



# Public Summary Medium-Term Fertilizer Outlook 2021 – 2025

Market Intelligence Service

**IFA Secretariat**



This report is a public summary of IFA's Medium-Term Outlook, prepared by the Market Intelligence Service to accompany IFA's Medium-Term Outlook Presentation Series, which is available to IFA members only:

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## ECONOMIC AND POLICY CONTEXT

### *The global economic recovery following Covid-19 will be uncertain and uneven*

The combination of successful Covid-19 vaccine development and improved management of the economic impact of the virus has enabled stronger-than-expected global performance in 2021. Economic growth rates were higher than anticipated in Q1 2021 across advanced and developing economies.

Global GDP growth is forecast at 5.8% in 2021, and 4.4% in 2022 according to forecasts by the Organisation for Economic Co-operation and Development (OECD) in May 2021. The continuation of this recovery over the medium-term is expected to be uneven between regions, and dependent on the effectiveness of vaccination programs and public health policies.

Emerging economies are projected to grow faster than advanced economies. China and Turkey have returned to pre-pandemic activity levels while Russia, the US, India, and Indonesia are projected to return to pre-pandemic levels in the course of 2021, while Argentina is not expected to recover before 2026.

### *A shifting risk outlook as inflation returns*

In the first half of 2021, governments continued to place emphasis on food security thanks to quick policy action, such as easing access to credit for farmers to enable fertilizer use. In the medium-term, we expect government support to essential goods to continue.

The faster and earlier economic recovery than expected has shifted the risk outlook, from crisis management to ensuring that the recovery is sustainable. When it comes to fiscal policies, governments will need to ensure the sustainability of their accounts. On the monetary side, low policy rates and quantitative easing will require caution as economies return to normal levels. These two issues will develop amid lower growth projections for advanced economies, and inflation concerns.

### *Agriculture faring well amid inflation and supply-chain concerns*

The faster than expected global recovery is reflected in a smaller decline in world merchandise trade than anticipated. Trade in agricultural goods fared better than fuels, mining and manufacturing in 2020, owing to government intervention policies and food security concerns.

The pick-up in economic growth has led to inflation across a number of metrics. Part of this increase relates to supply and demand balances, as demand growth outpaces supply in the short-term for some sectors such as fuel and lumber.

Inflation reflects not only surging commodity prices but also a sharp increase in freight costs. This is due to a combination of booming demand for consumer goods in Asia and supply-side bottlenecks. This situation is expected to persist through mid-2021 as port congestion continues.

### *Climate change policies are intensifying*

The current policy environment is dominated by an increase in climate change related policies affecting fertilizer use, summarized below.

In the European Union (EU), the Farm to Fork strategy targets a 25% increase in organic area and a 50% reduction in nutrient losses by 2030. The UK and New Zealand have implemented maximum nitrogen application rates. In Asia, China's zero growth policy on fertilizer use is expanding, enabled by increased adoption of fertilizer technology and best practices.

In North America, Canada's new climate strategy, launched in 2020, includes an objective to reduce emissions from fertilizer application by 30%.

### *Government decisions could disrupt global trade flows in 2021*

Global trade of agricultural commodities remains far more liberalized than in the past. However, several recent government decisions could affect fertilizer trade between countries in the near future.

In June 2021, the EU approved sanctions on the Belarusian potash sector which will impact certain product trade routes. Sri Lanka moved ahead with a short-lived import ban on inorganic fertilizers, and in July, China was considering an export tax on urea and phosphate fertilizers in response to domestic affordability concerns.

## SHORT-TERM FERTILIZER DEMAND

### ***Crop prices higher than in 2020 but fertilizers are less affordable***

Global crop prices have increased significantly since 2020. This trend is particularly visible for maize, palm oil, and soybeans. Price increases were also substantial for other crops such as sugar, cotton, and wheat. One exception is rice, for which prices were unchanged year-on-year in May 2021.

These higher crop prices reflect strong fundamentals, in particular firm demand for food globally. Covid-19 was the standout event of 2020 and prompted fears of insufficient food supplies. This led many governments to increase support to domestic agricultural production and facilitate food and feed imports.

Feed consumption was supported by imports into China, which has been rebuilding its swine herd after it was greatly reduced by the African Swine Fever in 2019. Strong demand for feed was combined with reduced soybean and maize harvests in the 2019/20 crop marketing year (MY). Strong crop prices have also been influenced by the weakening of the US dollar.

Global maize and soybean production is expected to remain below consumption in the MY 2020/21 due to weather issues in Latin America. As a result, availability is declining and maize and soybean stocks-to-use ratios in top exporting countries are expected to decrease in both MY 2019/20 and MY 2020/21.

Firmer crop prices are expected to encourage demand for fertilizers. However, fertilizer prices have also increased sharply since mid-2020. The ratios of fertilizer prices to crop price have weakened, making mineral nutrients more costly to farmers in 2021 than in 2020.

