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INTERNATIONAL FERTILIZER ASSOCIATION

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Public Summary
Medium-Term Fertilizer Outlook 2025 – 2029

IFA Market Intelligence Service

This report is a summary of IFA's Medium-Term Outlook, prepared by the Market Intelligence Service to accompany IFA's Medium-Term Outlook Presentation and Data File, which are available to IFA members.

Notes and definitions:

- ✓ Volumes in this report are expressed in product and nutrient metric tonnes. Product tonnes refer to the physical weight of the product in question while nutrient tonnes reflect the N, P_2O_5 and K_2O content of nitrogen, phosphate and potash fertilizers respectively. Data followed by N, P_2O_5 and K_2O refer to nutrient tonnes.
- ✓ The terms nitrogen, phosphate and potash are used to denote groups of nutrient-bearing fertilizers which are produced and traded globally. The terms nitrogen, phosphorous and potassium refer to the nutrients required by plants.
- ✓ Annual periods refer to the calendar year unless stated otherwise, and when FY precedes a year, it refers to the Fertilizer Year. The reference period used to report fertilizer consumption varies depending on the country. Countries report fertilizer consumption statistics in 12-month periods that start either in January or in another month.
- ✓ In this report, "fertilizer year" (FY) refers to all 12-month periods. FY 2024 refers to the year starting in January 2024 for most countries in Latin America, Africa, East and Southeast Asia and Eastern Europe & Central Asia (EECA). For other regions including North America, West & Central Europe (WCE) and South Asia, FY 2024 started in Q2 or mid-2024 and will end in Q2 or mid-2025. Fertilizer years do not always match crop marketing years used to report statistics on crop area, yield and production.

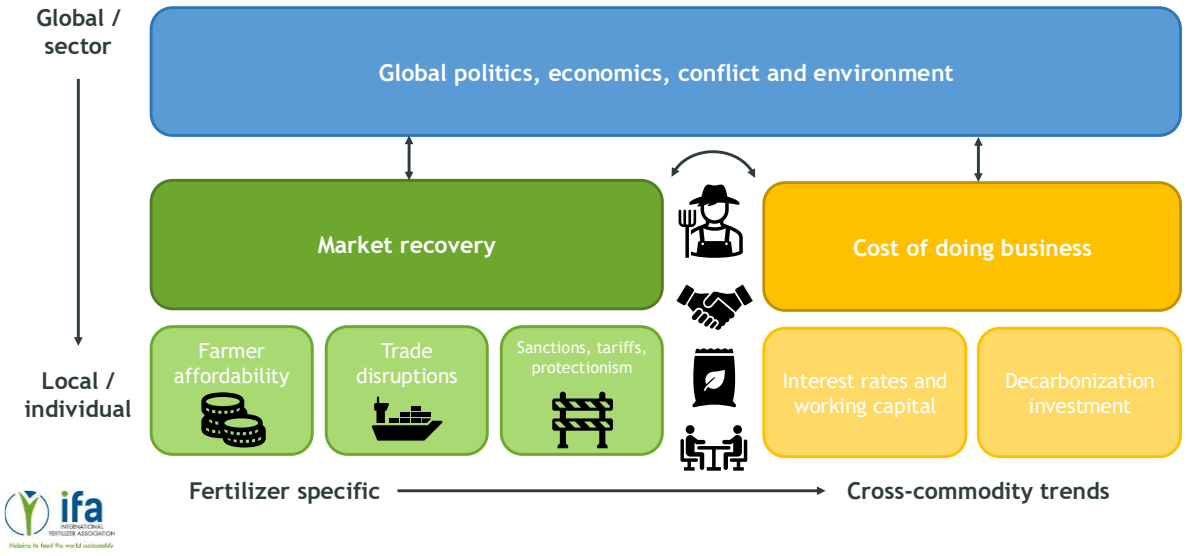
BACKDROP TO THE FERTILIZER OUTLOOK

The fertilizer market continues to operate against a backdrop of macroeconomic and geopolitical volatility. A range of global and local events have impacted the market, from an overarching fertilizer demand recovery and high profile geopolitical dynamics to local affordability trends, trade disruptions and market uncertainty driven by sanctions, tariffs and protectionism.

