



Written Remarks of

Corey Rosenbusch

President and CEO

The Fertilizer Institute

Senate Judiciary Committee

Hearing on

“Pressure Cooker: Competition in the Seed & Fertilizer Industries”

October 28, 2025

Chairman Grassley, Ranking Member Durbin, and members of the Committee:

Thank you for the opportunity to testify today on behalf of The Fertilizer Institute (TFI), a trade association which represents more than 250 companies that supply the nutrients essential to American agriculture. We come before you not just as fertilizer producers and agribusiness retailers, but as partners to the nation's farmers who power the world's finest food production system.

Who We Are

The Fertilizer Institute represents more than 250 companies throughout the entire fertilizer supply chain – from the companies that manufacture fertilizers, to the retailers that work directly with farmers to ensure that precise nutrient prescriptions are delivered and applied in a timely manner, as well as importers, wholesalers, technology developers and others. In the United States, fertilizer production takes place in 30 states – Alabama, Arizona, Arkansas, California, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Maine, Mississippi, Nebraska, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Tennessee, Texas, Utah, Virginia, Washington, West Virginia and Wyoming. Further, our members support more than 100,000 direct jobs and more than 450,000 indirect jobs across the country.¹ Each year our members pay \$36.5 billion dollars in wages to U.S. workers who are often among the most highly paid individuals in rural communities.²

As one of only three nations with 20 or more unique companies that produce fertilizer, the United States is among the most competitive fertilizer markets in the world. The United States has robust domestic production and is the fourth largest ammonia producer (9% of global

¹ "2024 Fertilizer Industry Economic Impact Study," The Fertilizer Institute, December 12, 2024.
<https://www.tfi.org/insights/economic-impact>.

² "2024 Fertilizer Industry Economic Impact Study."

production) and fifth largest global processed phosphate producer in the world (8% of global production).

What are Fertilizers?

Fertilizer is food for plants. It is added to replenish nutrients that nourish and grow crops. They are used to increase crop yield and/or crop quality, as well as to sustain the soil's ability to support future crop production. The essential components of most fertilizers are nitrogen (N), phosphate (P), and potash (K), which are macronutrients. While there are many similarities between the three primary fertilizer macronutrients, there are also distinct differences in production, supply, use, and other conditions of competition between the primary fertilizer products. Of note:

- Nitrogen fertilizers are manufactured products, reliant on natural gas as the primary feedstock and are produced in more than 60 countries by more than 100 producers. The United States is the fourth largest nitrogen producing nation.
- The United States is also a large producer of phosphate, which is mined from geologic deposits. There are 30 countries that produce phosphate fertilizers (MAP, DAP, TSP), but the top five countries account for over 80% of production. The top phosphate producing countries are China (43%), Morocco (13%), Russia (9%), Saudi Arabia (8%), and the United States (8%).
- While the United States has some domestic production of potash, it imported most of its domestic potash supply in 2024, as it has for decades. Only 15 countries produce potash, which is mined from geologic deposits, but Canada (33%), Russia (19%) and Belarus (15%) are the dominant producers. Unlike the nitrogen and processed phosphate markets, the top exporting nations closely follow the shares of global production.

We have provided additional information on these three essential plant nutrients at the back of this testimony in Addendum A. All three of these elements play essential roles in allowing plants to access the free energy of the sun through photosynthesis and all three must be present in adequate amounts to ensure healthy crop growth and farmer productivity.

Today, it would be impossible to feed the planet without fertilizers.³ Indeed, over one half of all food grown around the world today, both for people and animals, is made possible only through the responsible use of fertilizers.

Supporting Farmers

Without farmers, there would be no fertilizer industry. Every day, farmers face mounting pressures— unpredictable weather, labor shortages, and global market disruptions. For many, those challenges seem to increase every year, despite the essential nature of farms and agriculture to our nation’s way of life and the economic vitality of Rural America.

Fertilizer is one of their most critical tools, to promote plant growth and improve crop yield and productivity. When its reliable supply is threatened, the ripple effects are felt in every corner of rural America. For that reason, we believe that a resilient and growing U.S. fertilizer industry is vital to support the American farmer. We live in these rural communities and share in the success and challenges experienced by America’s farmers.

