

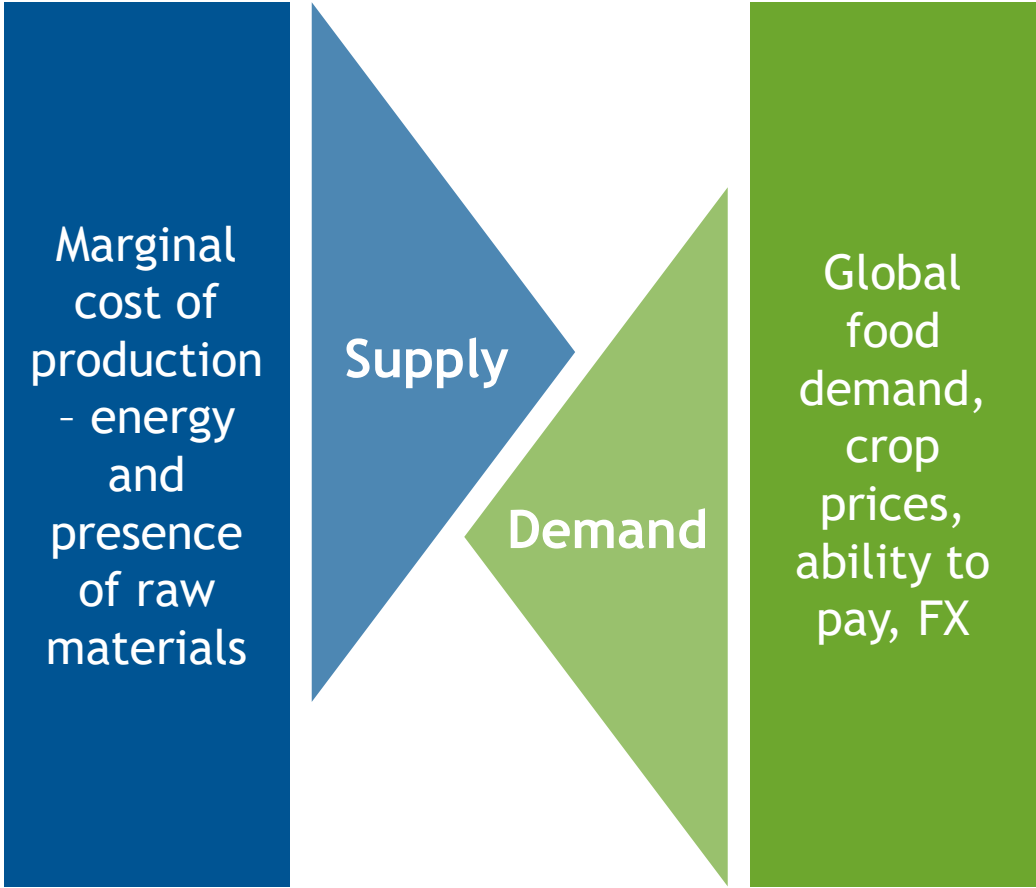
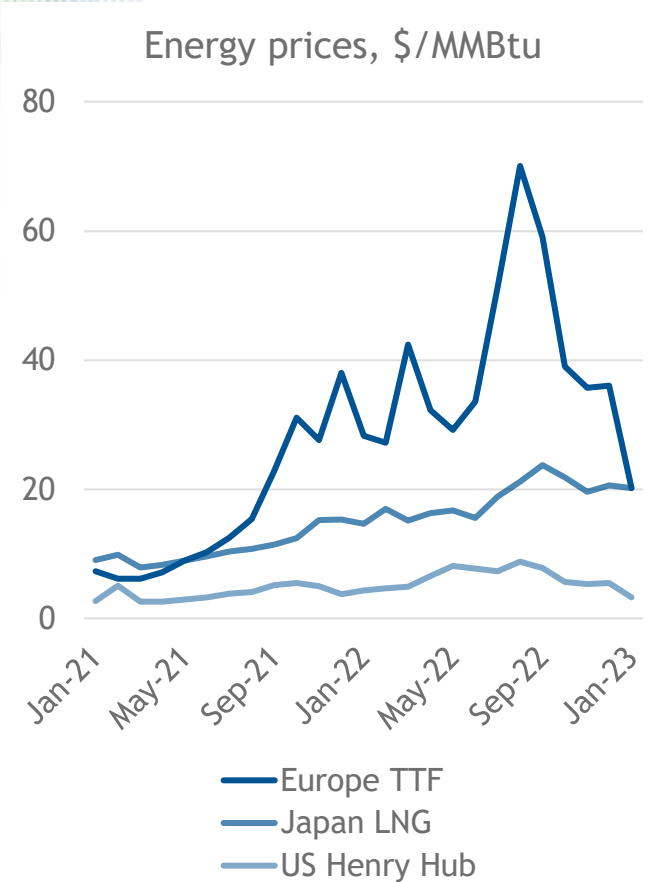