In the first half of 2025, significant geopolitical shifts occurred, including abrupt changes in US-China relations and President Trump's imposition (and partial rollback) of sweeping tariffs on global trade partners. These developments, followed by rising tensions in the Middle East between Israel and Iran, bring continued risk of disruption to the global fertilizer market, which is highly dependent on trade.

The fertilizer demand recovery of the last two years has varied in pace and scale by region, nutrient and crop, at a time when farmers continue to experience a higher cost of doing business and remain sensitive to input costs. Furthermore, while some areas benefit from government support and favorable crop-to-fertilizer price ratios, others face affordability constraints that limit application rates.

Fertilizer market drivers



SUPPLY FORECAST

2024 proved to be a strong year for N, P and K production despite localized challenges

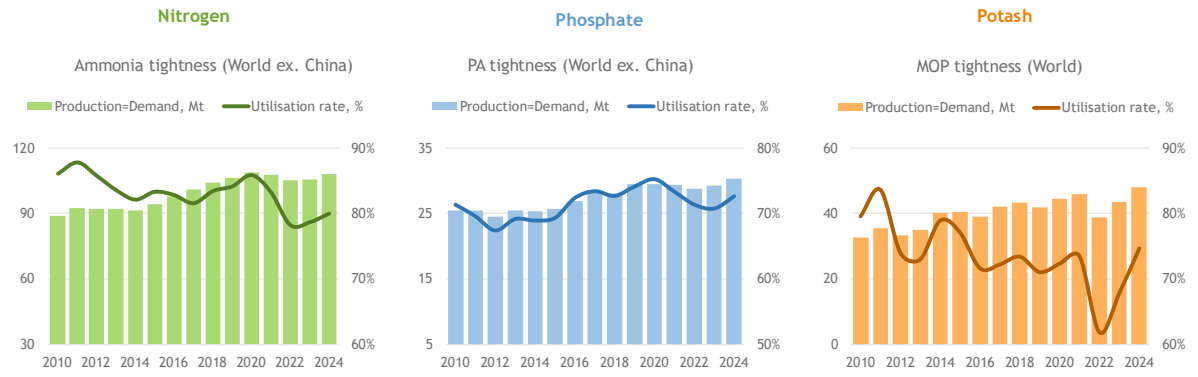
Global ammonia output is estimated to have reached 190.5 Mt in 2024, representing a 3% increase over 2023. Urea production also rose significantly, reaching 201 Mt in 2024, up 3% year-on-year. Higher production levels were recorded in countries that have recently invested in new capacity, led by China, Russia, Iran, and Nigeria. In Europe, improved natural gas affordability led to a 20% production rebound, driven in particular by Germany, the Netherlands, and Hungary. Despite the reactivation of ammonia production in Bolivia, Latin American production declined by 9% for

the second consecutive year due to plant shutdowns in Brazil and gas supply issues in Trinidad & Tobago and Mexico. Similar gas supply constraints also affected Egypt, Bangladesh, Algeria, and Iran. In Russia, urea exports remained strong while ammonia exports partially recovered but remained well below historical norms – 82% lower than 2021 levels.

Global phosphoric acid production is estimated to have increased by 5% in 2024, reaching a record 89.6 Mt, driven by improved utilization rates. MAP+DAP production also rose by 5% year-on-year to 67.2 Mt, marking the second-highest annual volume since 2020. Lower output in South Asia, North America, and Central Europe was offset by higher production in East Asia and Africa. China and Morocco were the primary contributors to this growth, with increases of 11% and 4% respectively. Phosphoric acid trade rose by 1% to 8.3 Mt, the highest annual volume of the last five years. MAP+DAP trade also increased by 1% to 29.1 Mt, despite China's export restrictions in Q1 2024. Higher exports from Saudi Arabia, Russia, and Morocco compensated for lower Chinese volumes.