We are glad that you are holding this hearing, so that we can explore these issues through the lens of several participants in the agricultural value chain.

Fertilizer is a Global Market, and its Competitive

The fertilizer market is a highly competitive global market, characterized by complex web of global supply and demand factors. As explained in the U.S. Department of Agriculture’s (USDA) Economic Research Service, “U.S. fertilizer production and consumption—crucial for the

³ The nitrogen produced by the Haber-Bosch synthesis process for mineral fertilizers is vital for producing large crop yields. Scientific research published in 2008 estimated that the lives of nearly half of the world’s population (48%) are only made possible by Haber–Bosch produced nitrogen. ([Erisman et al., 2008](#)).

productivity of U.S. agriculture—take place within a global fertilizer market.”⁴ This has been long been recognized by USDA research⁵ and multiple academic studies.⁶

The United States is a net fertilizer importer, and our members compete fiercely with each other and hundreds of global competitors in a robust, global fertilizer market which is dominated by countries such as China and India, which are the world’s largest consumers and combine for 40% of global fertilizer use, and China, India and Russia, which are the world’s largest producers of the three macronutrients combined. In many cases, foreign fertilizer production and consumption has been shown to have benefited from government subsidies and other policies that challenge the market-based operations of the U.S. fertilizer industry. The United States is the fourth largest consumer and the fifth largest producer of fertilizer in the world.

When one looks at this graphic of fertilizer shipping routes, it’s not hard to see the complexity of the global fertilizer market:

⁴ See, e.g., Williams, Angelica, Collins, LaPorchia A., and Boline, Amy, “Drivers of Fertilizer Markets: Supply, Demand, and Prices,” U.S. Department of Agriculture (USDA) Economic Research Report Number 354 (Sept. 2025), accessed at https://ers.usda.gov/sites/default/files/_laserfiche/publications/113324/ERR-354.pdf?v=42889.

⁵ See, e.g., Huang, Wen-yuan, USDA Outlook Report from Economic Research Service, “Factors Contributing to the Recent Increase in U.S. Fertilizer Prices, 2002-2008,” (Feb. 2009), accessed at https://www.ers.usda.gov/webdocs/outlooks/35824/10935_ar33.pdf?v=9996 (“In an increasingly globalized market, changes in global supply and demand of fertilizer can lead directly to the rise and fall of U.S. fertilizer prices.”); Nti, Frank, “Impacts and Repercussions of Price Increases on the Global Fertilizer Market,” USDA Foreign Agricultural Service (June 2022), accessed at <https://www.fas.usda.gov/data/impacts-and-repercussions-price-increases-global-fertilizer-market> (“Russia and Belarus play critical roles in the global fertilizer market, accounting for nearly 20 percent of global exports.”).

⁶ See, e.g., Monaco, Henrique, Schnitkey, Gary, and Paulson, Nick, “U.S. Fertilizer Industry in Global Markets: Structure and Supply Risks” Department of Agricultural and Consumer Economics University of Illinois, accessed at <https://farmdocdaily.illinois.edu/2025/07/us-fertilizer-industry-in-global-markets-structure-and-supply-risks.html> (“Global trade in fertilizers is significant, accounting for 10-15% of total production of nitrogen and phosphorus ... as a global commodity, U.S. farmers still face significant price volatility. Price spikes—like those in 2022 []— remain possible since production and global trade can be impacted by policy uncertainty.”); Monaco, Henrique, Schnitkey, Gary, and Paulson, Nick, and Zulauf, Carl, “Fertilizer Prices Continue Decline and May Impact Farmers’ Nitrogen Decisions,” Department of Agricultural and Consumer Economics University of Illinois and Department of Agricultural, Environmental and Development Economics Ohio State University (Aug. 2023) accessed at <https://farmdocdaily.illinois.edu/2023/08/fertilizer-prices-continue-decline-and-may-impact-farmers-nitrogen-decisions.html> (“Much of the narrowing in premiums on urea and liquid relative to anhydrous in the first half of 2022 is linked to the Russia-Ukraine conflict, as there were significant disruptions and displacement of global fertilizer trade flows.”).