Global fertilizer market drivers

Laura Cross, International Fertilizer Association

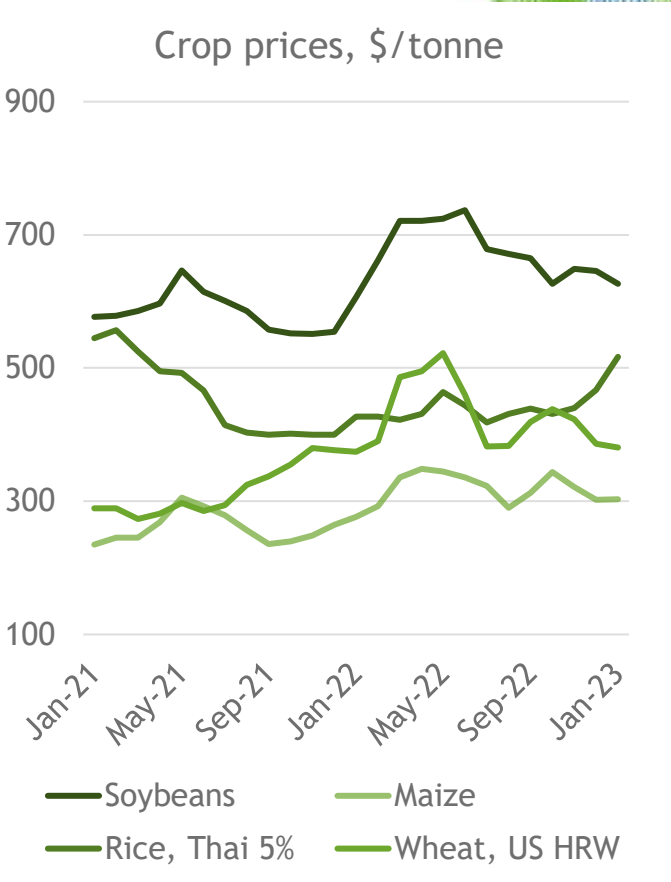
USDA Agricultural Outlook Forum, February 23rd, 2023

What drives global fertilizer markets?