Global MOP production is estimated to have grown by 10% to 76.6 Mt in 2024, a record high. This growth was primarily driven by EECA countries, namely Russia and Belarus, facilitated by newly established trade routes in response to sanctions. Additionally, MOP production in Canada and Laos increased by 8% and 20% respectively compared to 2023. In line with rising output, MOP trade continued to grow in 2024, increasing by 10% to 59.9 Mt, the highest annual volume on record. This growth was largely fueled by recovering demand in East Asia and Latin America, following a sharp decline in 2022 due to poor affordability.

N, P and K production is back on the rise but utilization rates remain below previous peaks



Source: IFA

Capacity forecasts highlight regional investment hubs across nutrients

Nitrogen capacity investment is centered in countries with low-cost gas resources and in decarbonization hubs, led by the US, Nigeria, Qatar, UAE and Russia. Global ammonia capacity is projected to grow by 10.5%, from 195 Mt N in 2024 to 216 Mt N by 2029. With the exception of West and Central Europe, capacity additions are expected in all regions globally. In China, capacity is expected to rise in 2025 and then remain stable to 2029. In contrast, high

feedstock costs led to a wave of permanent capacity shutdowns in West Europe during 2024 and 2025, notably in France, Germany, and the UK, and other plants in the region have experienced intermittent downtime. The US is forecast to expand its ammonia capacity by 22%, primarily through blue ammonia projects utilizing Carbon Capture Utilization and Storage (CCUS). Major developments in the UAE and Qatar will also rely on this technology. Electrolysis-based (green) ammonia capacity continues to attract investor interest, but successful commissioning of projects is expected to remain limited over the next five years. IFA forecasts that 3.1 Mt N of green ammonia capacity will be commissioned by 2029, representing just 1.5% of global ammonia capacity. However, significantly larger volumes, close to 155 Mt N, are being tracked as under consideration for development beyond 2029, pending final investment decisions.

Phosphoric acid capacity is forecast to grow by 14% between 2024 and 2029, reaching 71.7 Mt P_2O_5 by the end of the forecast. Africa, West Asia, and East Asia are expected to drive this growth, with the most substantial additions projected for 2027 and 2028, based on investments already underway. In line with last year's trend, most new capacity is being developed by existing producers in Morocco and Saudi Arabia. Smaller expansions are also anticipated in Jordan, Egypt, and Tunisia. In China, capacity growth is expected to be driven by rising domestic demand for non-fertilizer uses, particularly in the electric vehicle sector. All new phosphoric acid projects in China included in the five-year forecast relate to purified phosphoric acid (PPA) capacity, in addition to conventional merchant grade acid. Outside China, most new PPA capacity is expected to come from Canada, with a major project scheduled to commission in 2028.

Potash capacity is projected to increase by 20% between 2024 and 2029, reaching 77.4 Mt K_2O globally. Although the number of new projects is relatively small, they are large in scale. Canada, Russia, and Laos are expected to be the primary contributors to this growth. Additional, smaller capacity expansions are also anticipated in Spain, the Republic of Congo, and Thailand, with noteworthy support from Chinese overseas investment.

