 039	627 369	111 109	939 954	366 075
Malaysia	528 131	96 139	668 019	119 004	611 195	233 855
Thailand	157 104	28 842	201 636	35 894	261 419	93 028
New Zealand	138 542	25 224	120 879	21 741	182 480	79 337
Vietnam	186 157	34 288	210 864	37 824	201 131	73 933
Mexico	73 262	13 035	109 137	21 389	142 483	66 546
South Korea	24 813	4 464	72 858	13 033	148 323	55 203
Colombia	136 473	24 208	123 970	25 577	85 327	46 334
Philippines	95 908	17 247	117 474	21 041	105 409	41 724
Taiwan	52 481	9 560	117 398	20 985	122 479	34 792
Guatemala	31 003	5 825	28 925	5 249	68 703	26 764
Cuba	56 951	11 811	46 358	8 411	55 699	25 369
Honduras	39 246	7 173	42 475	8 087	39 200	20 641
Dominican Republic	28 815	5 134	51 800	11 304	37 900	19 330
Belgium	130 904	24 008	73 831	12 936	35 902	18 299
Ecuador	15 399	2 779	-	-	55 979	15 948
Costa Rica	30 392	5 469	30 039	5 179	36 647	15 741
Japan	29 976	5 393	8 516	1 543	41 675	12 159
Peru	24 777	4 440	-	-	33 896	10 242
El Salvador	5 000	906	10 670	1 810	8 000	5 342
Singapore	10 477	1 969	39 891	7 101	15 431	5 217
Argentina	13 000	2 440	-	-	16 462	4 701
France	2 610	494	-	-	3 000	3 121
Jamaica	8 285	1 354	11 815	2 408	7 600	2 791
Dominica	-	-	-	-	6 100	2 217
Nicaragua	5 000	896	6 804	1 154	5 450	1 936
Panama	-	-	5 000	868	6 600	1 875
Other countries	124 152	22 372	17 043	3 371	5	2
Total	13 606 101	2 428 557	17 291 383	3 010 318	16 511 750	6 296 588
3104.30 Potassium sulphate						
United States	9 163	4 803	13 018	6 098	20 444	12 045
Brazil	-	-	-	-	2 558	1 619
Other countries	645	344	116	55	946	504
Total	9 808	5 147	13 134	6 153	23 948	14 168
3104.90 Other potassic fertilizer						
United States	576	364	625	123	1 017	420
Other countries	61	34	-	-	117	46
Total	637	398	625	123	1 134	466
Total exports	13 617 210	2 435 905	17 305 628	3 018 477	16 537 525	6 312 920

TABLE 1 (cont'd)

		2006		2007		2008 (p)	
		(tonnes)	(\$000)	(tonnes)	(\$000)	(tonnes)	(\$000)
IMPORTS (1,2)							
2815.20	Potassium hydroxide (caustic potash)						
	United States	17 327	9 461	19 843	9 380	21 142	15 682
	South Korea	516	506	1 060	1 051	1 210	1 840
	Other countries	722	893	694	767	608	1 402
	Total	18 565	10 860	21 597	11 198	22 960	18 924
2834.21	Potassium nitrate						
	Israel	1 538	1 153	1 851	1 159	3 351	4 988
	Chile	333	308	1 201	786	1 638	2 282
	Jordan	—	—	580	310	2 149	1 882
	Denmark	524	363	322	207	1 145	1 140
	Other countries	551	668	877	801	677	1 152
	Total	2 946	2 492	4 831	3 263	8 960	11 444
2835.24	Potassium phosphates						
	Israel	382	609	436	511	875	2 052
	United States	593	1 067	730	1 087	1 021	1 790
	China	88	144	224	236	599	1 311
	Other countries	253	505	282	500	626	1 484
	Total	1 316	2 325	1 672	2 334	3 121	6 637
2836.40	Potassium carbonates						
	United States	3 737	3 185	3 502	2 893	3 142	3 313
	Other countries	622	386	550	423	737	613
	Total	4 359	3 571	4 052	3 316	3 879	3 926
2839.20	Potassium silicates	9 400	6 454	—	—	—	—
2839.90.10.00	Other, of potassium						
	United States	—	—	3 249	2 548	4 379	3 424
	Other countries	—	—	553	537	6	8
	Total	—	—	3 802	3 085	4 385	3 432
2839.90.90.10	Other, precipitated calcium silicates	—	—	4 899	980	4 027	805
2839.90.90.20	Other, magnesium silicates						
	United States	—	—	2 004	1 300	987	1 679
	Other countries	—	—	878	1 022	14	15
	Total	—	—	2 882	2 322	1 001	1 694
2839.90.90.30	Other, zirconium silicate	—	—	40	27	273	205
2839.90.90.90	Other, other						
	United States	—	—	6 619	3 498	4 274	2 756
	Other countries	—	—	5 053	3 718	1 416	1 666
	Total	—	—	11 672	7 216	5 690	4 422
3104.20	Potassium chloride						
	United States	1 825	2 040	2 063	1 819	2 104	3 509
	Other countries	52	73	29	73	219	225
	Total	1 877	2 113	2 092	1 892	2 323	3 734
3104.30	Potassium sulphate						
	United States	13 785	3 356	11 605	3 313	5 625	2 108
	Belgium	63	34	306	151	881	1 005
	Chile	38	18	69	34	263	233
	Israel	—	—	74	89	110	134
	Other countries	71	104	93	84	117	193
	Total	13 957	3 512	12 147	3 671	6 996	3 673

TABLE 1 (cont'd)