Price floor ← → Price ceiling

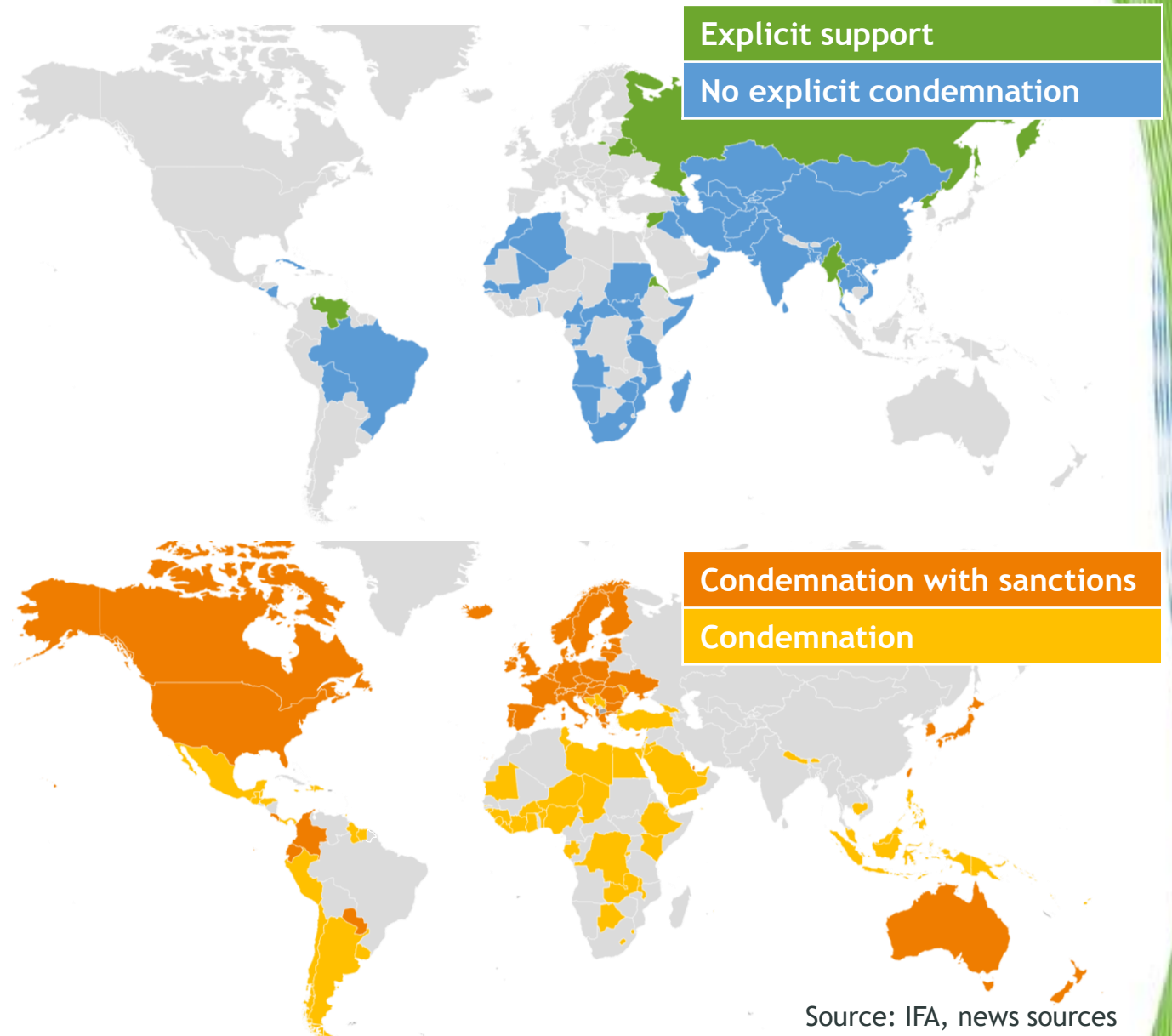
Weather, planting progress, trade disruption, domestic policies, geopolitics