(source: IFA)

Fertilizer is a commodity sold in bulk, so farmers are largely unaware of its geographic source once it reaches their field. The nitrogen, phosphate, and potash made in the United States are physically indistinguishable from fertilizer that comes from Russia or elsewhere in the world. While fertilizer is a global commodity, there are distinct differences in production, supply, use, and trade between the primary fertilizer products, including a unique vulnerability to supply shocks.

Current Geopolitical Impacts on the Global Fertilizer Market

Geopolitical events such as ongoing global conflicts in the Middle East and Europe; government controls; subsidies, and other government policies impact production, exports and consumption; and the evolving nature of global trade policy are impacting global supply and demand and as a result, prices for fertilizers.

Geopolitical events have been the biggest cause of disruption to the global fertilizer market in recent years.

- China is the world's largest producer of fertilizers, producing 31% of the world's ammonia, 32% of the world's urea and 43% of the world's processed phosphates. China's growth as a fertilizer producer has developed over decades through a combination of factors, including resource advantages, high fertilizer tariffs, and government support. Prior to 2021, China was the world's largest exporter of MAP and DAP and had been among the top three exporters of nitrogen globally.⁷ In 2021, however, China began imposing export restrictions on its fertilizer products. China's state-supported, non-market driven buildup of substantial capacity and their subsequent government mandated export restraints have been highly disruptive to the global market, raising costs for farmers in the United States and worldwide, while chilling the growth of market-based capacity expansions elsewhere.
- India procures their fertilizer through a centralized government buying tender that is then subsidized before being sold to farmers.
- The Russian war in Ukraine was also highly disruptive. Russia is the biggest global supplier of fertilizers (about 16% of global supply), and that supply chain was significantly impacted at the onset of the war mainly because of sanctions imposed by several nations. Russia also restricted Europe's natural gas supply, which Europeans relied on for their fertilizer production. This resulted in approximately 70% of European nitrogen fertilizer production shutting down in 2022 due to high natural gas costs. While some countries and regions, particularly, Canada, the European Union and the UK, have also put tariffs on fertilizer imports; Russian fertilizer products enter the United States duty-free.
- Natural gas prices and supply problems in Europe, Egypt, Iran and Trinidad are all impacting the supply of fertilizers in the United States.

Fertilizer Supply and Demand Dynamics

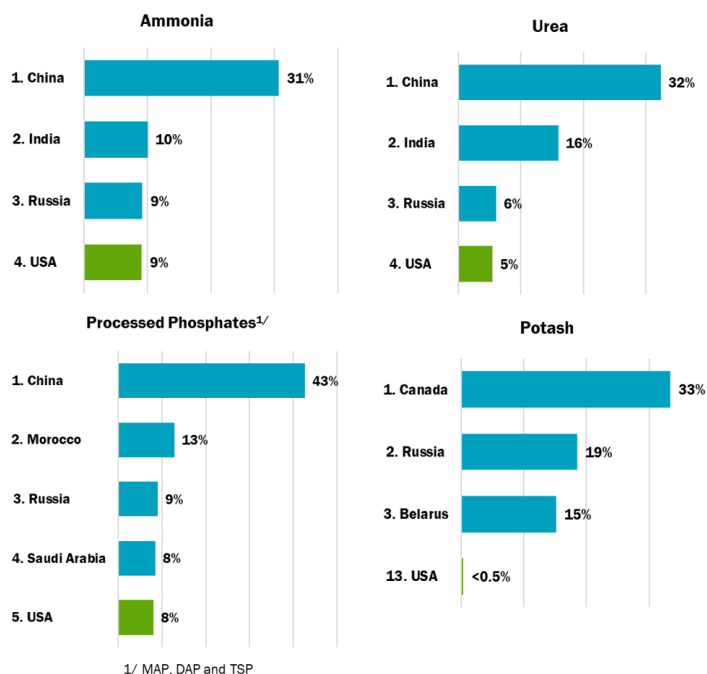
⁷ For example, Chinese nitrogen exports represented nearly 30% of all nitrogen trade in 2014-2015 (reaching 14 MMT out of 47 MMT). Further, Chinese phosphate exports represented 30% of all phosphate trade in 2014-2015 (reaching 8 MMT of 26 MMT).