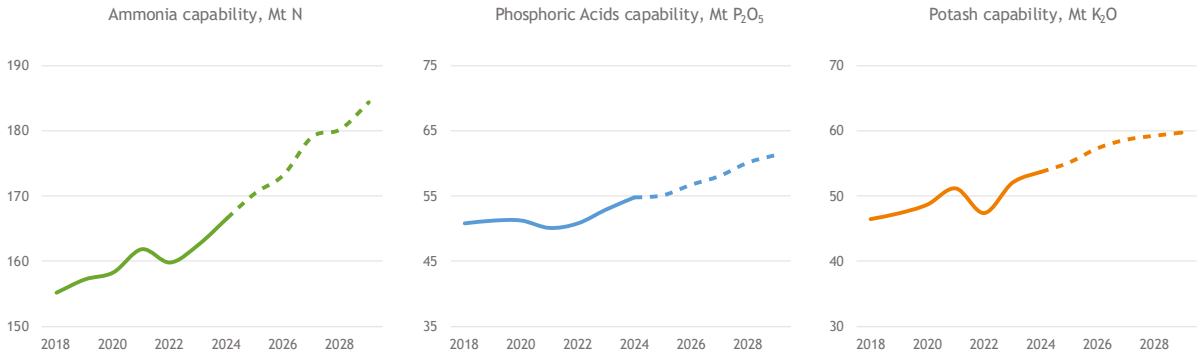
Capability forecast to be driven by new plant startups and grow faster than demand expectations, loosening market balances

Ammonia capability is projected to increase from 166.6 Mt N in 2024 to 184.9 Mt N by 2029, representing a 9% rise over the period and an average annual growth rate of 1.7%. This capacity growth will be driven by the startup of new plants spread across the world, with almost all regions forecast to increase capability. With total ammonia capability expected to grow slightly faster than demand over the next five years, the nitrogen balance is forecast to loosen from a theoretically available surplus of 3.4 Mt N in 2025 to 7.0 Mt N in 2029. IFA's nitrogen demand projections include conventional industrial uses but do not yet account for emerging low-carbon ammonia demand (which remains in its infancy), such as for power generation, hydrogen carriers, and maritime fuels.

Phosphoric acid capability is forecast to grow from 54.9 Mt P_2O_5 in 2024 to 61.4 Mt P_2O_5 in 2029, a 12% increase. The main contributors to this growth will be Morocco, Saudi Arabia, China, and Canada. As capability is expected to outpace demand, the phosphate balance is projected to loosen from a surplus of 4.4 Mt P_2O_5 in 2024 to 5.9 Mt P_2O_5 in 2027. Although fertilizer phosphate demand growth is slowing, it is largely offset by a surge in global purified phosphoric acid (PPA) demand. This demand growth is forecast to drive a stabilizing phosphate balance by the end of the medium-term, assuming PPA demand growth of 5% per year.

Potash capability is projected to rise from 53.8 Mt K_2O in 2024 to 59.8 Mt K_2O in 2029, an 11% increase. North America and EECA are expected to lead this expansion. Large-scale projects in Canada and multiple planned capacity expansions by existing producers in Russia and Laos will be the primary drivers. Additional output is also anticipated from smaller projects in Spain, the Republic of Congo, and Thailand. After being relatively tight before 2023, the potash balance has since loosened and is expected to remain well-balanced over the next five years. The theoretically available surplus is projected to remain relatively stable – at 14% of supply capability in 2029, compared to 13% in 2024.

Global fertilizer capacity is growing steadily, but utilization lags behind due to slower demand



Source: IFA

FERTILIZER CONSUMPTION FORECAST

IFA's methodology for preparing global fertilizer demand outlooks is based on a survey of around 50 country experts, representing roughly 90% of global fertilizer consumption. The results of this survey are complemented with agricultural and trade data, as well as recent market information.