Source: World Bank, IFA

Global response to Russia's invasion of Ukraine

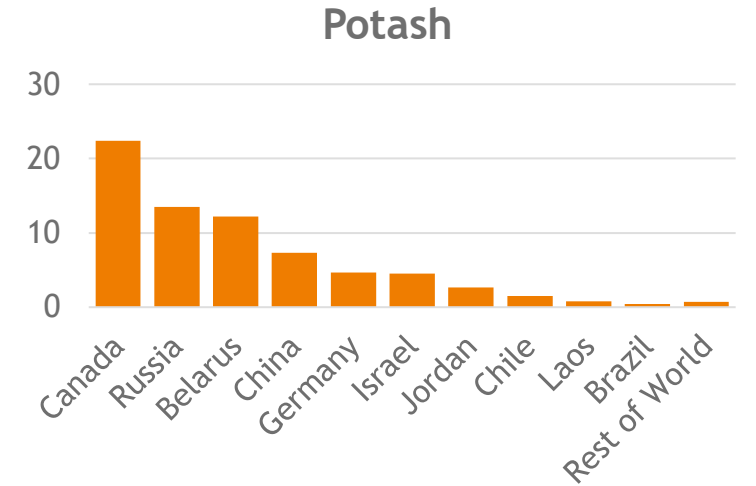
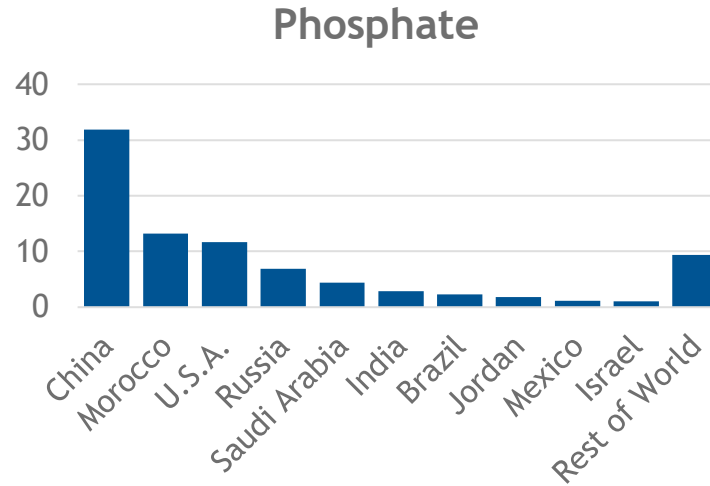
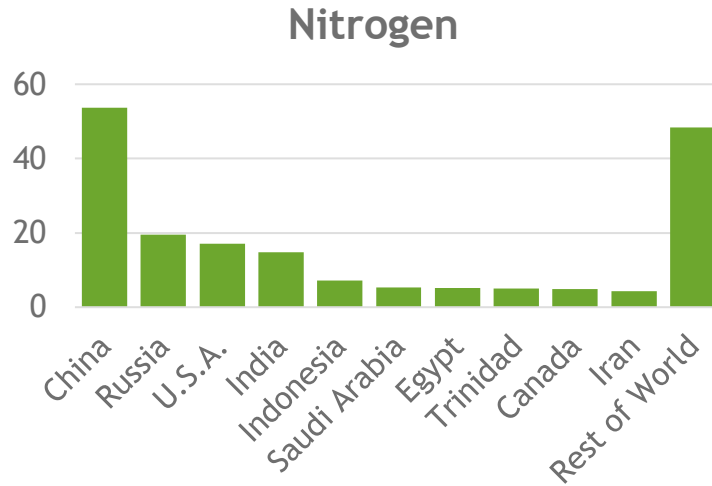
- **Sanctions**
 - Direct
 - Indirect
 - Exemption of fertilizers
 - Shipping / insurance risk
- **Raw materials**
 - Energy
 - Ammonia
- **Fertilizers in national interests**
 - Food security concerns
 - Export restrictions
 - Subsidies / market interventions



Source: IFA, news sources

Product market structure and price elasticity matters

Production by country, Mt product



Energy-intensive

Marginal producers in Europe

Crop price inelastic

Exposed to energy-derived products

Use correlated with affordability

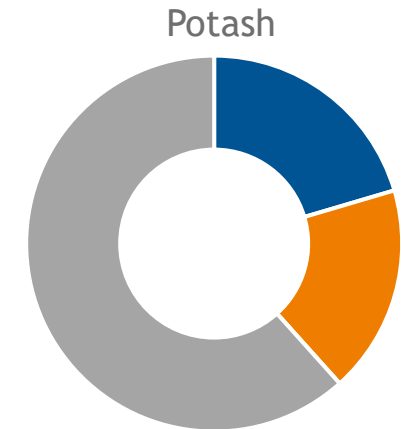
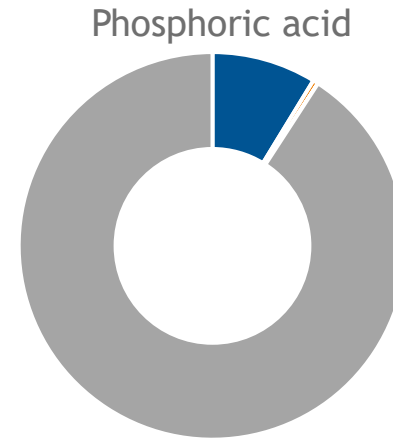
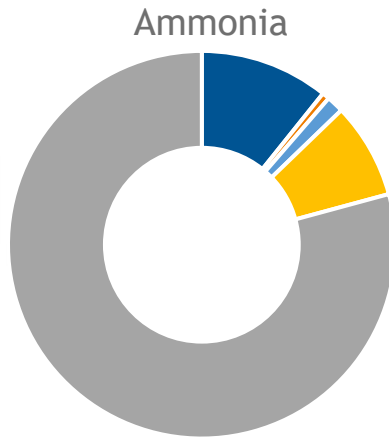
40% of global trade from sanctions countries