The United States is a net importer and a much smaller producer of the three macronutrients than other global sources, particularly China, India and Russia. As a result, for many fertilizer products, the United States does not currently produce enough fertilizer to meet American farmers' fertilizer use during the peak demand of fertilizer application seasons. Thus, American farmers utilize a mix of domestic production and imported fertilizer, with the relative share dependent on the product and the year. Currently, 65% of overall U.S. farmers' nitrogen, phosphate, and potash needs are met by domestic fertilizer production. The rest comes from imports. Both imported and domestically produced fertilizer are subject to global market dynamics.

For two of the three macronutrients, nitrogen and phosphate, the U.S. has significant resources and abundant production capacity. While U.S. reserves of the third macronutrient – potash – are limited, Canada has reserves that are the largest in the world. Ammonia was produced by 18 companies at 37 plants in 17 States in the United States during 2024.⁸ Ammonium phosphates and potash are produced by six companies at 15 mines in seven states.

Top Global Fertilizer Producers, 2024

Data Source:
International Fertilizer Association

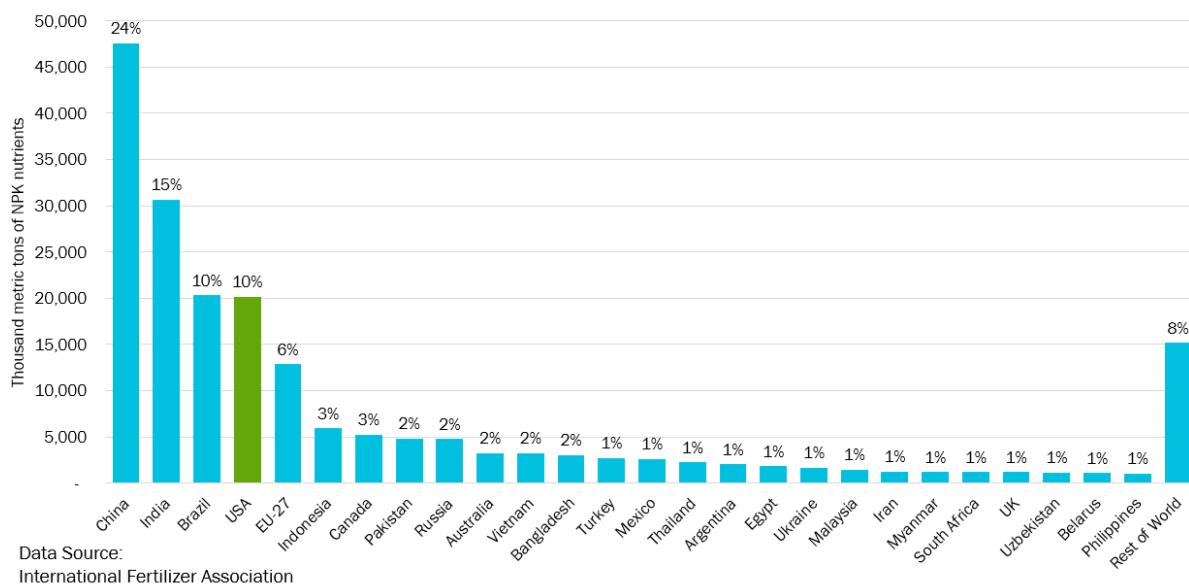


⁸ <https://pubs.usgs.gov/periodicals/mcs2025/mcs2025-nitrogen.pdf>

Since plants require nutrients in differing amounts, shifts in U.S. acreage between crops year-over-year can alter overall U.S. fertilizer demand, as well as relative demand between nutrients and specific fertilizer products. Sizable shifts towards crops with higher average nutrient demand per acre, like corn, away from crops with lower average nutrient demand per acre, like soybeans, have led to significant increases in U.S. fertilizer demand. Corn (~50%), soybeans (~11%), wheat (~10%) and cotton (4%) combined account for approximately 75% of U.S. fertilizer use.