Global fertilizer use recovered in FY 2024, reaching a new record

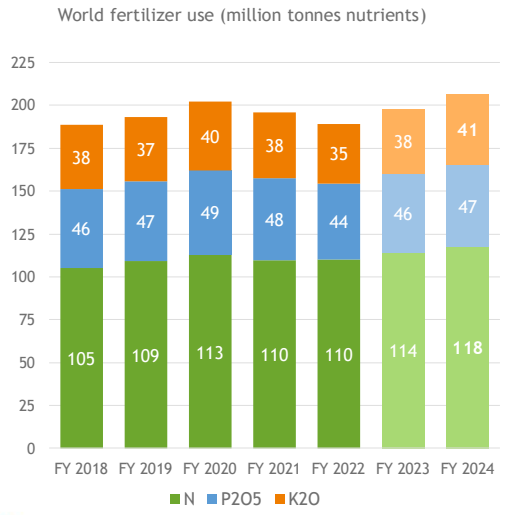
Following significant contractions in fertilizer year (FY) 2021 and FY 2022, global fertilizer use ($N + P_2O_5 + K_2O$) rebounded in FY 2023 and FY 2024. Usage increased by 4.5% to 198 Mt of nutrients in FY 2023 and is projected to rise by another 4.4%, reaching 206 Mt in FY 2024. This marks a 17 Mt increase from the low of 189 Mt in FY 2022 and 4 Mt above the previous record demand of 202 Mt set in FY 2020.

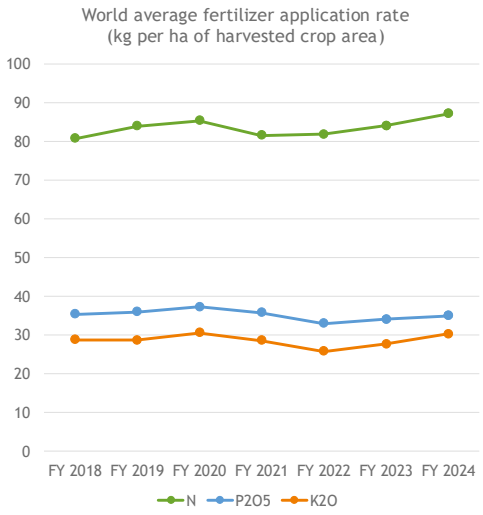
The recovery in mineral nutrient use was largely driven by a sharp decline in fertilizer prices from their mid-2022 peaks. Between mid-2022 and mid-2023, international fertilizer prices fell more rapidly than most crop prices, improving affordability. From mid-2023 to April 2024, fertilizer prices remained relatively low, although notable differences emerged between nutrients. While nitrogen and potash fertilizers remained competitively priced relative to crops, phosphate fertilizer affordability declined.

The recovery in mineral nutrient use has been strong but uneven across nutrients. Global N use

is expected to set consecutive records, reaching 114 Mt N in FY 2023 and 118 Mt N in FY 2024, 5 Mt N (5%) higher than in FY 2020. Global K_2O use is projected to reach a record 41 Mt K_2O in FY 2024, 0.6 Mt K_2O (1.5%) above the previous peak in FY 2020. In contrast, P_2O_5 use is expected to grow more modestly, reaching 47 Mt P_2O_5 in FY 2024, still 4% below the FY 2020 record of 49 Mt P_2O_5.

Global nitrogen use reached a new record in FY 2024, driving total fertilizer use up to a new high





Note: assumes 0.5% growth in crop harvested area in FY 2024

Source: IFA, FAO

Global fertilizer application rate recovers to the FY 2020 level

The average global fertilizer application rate, calculated by dividing total fertilizer use by global crop harvested area, is estimated at 152 kg/ha in FY 2024. This represents an increase of 12 kg/ha compared to FY 2022, returning the rate to its FY 2020 level. The absence of further growth is attributed to only a modest expansion in total harvested area, which grew at an average annual rate of 0.7% between 2014 and 2023.

The average N application rate is projected to reach 87 kg/ha in FY 2024, 2 kg higher than in FY 2020. The average K_2O application rate is estimated at 30 kg/ha, unchanged from FY 2020. Meanwhile, the average P_2O_5 application rate is expected to rise to 35 kg/ha, which is 2 kg below its FY 2020 level.

The sustained growth in global N use during FY 2023 and FY 2024, exceeding 3% annually, was primarily driven by improved affordability and reinforced by food security policies in several of the world's most populous countries in East and South Asia.