### ***Continued expansion in global crop area, driven by soybeans***

Encouraged by firm demand, global area planted to wheat, maize, rice and soybeans is expected to continue expanding in MY 2021/22, but at slightly slower rates than in MY 2020/21 (except for rice).

The International Grains Council (IGC) expects soybeans to drive the area expansion once again. Assuming a recovery in maize yields in Latin America, new global production records are expected for soybeans and maize. Wheat and rice harvests are also seen larger.

Crop conditions as of late May 2021 were favorable overall, despite some concerns about soybeans and maize in Latin America and wheat in the northern hemisphere. A La Niña event caused drier than usual conditions in Latin America in 2020, affecting soybean and maize crops in Brazil and Argentina.

### ***Fertilizer demand is expected to grow more slowly in 2021/22 after the jump in 2020/21***

Global fertilizer use (N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O) was estimated at 198.2 Mt of nutrients in Fertilizer Year 2020/21, almost 10 Mt (5.2%) higher than in 2019/20. This is the largest increase since 2010/11. Nitrogen, which accounts for over half of global fertilizer use, experienced a 4.1% (4.3 Mt) increase in demand to 110.0 Mt in 2020/21. Demand for phosphorous jumped by 7.0% (3.3 Mt), reaching 49.6 Mt. Demand for potash rose by 6.2% (2.2 Mt) to 38.5 Mt.

The rate of growth in fertilizer demand is expected to slow to 0.9% in 2021/22. Global fertilizer use is forecast to reach 199.9 Mt. Additional volumes of less than 1 Mt are anticipated for each nutrient. As of June 2021, potash consumption was expected to grow faster than other nutrients during 2021/22.

At the regional level, South Asia and Latin America were the main drivers of growth in global fertilizer use in 2020/21. Latin America is expected to remain the top driver in 2021/22.

The environment at the beginning of 2021/22 appears different to last year, with continued but slower expansion in crop area, higher crop prices but less affordable fertilizers, higher freight rates, slowing fertilizer purchases in some places due to carryover stocks, and environmental regulations in some countries.

As of mid-2021, several uncertainties were seen as potential modifiers of the 2021/22 fertilizer demand expectations: crop price variations, government policies, and unexpected weather problems.

#### ***IFA's methodology to develop fertilizer demand forecasts***

IFA's fertilizer demand outlook is primarily based on a survey of country correspondents, combined with an analysis of preliminary supply and use data, and expert judgement. The correspondents who answered this survey represent 40 countries, accounting for 90% of global consumption.

## MEDIUM-TERM FERTILIZER DEMAND

### ***Continued growth in agricultural production in the medium-term, driven by yields***

The OECD-FAO latest agricultural outlook, released in July 2021, indicates that between 2021 and 2025, decelerating demographic growth will translate into slower growth in demand for cereals. However, demand for several food categories (including sugar, fish, meat and dairy) is expected to grow faster than the population, due to an increase in demand per capita.

To meet increased food demand, agricultural production growth is expected to come mostly from yield improvements.

However, area expansion should also play an important role for sugarcane, soybeans, and cotton. At the regional level, OECD-FAO expects Asia to drive expansion in cereal production, and Latin America to drive growth in oilseed production.

The World Bank's April 2021 projections suggested gradual but small increases in nominal crop prices (around 1% per year), but stagnation or even reductions in real prices.

### ***IFA's correspondents consider government support and environmental regulations as the main influencing factors in the medium-term***

According to IFA's country correspondents, government support and environmental regulations were the most important factors expected to influence fertilizer demand between 2021/22 and 2025/26.

Government support was the most commonly cited factor in EECA, Africa, South Asia and Southeast Asia (excluding China). Environmental regulations were the most mentioned factor in WCE and in China. Agriculture modernization was also cited for China, while agricultural production growth was an objective in EECA. Weather (along with climate change) was the dominant factor in Oceania.

No dominant factor appeared in the replies given for North America and Latin America. Globally, less frequently mentioned factors included national economic and political situations, crop prices, fertilizer availability, infrastructure challenges, fallow land, soil fertility, improved fertilizer management practices, and special fertilizer products,

### ***Global fertilizer demand forecast to grow at a slow pace between 2021/22 and 2025/26***

Annual growth in global fertilizer demand is expected to remain around 1% between 2021/22 and 2025/26, with a slightly declining trend over the last three years of the period. Growth rates are expected to be slightly higher for K<sub>2</sub>O than for P<sub>2</sub>O<sub>5</sub> and N. These expectations translate into a gain of 8 Mt nutrients between 2021/22 and 2025/26. Global fertilizer use is forecast to reach 208 Mt nutrients by 2025/26.