Ninety percent of global fertilizer consumption occurs outside of the United States. As noted earlier the two largest consumers, China and India combine for nearly 40% of global use. High prices for globally traded agricultural commodities not grown at scale in the United States are giving farmers in other parts of the world significant purchasing power in the global fertilizer market.

Global Fertilizer Consumption, 2023



Building Production: What the Fertilizer Industry is Doing

Our deep commitment to meeting the needs of America's farmers and America's food supply can be seen in our investments in fertilizer production and distribution throughout the United

States. Just as U.S. farmers are among the most efficient and innovative in the world, so is the U.S. fertilizer sector.

Fertilizer production is highly capital-intensive. Every year, U.S. fertilizer producers are investing billions of dollars to maintain and upgrade their facilities; that investment has helped foster the reliability and strong capacity utilization of the U.S. industry and has, in many cases, expanded U.S. production over nameplate capacity, all of which is making more fertilizer available to America's farmers. Over the past decade, billions of dollars have also been invested to expand U.S. fertilizer production capacity, including in Iowa and Louisiana.

Since the beginning of 2025, billions of dollars of fertilizer industry investment in new U.S. greenfield production have also been announced with new production capacity coming online by 2029. Additional production expansions are in earlier stages of development but are facing legal challenges as they move through the permitting process.

These major investments are made for the long term, with U.S. production sites operating for decades because of the level of maintenance and improvements. The investment and commitment to strong and safe operations by the fertilizer industry means that U.S. farmers have access to more critical crop nutrients in a timely manner.

Beyond Production: Our Ongoing Partnership with American Farmers

Our industry has a long history of problem solving, and we're regularly innovating to build and improve systems that help farmers get the most out of every dollar they spend on fertilizer and to promote the commercial and environmental sustainability of our products and the broader agricultural sector. TFI and its members invest in agronomic research aimed at helping identify and fine-tune the products and field practices that maximize farmers' investment in our products, while also reducing environmental impacts.

A farmer's work with their agricultural retailer's agronomist can impact the source, rate, timing and placement of fertilizers. These relationships are deep and longstanding as are our ties to thousands of rural communities.

Our commitment to scientific research has benefited American farmers' agricultural productivity and environmental stewardship. Decades of scientific investment, supported by industry, led to the development of the "4R Nutrient Stewardship Framework"—applying the right nutrient source, at the right rate, at the right time, and in the right place. This approach, rigorously validated through research, is now widely recognized by farmers, industry, policymakers, and federal agencies as an effective conservation practice. The tangible outcomes of 4R research are clear: these principles help farmers increase crop yields, use resources more efficiently, reduce costs, and lower environmental impacts. Nearly 65 million acres of U.S. farmland are being actively managed using 4R Nutrient Stewardship practices, and the fertilizer industry and farmers are hard at work continuing to build this number.⁹

TFI Seeks Practical, Pro-Farmer Policy Solutions:

TFI recently released a plan for strengthening the domestic supply of fertilizers. This plan includes recommendations such as:

- **Appointment of a full-time USDA Fertilizer Economist** to monitor market dynamics, improve transparency, and provide accurate, timely information to farmers and policymakers.
- **Advancement of a national policy to expand domestic fertilizer production**, led by the Secretary of Agriculture and coordinated across federal agencies.
- **Streamlining of federal permitting and regulatory reviews** to accelerate construction and modernization of fertilizer plants, mines, and infrastructure.
- **Including phosphate and potash on the Final Critical Minerals List** to improve supply security and permitting efficiency.

⁹ "Sustainable Farming Surging as Growers Drive 4R Adoption," The Fertilizer Institute, June 18, 2025, <https://www.tfi.org/media-center/2025/06/18/sustainable-farming-surging-as-growers-drive-4r-adoption/>.

