

Global fertilizer trade hits \$81 Bn as energy volatility, Strait of Hormuz disruptions and geopolitical risks reshape supply chains: FAO

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Record production of ammonia, urea and potash failed to ease market pressures as rising gas prices, export restrictions and weakening affordability heightened uncertainty ahead of the next crop season



Global fertilizer markets entered a phase of heightened structural instability through 2025 and into early 2026, characterized by modest production growth across key nutrient categories but increasingly severe disruptions linked to energy prices, geopolitical conflict, and critical transport bottlenecks, according to the latest assessment from the Food and Agriculture Organization of the United Nations. Global ammonia production increased by 1.0 percent to 192 million tonnes in 2025, while global urea production rose by 2.0 percent to a record 204 million tonnes. At the same time, global monoammonium phosphate (MAP) and diammonium phosphate (DAP) output expanded by 1.0 percent to 68 million tonnes, and potash production rose by 1.0 percent to a record 77 million tonnes. Despite these headline gains, the sector's underlying balance has been destabilized by uneven regional production, rising input costs, and escalating trade disruptions.

Ammonia remains the foundation of global nitrogen fertilizer production, with total output exceeding 190 million tonnes annually and depending heavily on the energy-intensive Haber-Bosch process, making natural gas the decisive cost variable in production economics and plant siting. Production is concentrated in low-cost gas regions such as Algeria, Egypt, the Russian Federation, and Trinidad and Tobago, while China maintains coal-based ammonia production and India relies on imported liquefied natural gas (LNG) for domestic nitrogen fertilizer output. Although production rose modestly in 2025, the transition to green ammonia remains limited, with only around 1.0 million tonnes of additional capacity coming online across pilot projects in Africa, Oceania, and China, underscoring the marginal role of low-carbon ammonia in current global supply.

Urea production growth in 2025 was driven primarily by incremental capacity additions, but regional imbalances were pronounced. South Asia recorded a decline of 1.4 million tonnes due to technical disruptions in India and feedstock shortages

in Bangladesh, while West Asia experienced a sharper decline of 1.5 million tonnes driven by regional conflict, particularly affecting production in the Islamic Republic of Iran and indirectly Egypt. These disruptions highlight the vulnerability of nitrogen fertilizer systems to both operational reliability and geopolitical stability in gas-dependent producing regions.

In contrast, phosphate and potash markets recorded relatively stable expansion but are increasingly constrained by structural pressures. MAP and DAP production reached 68 million tonnes in 2025, approximately 2 million tonnes or 3.0 percent above the five-year average, while potash production reached 77 million tonnes, supported by output gains of 5.0 percent in Belarus and 3.0 percent in the Russian Federation. These increases were partially offset by declines in Latin America, particularly Chile, where lithium extraction in the Atacama Desert continues to offer stronger economic returns than potash production. Both potash and lithium extraction compete for brine resources in drought-prone regions, adding a layer of resource competition between mineral value chains.

Energy remains the central determinant of fertilizer production costs throughout 2025 and 2026. Natural gas prices at the Dutch TTF hub averaged €36 per MWh in 2025, up 3 percent from the previous year, while US Henry Hub prices recovered to \$3.5-\$4.0 per MMBtu. However, volatility increased sharply in 2026. Between January and April 2026, TTF prices fluctuated between €30 and €55 per MWh, compared with a narrower €28-€35 per MWh range in the same period of 2025. In mid-March 2026, prices spiked to €62 per MWh, reflecting heightened uncertainty linked to conflict escalation in the Near East, before easing to around €44 per MWh by early May. Even after the decline, prices remained elevated within a €44-€50 per MWh band, reflecting tight fundamentals, reduced European gas storage levels of approximately 28-34 percent of capacity during March-May 2026, and intensified LNG competition between Europe and Asia. These fluctuations marked a clear shift toward higher-frequency and higher-amplitude price volatility compared with 2025.

This energy volatility directly transmitted into fertilizer pricing across nitrogen, phosphate, and potash markets. Following the outbreak of conflict in the Near East in late February 2026, fertilizer prices surged sharply. By May 2026, the global fertilizer basket averaged \$595 per tonne, representing an increase of \$120 compared with February 2026 levels, although still below the record \$815 per tonne reached in August 2022. The nitrogen basket price reached \$598 per tonne in April 2026, reflecting a sharp increase of \$182 from February levels. The phosphate basket reached \$833 per tonne, rising by \$166, while the potash basket rose more modestly to \$355 per tonne, reflecting its lower exposure to Gulf-based supply chains and natural gas-linked disruptions. These price increases were driven by higher feedstock costs, particularly sulphur and ammonia, scheduled maintenance shutdowns, marine blockades, and logistical disruptions that left more than 1 million tonnes of urea stranded on vessels unable to exit Gulf ports due to Strait of Hormuz constraints.

