



Potash Potential

With spring and summer come thoughts of growing things: a vibrant flower garden, an abundance of fresh fruits and vegetables, and fields of thriving crops. But to get the best out of plants, it is necessary to pay attention to the condition of the soil. All plants require certain basic raw materials if they are to operate at their most efficient level. Enter, stage left: fertilizer.

Fertilizer is made with three primary plant nutrients drawn from nature; nitrogen (N) is taken from the air we breathe, phosphate (P) comes from fossilized sea creatures, and potash (K) is found in evaporated seabeds. Potash (or carbonate of potash) is an impure form of potassium carbonate (K_2CO_3) mixed with other potassium salts.

Potash has been used since antiquity as a fertilizer, and in the manufacture of glass and soap.

The name comes from the English words pot and ash, referring to the process of extracting lye from wood ashes in iron pots. Until the twentieth century, potash was one of the most important industrial chemicals in Europe. It was produced primarily in the forested areas of Europe, Russia, and North America, where it was refined from the ashes of broadleaved trees.

Potash production provided late eighteenth and early nineteenth century settlers in North America a way to obtain badly needed cash and credit while they were in the process of clearing their wooded land for crops. To make full use of their land, they needed to dispose of excess wood, including stumps. They burned any wood not needed for fuel or construction, and used the ashes from hardwood trees to make lye. Lye was used to make soap, or boiled down to produce valuable potash.

But what does this biology and history lesson have to do with mining? Today, potash is principally produced by mining suitable deposits which are found throughout the world. The most common source is the potassium mined from naturally occurring beds of potassium ore that developed as seawater evaporated and potassium salts crystallized. Only 12 countries produce potash, with Canada, Russia, and Belarus accounting for the majority of the volume.



The world's largest potash producer is the Potash Corporation of Saskatchewan or PotashCorp, with 22 percent of the world's overall capacity and 75 percent of the world's unused capacity. PotashCorp complements this strength by also producing the other two primary plant nutrients, phosphate and nitrogen, with operations that make it the world's third-largest phosphate producer and fourth-largest nitrogen producer.

Most plants cannot use the three primary plant nutrients in their original state, so commercial fertilizer companies convert nitrogen, phosphate, and potassium into a form that plants can digest. Plants take these three nutrients from the soil in large amounts, necessitating replacement, or eventually the soil will not have enough to support any plant growth. Fertilizer purchased from a store usually has three numbers on the bag. This indicates the percentage of nitrogen, phosphorus, and potassium in the fertilizer. For example, a bag that reads 20-10-10 contains 20 percent nitrogen, 10 percent phosphorus, and 10 percent potassium.

Check out two on-line, kid-friendly resources. PotashCorp offers There's WHAT in My Food?, which promises fun while learning about fertilizer, food safety and health, nutrition, organic farming, and much more. It can be found at www.potashcorp.com/learn_about_fertilizer/food.

The Potash and Phosphate Institute (PPI) has an interactive site that engages kids with games, activities, and "The Plant Nutrient Team." It can be found at www.ppi-ppic.org/Elementary/homepage.html

To learn more about potash and its production, visit the following Web sites.

- <http://en.wikipedia.org/wiki/Potash>
- www.potashcorp.com
- www.ppi-ppic.org