- **Encouraging energy policies that maintain affordable and reliable natural gas supplies,** the key feedstock for nitrogen fertilizer, to safeguard U.S. production and competitiveness.
- **Promoting a more open, fair, predictable, and transparent trading environment** that empowers the continued growth of a resilient, competitive, and sustainable fertilizer industry for our farmer customers.
- **Accelerating innovation and emerging fertilizer technologies,** including advanced nutrient formulations and enhanced efficiency fertilizers consistent with the 4R Nutrient Stewardship framework.
- **Further encouraging grower adoption of 4R Nutrient Stewardship practices** (applying the right source, rate, time, and place) to support farmers getting the most out of every fertilizer dollar.
- **Identifying productive science-backed streams for recycled production materials from mined sources.**

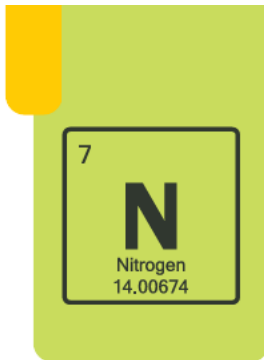
Conclusion

Just like the crops that fertilizers feed, fertilizer is a highly competitive global market as long recognized by the U.S. Department of Agriculture, international competition bureaus and leading academic researchers.

TFI appreciates hearings like this that place a spotlight on critical issues like American farmers, and we want to be part of the solution. We believe that smart policy can strengthen domestic production,, and ensure that American farmers are never left without the nutrients they need to grow healthy crops.

We appreciate the Committee's attention to these issues and look forward to working together to build a more resilient American agricultural future. I welcome your questions and thank you for the opportunity to speak on behalf of those who serve the backbone of our food system.

Addendum A



NPK: The Building Blocks of Plant Growth
The Three Essential Nutrients Every Plant Needs

NITROGEN (N)

THE GROWTH DRIVER

Core Components of Fertilizer

To grow, stay healthy, and produce food, plants need 17 essential nutrients. Three of those elements—carbon, hydrogen and oxygen—are obtained through the air and water. The remaining 14 have to come from the soil through the plant's roots. Three primary nutrients — Nitrogen (N), Phosphorus (P), and Potassium (K) — often called “macronutrients”, are needed in larger amounts than other nutrients and make up the bulk of all fertilizer produced. Together they form the foundation of plant nutrition.

What is Nitrogen (N)?

Nitrogen-based fertilizers are primarily manufactured through the Haber-Bosch process, a method developed over 100 years ago to create ammonia by heating and pressurizing nitrogen from the air over a hydrogen source (typically from natural gas). The resultant ammonia is further processed to create nitrogen fertilizers in solid and liquid forms. (source: IFA)

Why Nitrogen Matters

Nitrogen is a fundamental element in proteins, which make up all plant and animal tissues.

- ✓ Drives leaf and stem growth
- ✓ Fuels plant development
- ✓ Builds proteins and chlorophyll (the green pigment that captures sunlight)
- ✓ Encourages fast, healthy growth and high yields

The nutritional quality of food — from grains to vegetables — depends heavily on an adequate nitrogen supply.



Nitrogen Market Intelligence

Nitrogen is necessary for plant growth, and it helps crops manufacture proteins and boosts crop yields. The U.S. is a large producer of nitrogen, the fourth largest ammonia producer of the 63 countries that produce ammonia, the building block of all nitrogen fertilizers. Most ammonia production is heavily dependent on natural gas as the primary feedstock. Because ammonia is produced in so many countries and regions, the average global import reliance for nitrogen is the lowest of the three major macronutrients, though there is a significant range across countries.

For example, Brazil imports nearly all its nitrogen fertilizer, while China supplies nearly all its nitrogen fertilizer domestically. Among specific nitrogen fertilizers there can be a significant difference between the countries that are top producers of nitrogen and those that are top exporters. Many products are utilized in the United States to deliver nitrogen, but three products account for about 90% of consumption, each roughly accounting for about 30% of consumption: anhydrous ammonia, urea and nitrogen solutions (UAN).