Latin America is expected to be the main contributor to global growth in the medium-term, but Africa would be the fastest growing market.

IFA's latest medium-term fertilizer demand expectations are sharply higher than the ones presented in May 2021 in the early stages of Covid-19. However, annual growth rates remain similar for 2023/24 and 2024/25 (+1% per year).

Global Mineral Fertilizer Demand (Mt nutrients)				
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Total
2018/19	104.1	45.5	37.5	187.1
2019/20 (e)	105.7	46.3	36.3	188.3
2020/21 (f)	110.0	49.6	38.5	198.2
<i>Change</i>	+4.1%	+7.0%	+6.2%	+5.2%
2021/22 (f)	110.8	50.0	39.1	199.9
<i>Change</i>	+0.7%	+0.8%	+1.5%	+0.9%
2025/26 (f)	114.5	52.5	41.2	208.3
<i>CAGR*</i>	+1.2%	+1.8%	+1.6%	+1.4%

(e) Estimate

(f) Forecast

(\*) Compound annual growth rate compared to the average of 2018/19 to 2020/21

### Uncertainties

IFA's baseline demand forecast is subject to several uncertainties, particularly the evolution of the global economic and geopolitical context; weather-related crop shortfalls; the evolution of agricultural commodity prices and fertilizer prices relative to crop prices; the evolution of biofuel mandates and fertilizer subsidy schemes; and new policies aimed at improving nutrient management performance, restricting and/or taxing fertilizer use, and increasing the recycling of organic nutrient sources.

## FERTILIZER SUPPLY

### *Fertilizer supply outperforms expectations in 2020, resulting in record output*

The supply of fertilizers was resilient in 2020, despite widespread global disruption prompted by Covid-19.

Production of the major nutrients increased year-on-year in 2020 in response to strong fertilizer demand. This more than offset lower industrial demand, driven by the economic slowdown triggered by Covid-19. Fertilizer supply-chains were mostly able to continue operating as normal throughout 2020, enabled by governments categorizing fertilizers as essential goods amid national lockdowns.

The biggest impact of Covid-19 on fertilizer supply in its initial stages was on the phosphate industry in China. Hubei province, which was the epicenter of the virus in early 2020, accounts for 25% of Chinese phosphoric acid capacity, totaling 5.3 Mt.

This led to supply disruptions and logistical constraints in the Chinese market in Q1 2020, however, the impact was relatively short-lived. Total Chinese production in 2020 is estimated to be only marginally lower than in 2019.

### *Geopolitical and trade defense disruptions led by phosphates and potash*

Between 2015 and 2020, nitrogen products were the fertilizer markets most exposed to geopolitical tensions and trade barriers. This was a combination of the widespread nature of nitrogen production, market size, and the role of energy as the major feedstock.

In the last 12 months however, there have been fewer trade-related events in the nitrogen market, and higher levels of disruption in phosphate and potash markets. These two sectors are more heavily impacted by single events due to higher levels of supply concentration than in the nitrogen market.

In June 2020, US producer Mosaic filed a petition to the relevant US departments on phosphate imports from Russia and Morocco. Countervailing duties were confirmed by the US International Trade Commission in March 2021, but the impact was already felt throughout H2 2020, with imports to the US falling in anticipation of the result of the investigation. In mid-2021 OCP formally appealed against the decision to impose the duties.

In June 2021, the EU agreed to impose sanctions on specific sectors of the Belarusian economy, namely, oil, tobacco and potash. Belarus was the third largest potash producer in 2019, totaling almost 12 Mt of potassium chloride (MOP) and accounting for 18% of global production. In the traded market, Belarus was the second largest potash exporter in 2019 and delivered 10.3 Mt of MOP to overseas markets, accounting for 21% of global trade.

In the nitrogen market, CF Industries announced in June 2021 it had submitted petitions to the relevant US departments to investigate imports of UAN from Russia and Trinidad into the US.

### ***Raw material prices collapse in 2020 before joining wider commodities rally in H1 2021***

Natural gas prices were lower in 2020 than the previous year, triggered by the collapse in global economic activity due to Covid-19. Prices have since recovered and joined the wider commodity market rally that took place in H1 2021. Energy forecasts from the World Bank in May 2021 indicated that gas prices are expected to remain firm but will not return to the recent highs seen in 2018 within the next five years.

Both the ammonia and sulphur markets had already entered a period of price weakness in 2019, prior to the Covid-19 pandemic. Prices remained low throughout most of 2020 due to weak demand and exposure to energy markets. As a result, ammonia and sulphur remained affordable to phosphate producers relative to finished phosphate fertilizer prices, which were strong throughout the year. More recently, the prices of both raw materials have rapidly increased, especially the price of ammonia, which more than doubled in H1 2021.