This trend was especially pronounced in China and India, which together accounted for 40% of global N use in FY 2023. In India, N use has followed a long-standing upward trajectory, supported by a generous urea subsidy. In China, N use declined between FY 2015 and FY 2017 due to government policies promoting fertilizer efficiency. However, it began to rise again in FY 2022 as food security became a renewed national priority. The Chinese government has actively encouraged corn production to reduce import dependency and has implemented targeted export restrictions to maintain affordable domestic fertilizer prices for farmers.

Other populous Asian countries, such as Indonesia, have also recently strengthened their food security strategies and fertilizer subsidy programs. Given nitrogen's critical role in boosting crop yields, it remains the most prioritized nutrient. Global growth in N use between FY 2022 and FY 2024 was led by East and South Asia, followed by Latin America.

Global K_2O use grew strongly by 8–9% in both FY 2023 and FY 2024, supported by improved affordability, particularly for crops like soybeans and palm oil. K_2O also benefited from more favorable affordability relative to P_2O_5. Many farmers used this opportunity to replenish soil K_2O levels after up to two years of reduced application. Strong growth was observed across most regions, with the exception of North America and EECA. Overall, the increase in global K_2O use during this period was driven primarily by East Asia and Latin America.

In contrast, global P_2O_5 use experienced more modest growth, rising by 4% in FY 2023 and 2.5% in FY 2024, due to reduced affordability. Phosphate fertilizers faced higher prices than other nutrients and a less favorable price-to-crop value ratio. Usage has yet to recover in East and South Asia, the largest consuming regions, and remains subdued in EECA due to the war in Ukraine, as well as in West and Central Europe.

In response, farmers adopted various cost-saving strategies: reducing phosphate applications, targeting only the most nutrient-deficient fields, or substituting regular products with lower-grade or more affordable alternatives. As a result, the share of P_2O_5 in total global fertilizer use (N + P_2O_5 + K_2O) declined from 25% in FY 2021 to 23% in FY 2022 and has not recovered since.

Global fertilizer use is forecast to grow more slowly in the medium-term

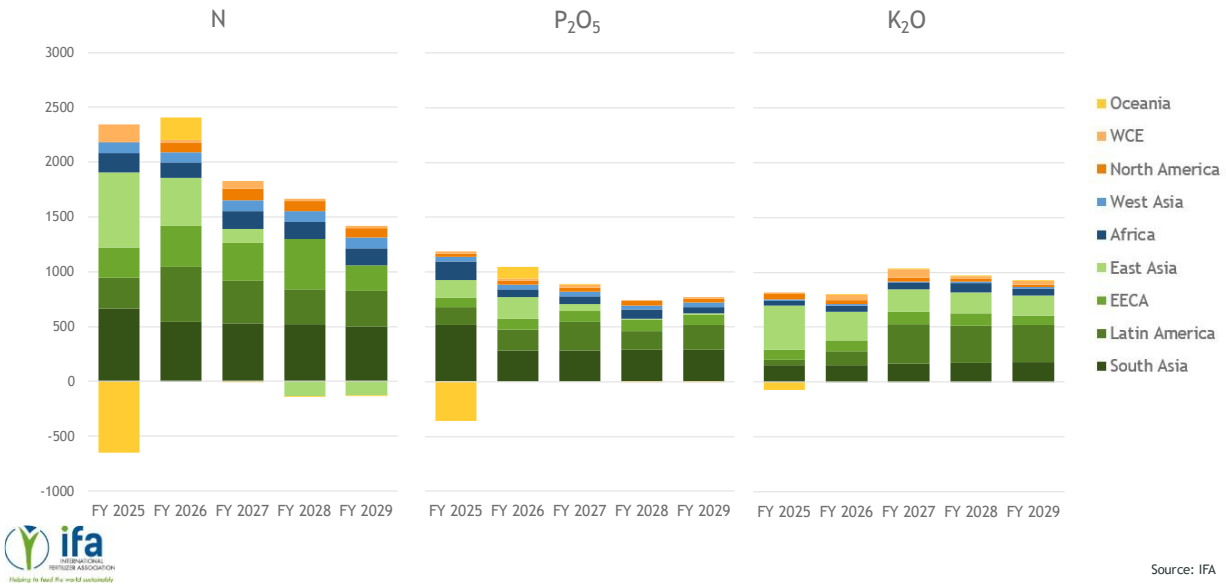
Global fertilizer use is expected to continue increasing between FY 2025 and FY 2029, though at a slower pace than in the past two years. With an annual growth rate projected between 1% and 2%, total use is forecast to reach 224 Mt by FY 2029, an increase of 18 Mt (9%) compared to FY 2024. Among the three major nutrients, K_2O use is expected to grow the fastest, with an annual growth rate of 2–3%, compared to 1–2% for both N and P_2O_5.