Anhydrous Ammonia (82% nitrogen and the principle building block for all nitrogen fertilizers):

TOP PRODUCERS

China (31%), India (10%), Russia (9%), and U.S. (9%)

TOP EXPORTERS

Trinidad and Tobago (18%), Saudi Arabia (14%), Indonesia (10%), Algeria (7%), and U.S. (6%)

US APPROXIMATE
IMPORT RELIANCE
SHARE:

11%

TOP U.S. IMPORT SOURCES:

Canada (52%) and Trinidad and Tobago (42%)



Remaining Top 4 Importers Import Reliance Share: China (1%), India (11%), and Brazil (74%)

Urea (45% nitrogen):

TOP PRODUCERS

China (32%), India (16%), Russia (6%), and US (5%)

TOP EXPORTERS

Russia (18%), Iran (11%), Qatar (11%), Saudi Arabia (8%), and Egypt (8%).
The U.S. is the 13th largest exporter

US APPROXIMATE
IMPORT RELIANCE
SHARE:

36%

TOP U.S. IMPORT SOURCES:

Russia (27%), Qatar (22%), Saudi Arabia (10%), Algeria (10%), and Canada (8%)



Remaining Top 4 Importers Import Reliance Share: China (1%), India (11%), and Brazil (74%)

UAN (between 28% and 32% nitrogen):

TOP PRODUCERS & EXPORTERS

Global data is unavailable for UAN.

US APPROXIMATE
IMPORT RELIANCE
SHARE:

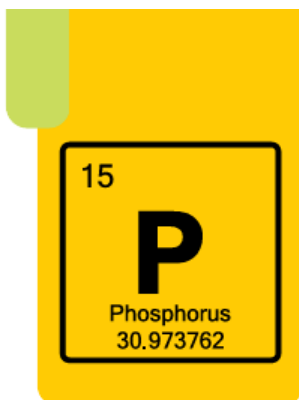
20%

TOP U.S. IMPORT SOURCES:

Russia (46%), Trinidad and Tobago (28%), and Canada (22%)



Learn More - The Fertilizer Institute (TFI) – #MadePossibleByFertilizer



NPK: The Building Blocks of Plant Growth
The Three Essential Nutrients Every Plant Needs

PHOSPHORUS (P)

ESSENTIAL FOR PLANT ENERGY AND GROWTH

Core Components of Fertilizer

To grow, stay healthy, and produce food, plants need 17 essential nutrients. Three of those elements—carbon, hydrogen and oxygen—are obtained through the air and water. The remaining 14 have to come from the soil through the plant's roots. Three primary nutrients — Nitrogen (N), Phosphorus (P), and Potassium (K) — often called “macronutrients”, are needed in larger amounts than other nutrients and make up the bulk of all fertilizer produced. Together they form the foundation of plant nutrition.

What is Phosphorus (P)?

Phosphorus-based fertilizers come from phosphate rock, a naturally occurring mineral mined from geologic deposits. The rock is treated with sulfuric acid to release phosphorus and produce phosphoric acid — a key ingredient that can be combined with ammonia and sulfur to create various fertilizer products, including monoammonium phosphate (MAP), diammonium phosphate (DAP), and triple superphosphate (TSP).

Why Phosphate Matters

Phosphate plays a vital role in how plants convert sunlight into energy and supports:

- ✦ Photosynthesis and energy transfer
- ✦ Root development and seed formation
- ✦ Cell division, cell enlargement, and the transfer of genetic information



Phosphorus Market Intelligence

The U.S. is also a large producer of phosphate, which is mined from geologic deposits. There are 30 countries that produce phosphate fertilizers (MAP, DAP, TSP), but the top five producers account for over 80% of production. The top phosphate producers are China (44%), Morocco (14%), Russia (9%), Saudi Arabia (9%), and the United States (8%). There are 22 countries that export phosphate fertilizers with the leading exporters being Morocco (30%), China (21%), Saudi Arabia (16%), Russia (15%), and the United States (4%).

Since 2021 there has been a significant shift in the global phosphate market when leading producer and exporters, China and Morocco, began delivering fewer nutrient tons of processed phosphates to the global market than in recent years. In 2024, China and Morocco exported 1.9 million fewer metric tons of MAP and DAP to the world than in 2021. Other significant global exporters like Saudi Arabia and Russia have increased exports but have been unable to replace lost exports from China and Morocco.

There have been fewer nutrient tons of processed phosphates exported to the world every year since 2021. More specifically, 2024 exports were 7% below the 2021 level, 2023 exports were 10% below the 2021 level and 2022 exports were 18% below 2021 exports. This is despite the fact that global production in 2024 exceeded 2021 levels by 4%.