### **Green ammonia project activity accelerates as opportunities develop for non-fertilizer uses**

There has been a noteworthy increase in the number of green ammonia projects announced in the last year. Proposed projects also have larger capacity planned than previous pilot projects, a reflection of technology scaling up.

Among existing ammonia producers, there have been several announcements of new pilot projects at existing sites, as well as plans for longer term decarbonization of entire units. Green ammonia projects are also being developed by companies that do not have existing ammonia production, and several of these projects align with governmental goals to include green hydrogen as part of their energy transition in the future.

## **Nitrogen Outlook**

### ***Global supply stronger than expected but traded markets diverge in 2020***

Global ammonia production increased by 2.9 Mt in 2020, taking total supply to 185 Mt. This was a higher figure than originally expected at the outset of Covid-19. Stronger than expected fertilizer demand more than offset lower industrial demand, which was significantly impacted by the economic slowdown in 2020.

### ***Over 20 projects in IFA's nitrogen capacity forecast, totaling 14 Mt N in 2020-2025***

In total, there are more than 20 nitrogen projects included in IFA's forecast, totaling nearly 14 Mt N. There are three hubs of nitrogen project activity: Russia, Nigeria and India. Russia and Nigeria are likely to increase urea exports as a result of these projects, compared with India where government-funded investment in new capacity is designed to reduce the country's import requirement.

In the period from 2015 to 2020, global ammonia capacity increased by 6 Mt tonnes. This was comprised of 16 Mt of new capacity, offset by 10 Mt of closures in China, Latin America and Europe. In the next five years, 16 Mt of new capacity is forecast to commission, and no plant closures are currently expected ex. China.

## Phosphate Outlook

### *Production flat in 2020 as trade reroutes in response to US duties investigation*

Global phosphate rock production reached 207 Mt in 2020, ~200 kt lower than in 2019. Phosphoric acid production was slightly higher year-on-year in 2020, totaling almost 87 Mt. Global production of DAP, MAP and TSP slightly declined in 2020 as lost production in some markets was offset by growth in others.

### *Phosphoric acid capacity forecast to grow by 3.6 Mt P<sub>2</sub>O<sub>5</sub> in the next five years*

The bulk of phosphoric acid expansions forecast to start up between 2021 and 2025 are located in Africa and the EECA region. Phosphate expansions in Africa are weighted towards the end of the forecast, mostly expected to start up from 2023 onwards. In the next 2-3 years, capacity expansions are limited to EECA, Tunisia and Brazil.

In China, several new plants are forecast to commission, but will be partially offset by closures. In the next five years, 1.3 Mt P<sub>2</sub>O<sub>5</sub> phosphoric acid capacity is forecast to start up in China, offset by 510 kt P<sub>2</sub>O<sub>5</sub> of closures.

In the 2015-2020 period, global phosphoric acid capacity increased by 2.3 Mt P<sub>2</sub>O<sub>5</sub>. This was comprised of new capacity totaling 5 Mt P<sub>2</sub>O<sub>5</sub> in Africa, West Asia and EECA, offset by closures in North America and East Asia.

In the next five years, a larger volume of capacity is forecast to commission, totaling 3.6 Mt P<sub>2</sub>O<sub>5</sub>, resulting from expansions in several regions but concentrated in Africa and East Asia.

## Potash Outlook

### *Supply and trade grow to record levels in response to strong affordability in 2020*

IFA estimates that global potash production exceeded 70 Mt in 2020, a 6% increase on 2019 output. Unlike in the nitrogen and phosphate markets, production increased universally across major producing regions.

Strong global demand coupled with the consolidated nature of potash production also led to record trade volumes in 2020. Global MOP trade grew from 49 Mt in 2019 to more than 56 Mt in 2020. The growth in traded MOP was led by improved demand in the US, Brazil, India and China, following a challenging year in 2019 when trade declined. Potash remains the most exposed market to trade, with 80% of global consumption in 2020 being met by imports.

### *Capacity expansions centered in EECA, contributing to 4.6 Mt K<sub>2</sub>O of global growth*

The EECA region dominated potash capacity growth in 2020, with new mines starting up in Russia and Belarus. These countries added 2.3 Mt of new capacity in 2020, taking regional capacity to 21.1 Mt in 2020, up from 18.8 Mt K<sub>2</sub>O in 2019.

A further 450 kt of new capacity was added elsewhere, stemming from expansions in Canada, Israel and China. These expansions were completed with minimal delays due to Covid-19 and took global potash capacity to 62.3 Mt K<sub>2</sub>O.

Russia has the largest number of individual projects in IFA's capacity forecast, with three projects in the country forecast to start up from 2023 onwards. SOP expansions continue to make progress, with two Australian projects expected to start up in 2021. These projects, along with smaller expansions, are forecast to add 4.6 Mt K<sub>2</sub>O of primary potash between 2021 and 2025.





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