	2006		2007		2008 (p)	
	(tonnes)	(\$000)	(tonnes)	(\$000)	(tonnes)	(\$000)
IMPORTS (1,2)						
3104.90.00.10 Magnesium-potassium sulphate						
United States	58 881	6 256	71 131	7 016	68 651	6 475
Other countries	129	13	...	...	246	18
Total	59 010	6 269	71 131	7 016	68 897	6 493
3104.90.00.90 Other potassic fertilizer						
United States	1 479	1 294	1 209	1 435	1 865	2 523
Israel	741	508	1 486	945	1 595	1 927
Other countries	2 832	1 568	4 736	2 489	3 443	2 697
Total	5 052	3 370	7 431	4 869	6 903	7 147
Total imports	116 482	40 966	148 248	51 189	139 415	72 536

Sources: Natural Resources Canada; Statistics Canada.

– Nil; . . Not available; . . . Amount too small to be expressed; (p) Preliminary.

(1) Countries are ranked in descending order of value for 2008. (2) Fertilizer potash.

Notes: HS Code change from 2839.20 to 2839.90.10 as of 2007. Numbers may not add to totals due to rounding.

TABLE 2. WORLD POTASH PRODUCTION, 2001-08

	2001	2002	2003	2004	2005	2006	2007 (p)	2008 (e)
	(000 tonnes)							
POTASSIUM CHLORIDE (KCl) (1)								
Canada	13 357	13 911	14 924	16 557	17 370	13 705	17 840	17 396
United States	1 348	1 438	1 166	1 499	1 363	1 215	1 277	1 200
Belarus	6 145	6 318	7 048	7 687	8 213	7 676	8 286	8 200
Russia	7 096	7 386	7 756	9 332	10 443	9 540	10 622	9 900
France	407	213	–	–	–	–	–	–
Germany	5 918	5 752	5 942	6 044	6 108	6 026	6 032	5 600
Spain	785	678	844	922	824	728	790	700
United Kingdom	887	900	1 036	899	732	716	712	700
Israel	2 957	3 197	3 264	3 563	3 707	3 539	3 577	3 500
Jordan	1 963	1 956	1 960	1 929	1 829	1 699	1 797	2 005
Brazil	575	606	636	617	620	707	649	607
Chile	650	682	733	717	718	623	690	650
China	658	717	1 033	1 880	2 417	2 620	3 130	3 300
Total	42 746	43 754	46 342	51 646	54 344	48 794	55 402	53 984
POTASSIUM OXIDE (K₂O) (1)								
Canada	8 181	8 515	9 104	10 100	10 596	8 360	10 883	10 438
United States	809	863	711	914	832	741	779	720
Belarus	3 687	3 791	4 229	4 612	4 928	4 605	4 972	4 920
Russia	4 258	4 432	4 653	5 599	6 266	5 724	6 373	5 940
France	244	128	–	–	–	–	–	–
Germany	3 551	3 451	3 565	3 626	3 665	3 616	3 619	3 360
Spain	471	407	506	553	494	437	474	420
United Kingdom	532	540	621	540	439	430	427	420
Israel	1 774	1 918	1 958	2 138	2 224	2 123	2 146	2 100
Jordan	1 177	1 174	1 176	1 157	1 098	1 020	1 078	1 200
Brazil	345	364	382	370	372	424	389	364
Chile	390	409	440	430	431	374	414	390
China	395	430	620	1 128	1 450	1 572	1 878	1 980
Total	25 814	26 422	27 965	31 167	32 794	29 426	33 432	32 390

Sources: Natural Resources Canada; International Fertilizer Industry Association.

– Nil; (e) Estimated; (p) Preliminary.

(1) Potassium chloride (KCl) is used in the measurement of production tonnage, while potassium oxide (K₂O) is used to measure fertilizer content in KCl.Notes: Statistics show the production of KCl only, excluding other forms of potash. One tonne of KCl contains 60-62% K₂O.

TABLE 3. POTASH SITUATION, 2001-08

	2001	2002	2003	2004	2005	2006	2007 (p)	2008 (e)
	(000 tonnes KCl)							
CANADA								
Capacity	21 400	21 400	21 400	21 400	22 106	22 106	23 900	23 900
Production	13 357	13 911	14 851	16 557	17 370	13 705	17 840	17 396
Capacity use (%)	62	65	69	77	79	62	75	73
Sales	13 595	14 182	15 514	17 196	16 193	14 079	18 079	17 425
Domestic	710	743	762	751	735	576	703	900
United States	7 451	7 368	7 451	8 067	6 846	6 169	7 378	6 500
Offshore	5 434	6 071	7 302	8 378	8 612	7 334	9 998	10 000
WORLD								
Capacity	62 405	62 220	61 448	62 208	64 300	65 312	65 425	67 500
Production	43 099	44 144	46 420	51 836	54 344	48 795	55 400	54 000
Capacity use (%)	69	71	76	83	85	75	85	80
Sales	41 960	43 545	47 175	51 834	52 186	48 568	56 099	53 000
Exports	33 683	35 196	38 727	42 273	41 920	38 450	45 029	41 000
Consumption	38 370	41 150	41 666	42 580	45 130	(e) 45 500	(e) 48 500	(e) 45 000
CANADA/WORLD								
Production (%)	31	32	32	32	32	28	32	32
Capacity (%)	34	34	35	34	34	34	37	35

Sources: Natural Resources Canada; International Fertilizer Industry Association.

(e) Estimated; (p) Preliminary.

Note: World production capacity includes potassium chloride (KCl) only.