Use correlated with affordability, capped by availability

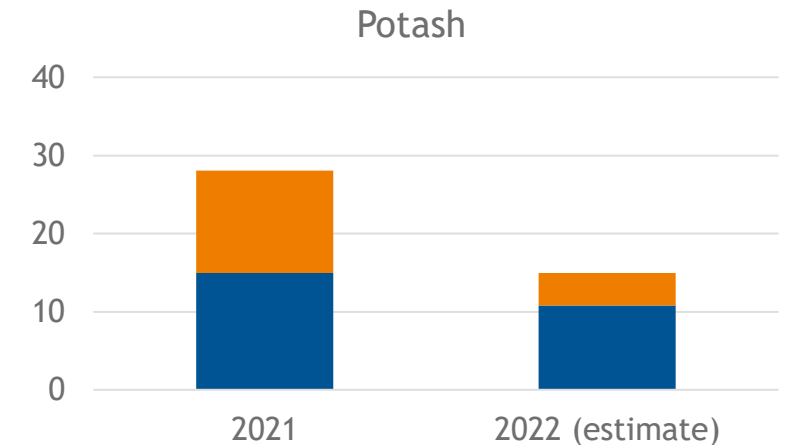
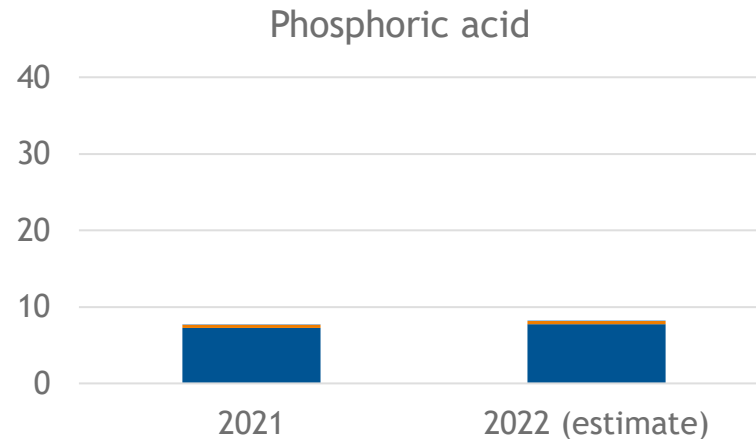
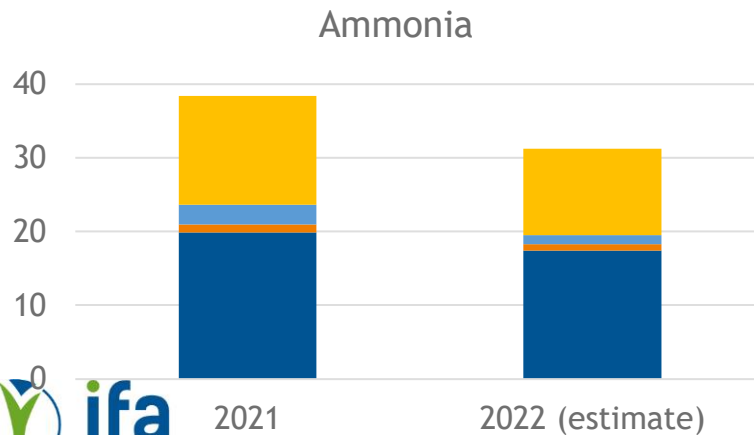
Myth #1 - there is a fertilizer shortage

