

How Fertilizers Feed the Modern World

Increasing global populations naturally bring about a greater demand for food. High-quality fertilizers play an essential role in helping feed our growing world. There are a number of steps fertilizers go through in their journey to help deliver the foods we eat. Let's take a look at that process.



Metso is established as an industry leader across the entire mineral value chain — comminution, beneficiation, pyro processing, material handling, granulation and compound fertilizer production.



Discovering

Phosphate is mined with conventional open-pit methods after the top layer of soil is removed. Potash production occurs mostly in deep shaft mines, with the product being removed through either dry or wet methods.

Exploration & Development



Phosphate

Phosphate is critical for all living organisms. It supports strong cell development, resulting in healthier plant growth.



Potash

Potash, a potassium-based product, encourages water retention, increases crop yields and helps plants resist diseases. It is often bonded with other chemicals.

Extraction

Material Transport

China and India are the biggest fertilizer producers and Brazil is one of the biggest importers.

Processing

The process of turning rock deposits into usable fertilizer involves several steps of crushing, screening, grinding, separation, flotation and drying.

Nitrogen consumption is up 2.4%, phosphate is up 3.1% and potash is up 2.7%.*

Fertilizer demand is expected to average a 1.1% increase before reaching 204 Mt in 2023–2024.*

Chemical Processing

Beneficiation

Comminution



Metso has extensive experience in rotary drums (granulator, dryer, cooler and coating) applied for fertilizer production.



Metso flotation equipment utilizes innovative and advanced techniques for increased recovery.



Metso's crushing, screening and grinding portfolio is the most reliable and comprehensive range in the industry.

Using Sustainably

The world population is expected to reach nine billion by 2050, while arable land remains limited. Responsible application of organic and mineral fertilizer will play a crucial role in meeting the increased demand for food.

Land Reclamation

In some countries, the land is reclaimed for a variety of applications, including wildlife habitats, agriculture and other uses.



Transportation & Storage



Farming



Responsible Application



Food Consumption



Recycling



Completing the Circle

Following nature's cyclical pattern, these minerals sink into the ground and form deposits for future generations.



Metso partners with some of the most well-known and largest fertilizer producing companies in the world

United States of America, Morocco, Russia, China and Saudi Arabia are the largest suppliers of fertilizers in the world

To ensure a more efficient and safe operation, count on a supplier that delivers complete solutions for your business

Visit www.metso.com/mining to learn more about how Metso is helping to feed the world.



* Source: IFA (International Fertilizer Association) Fertilizer Outlook, 2019-2023, June 2019.