IFA's country experts were asked to identify the most influential factors affecting fertilizer demand over the medium-term. Fertilizer prices, crop prices, and weather conditions emerged as the primary drivers. Secondary factors tend to be country-specific and include government policies and regulations that either support or hinder agricultural production and fertilizer use (such as subsidies, trade restrictions, and environmental regulations) as well as the broader national economic context. These primary and secondary factors are often interrelated, as government actions can directly influence domestic fertilizer prices.

South Asia and Latin America are expected to be the main engines of global fertilizer demand growth between FY 2025 and FY 2029, each contributing an additional 4–5 Mt of nutrient demand over the period. South Asia is projected to drive demand for N and P_2O_5, while Latin America is expected to lead growth in K_2O use. EECA and East Asia are forecast to be the third and fourth largest contributors to global fertilizer demand growth respectively, each adding 2–3 Mt of nutrients over the period.

Some regions expect more variable growth than others

Annual growth in expected fertilizer demand, thousand tonnes nutrients



Source: IFA

Although East Asia is expected to grow by only 4%, its large market size makes it a significant volume driver. In China, N and P_2O_5 use are projected to continue growing, albeit at a slower pace, and may begin to decline toward the end of the outlook period after reaching a plateau. K_2O use in East Asia is expected to continue rising, particularly in palm oil-producing countries. EECA, while smaller in size, is forecast to grow dynamically, by 27% over the medium-term, driven by continued expansion in agricultural production and fertilizer use in Russia, and a gradual recovery in Ukraine through the end of the decade. Africa and West Asia, though smaller markets, are also expected to grow. Africa is projected to add 1.5 Mt (+19%) and West Asia 0.8 Mt (+15%) between FY 2025 and FY 2029.

North America and Western and Central Europe (WCE) are mature markets and are expected to grow more modestly, by 3-4% over the next five years. In North America, trade tariff tensions introduce uncertainty regarding the continuity of USA export markets. In Europe, stricter environmental regulations and the implementation of the Carbon Border Adjustment Mechanism (CBAM) starting in 2026 could increase fertilizer costs for farmers and slow demand growth in the region.

Oceania remains a market highly sensitive to weather variability, with fertilizer use fluctuating significantly from year to year. Following two consecutive years of favorable weather and strong agricultural output, fertilizer use is expected to decline in 2025 and then stabilize slightly above 2 Mt over the medium-term.

Comparisons to earlier demand outlooks

Compared to IFA's July 2024 Medium-Term Fertilizer Outlook, the fertilizer use projections for FY 2023 and FY 2024 have been significantly revised upward. However, the projected growth rates for the FY 2025-FY 2028 period remain broadly consistent with the earlier outlook.

By FY 2028, N use is now expected to be 3 Mt N higher than previously forecast, while P_2O_5 use is projected to be 1 Mt P_2O_5 lower. K_2O use is anticipated to be nearly 1 Mt K_2O higher than in the 2024 forecast.

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