Share of disrupted countries in fertilizer production, 2021

■ Russia ■ Belarus ■ Ukraine ■ West and Central Europe ■ Rest of World

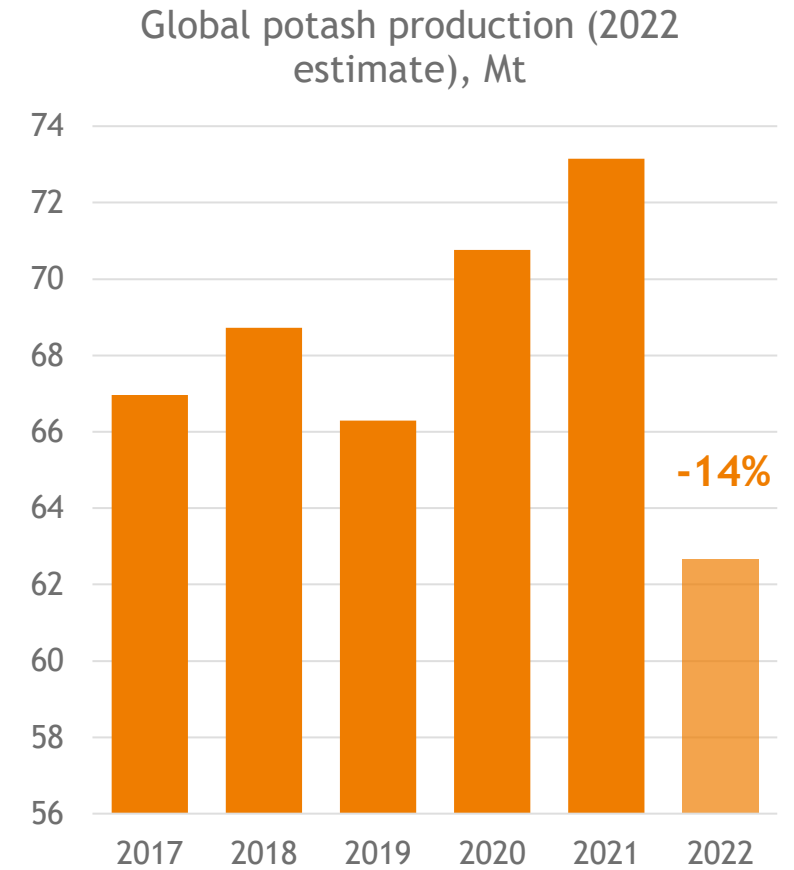
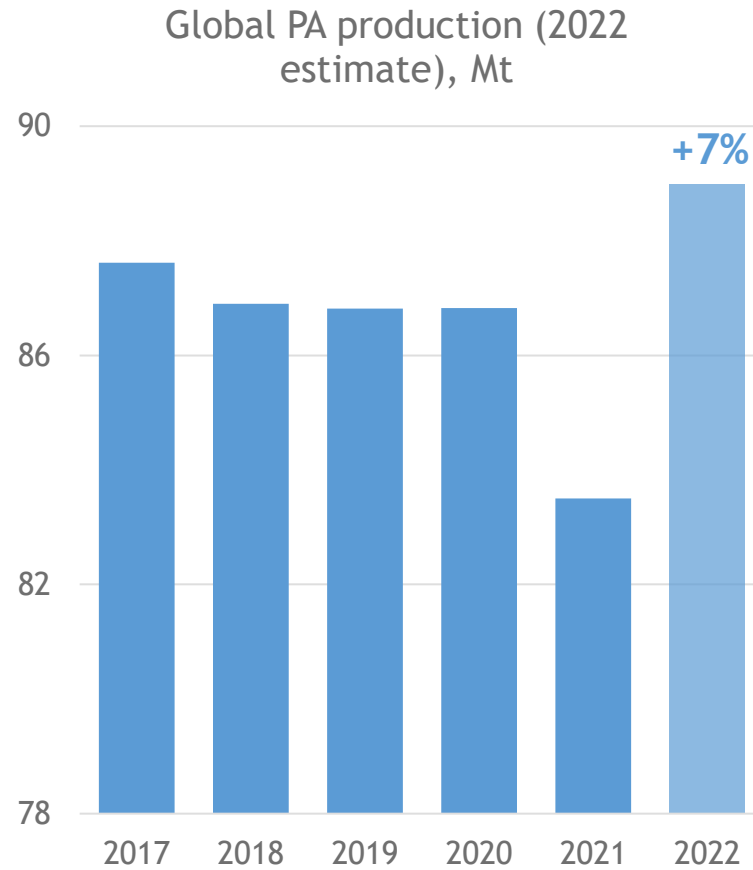
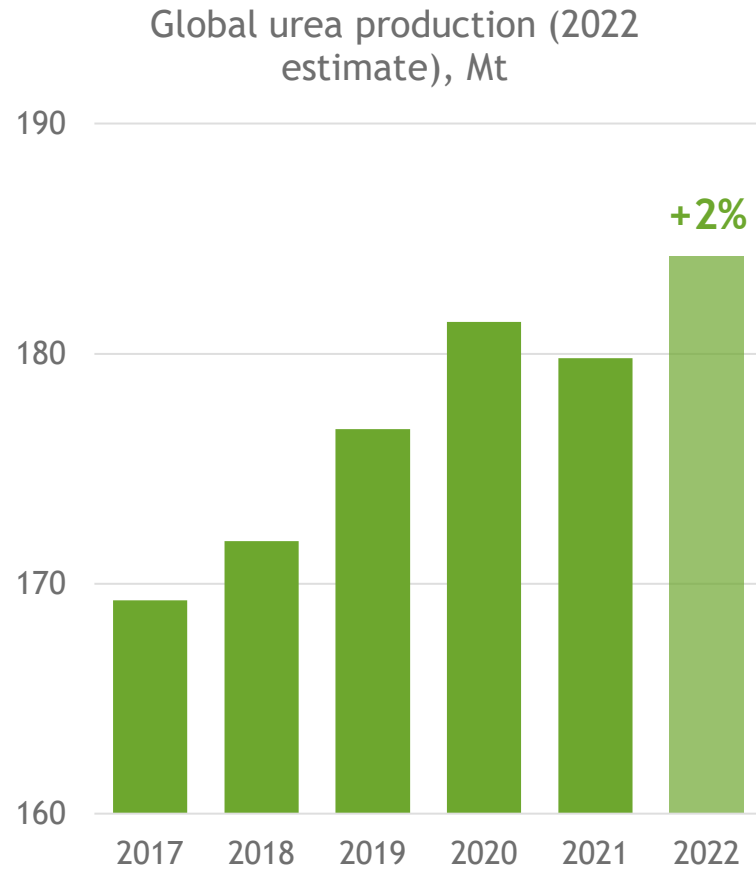