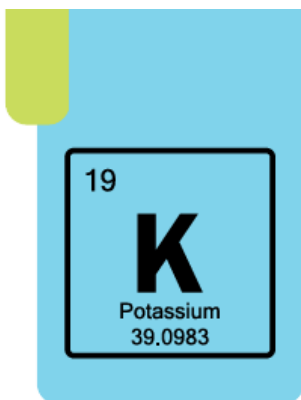
In the U.S. growers predominantly use MAP and DAP, though TSP usage is growing. This is relevant because phosphate fertilizer production in some major producing and exporting countries, like Morocco, has increasingly shifted towards TSP. For example, in 2020, 11% of Morocco's processed phosphate exports were TSP. By 2024, that share had grown to 24%. Although the TSP market remains smaller than the market for DAP and MAP, a noticeable shift in production towards TSP is occurring.

In 2024, the U.S. accounted for approximately 8% of global imports of P₂O₅. Most of the 2024 imports have come from Saudi Arabia (38%), Israel (13%), Mexico (12%), Jordan (9%), and Egypt (6%).

Imports accounted for 41% of the U.S. phosphate supply in 2024.

In Summary

Phosphate fertilizers are essential to modern agriculture — fueling root development, photosynthesis, and energy transfer in plants. But because production is geographically concentrated and global trade is shifting, access and affordability can fluctuate, influencing fertilizer prices worldwide.



NPK: The Building Blocks of Plant Growth
The Three Essential Nutrients Every Plant Needs

POTASSIUM/POTASH (K)

THE PROTECTOR

Core Components of Fertilizer

To grow, stay healthy, and produce food, plants need 17 essential nutrients. Three of those elements—carbon, hydrogen and oxygen—are obtained through the air and water. The remaining 14 have to come from the soil through the plant's roots. Three primary nutrients — Nitrogen (N), Phosphorus (P), and Potassium (K) — often called "macronutrients", are needed in larger amounts than other nutrients and make up the bulk of all fertilizer produced. Together they form the foundation of plant nutrition.

What is Potash?

Potassium-based fertilizers originate from potassium chloride, also known as **potash**. Potash is mined from geological deposits of evaporite minerals, which were formed when ancient seas and saltwater lakes evaporated millions of years ago — leaving behind layers rich in potassium salts (mainly potassium chloride). After potash is mined, it's refined into different fertilizer products and shaped into small, uniform granules so farmers can apply it easily and plants can absorb the nutrients more efficiently.

Plants Need Potash to:

- ✍ Grow stronger
- ✍ Withstand drought stress
- ✍ Fend off insects and disease
- ✍ Use water more efficiently
- ✍ Improve yield and quality

When plants have adequate potash, they are healthier, more resilient, and more productive.



Potash Market Intelligence

While the United States has some domestic production of potash, it imported most of its domestic potash supply in 2024, as it has for decades. Only 16 countries produce potash, which is mined from geologic deposits, but Canada (33%), Russia (22%) and Belarus (15%) are the dominant producers. Unlike the nitrogen and processed phosphate markets, the top exporting nations closely follow the shares of global production.

THE TOP EXPORTERS OF POTASH IN 2024 WERE:

Canada (39%), Russia (19%), Belarus (18%)



The United States accounted for about 15% of all potash imports globally in 2024, making the U.S. the third largest importer of potash after Brazil (23%) and China (22%). Most U.S. potash imports come from Canada (86%), Russia (11%), and Israel (2%). Globally, reliance on imports as a source of total supply is the highest in potash of the three major macronutrients (NPK). In 2024, the global reliance on imports as a source of total potash consumption was 80%.

For example, potash is the only macronutrient that China, the world's largest fertilizer consuming country, imported as a significant share of supply. To contrast with the other macronutrients, China imported 67% of the nation's total potash supply, but less than 1% of its nitrogen and processed phosphate supplies.

In Summary

Potash ensures **food security and crop resilience** — but global supply concentration makes trade stability essential. Strong partnerships and open markets help keep nutrients available and affordable for farmers everywhere.

Learn More - The Fertilizer Institute (TFI) – #MadePossibleByFertilizer