Global fertilizer consumption growth slowed significantly in 2025, rising by less than 1.0 percent to 209 million tonnes, compared with a record 207 million tonnes in 2024. This slowdown reflected deteriorating affordability conditions, weak crop prices, macroeconomic tightening, and structural constraints in several importing regions. Rice prices declined by approximately one-third in 2025, while wheat and soybean prices also fell sharply, and maize prices remained above 2024 levels but below 2023 peaks. Fertilizer affordability worsened significantly as input prices rose while agricultural output prices declined or stagnated. Nitrogen use still increased by 1.7 percent due to its high yield efficiency, but phosphate consumption declined by 0.8 percent and potash use rose only marginally by 0.6 percent, reflecting constrained farmer purchasing power and uneven regional application rates.

Global fertilizer trade expanded significantly in value terms but became increasingly unstable in volume flows. In 2025, global fertilizer trade volumes reached 185 million tonnes, a 3 percent increase over 2024, while trade value surged to approximately \$81 billion, compared with \$68 billion in 2024. This increase was primarily driven by higher nitrogen and phosphate prices, themselves a function of rising energy costs, tighter raw material availability, and heightened geopolitical risk premiums embedded in supply chains. Export flows remained highly concentrated in the Gulf region, where Bahrain, the Islamic Republic of Iran, Qatar, Saudi Arabia, and the United Arab Emirates collectively account for around 34 percent of global urea trade, 18 percent of MAP and DAP trade, 23 percent of ammonia trade, and nearly 50 percent of global sulphur trade. This concentration has made the Strait of Hormuz a structurally critical chokepoint not only for fertilizer trade but also for upstream energy inputs such as LNG and sulphur.

Since early 2026, disruptions in this corridor have escalated significantly, with maritime blockades and transit restrictions affecting fertilizer exports, ammonia shipments, and sulphur flows. Production outages and capacity reductions have been reported across multiple Gulf producers, with output in Bahrain and Qatar halted, Iranian production operating at roughly 50 percent of capacity, Saudi Arabian output reduced, and only the United Arab Emirates and Oman maintaining relatively stable production levels. At the same time, North African producers faced constraints due to potential reallocation of natural gas toward domestic energy needs, while South Asian producers experienced feedstock shortages as domestic gas allocation policies tightened under global energy stress. Morocco and Indonesia saw phosphates and ammonia production decline by an estimated 30-50 percent in the second quarter of 2026 due to maintenance delays and raw material shortages.

Trade flows have also deteriorated sharply in early 2026. Between January and April 2026, global fertilizer trade volumes fell to 41 million tonnes compared with 58 million tonnes in the same period of 2025, reflecting delayed purchasing decisions by farmers amid rising input costs and uncertainty over supply availability. Governments responded with increased intervention, including export restrictions or controls introduced or expanded by China, the Russian Federation, Türkiye, and Egypt. These measures further constrained global liquidity in fertilizer markets, amplifying price volatility and reducing flexibility in rebalancing supply and demand.

Market conditions have also been shaped by evolving expectations for the 2026/27 agricultural season. Although fertilizer prices showed early signs of softening in nitrogen markets by May 2026 due to seasonal demand decline and improving sentiment regarding partial normalization of Strait of Hormuz transit, phosphate prices remained elevated, signaling persistent structural supply constraints rather than cyclical tightening. Forward purchasing activity has slowed significantly in major consuming regions, particularly Europe and North America, where buyers have delayed procurement decisions amid uncertainty over pricing direction and availability.

Overall, the FAO assessment highlights a fertilizer system that is increasingly defined not by production capacity, which continues to expand modestly across ammonia, urea, phosphate, and potash, but by systemic fragility. Energy market volatility, particularly in natural gas, has become the primary transmission channel of price instability, while geopolitical conflict in the Near East, disruptions in the Strait of Hormuz, LNG competition between Europe and Asia, and rising export restrictions have collectively fragmented global supply chains. As a result, fertilizer markets are entering a structurally constrained phase in which affordability, logistics reliability, and geopolitical stability are becoming more important determinants of supply security than production growth itself.

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