Production in disrupted countries Mt, 2021 and 2022 (estimate)

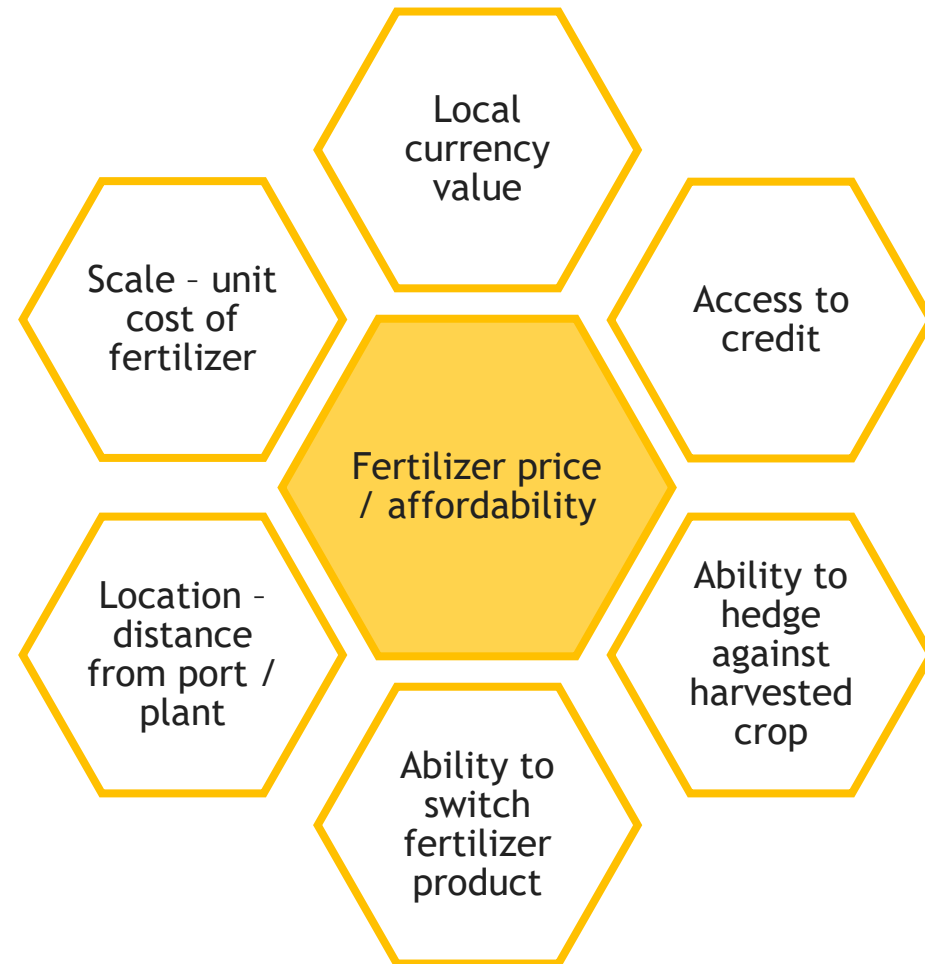
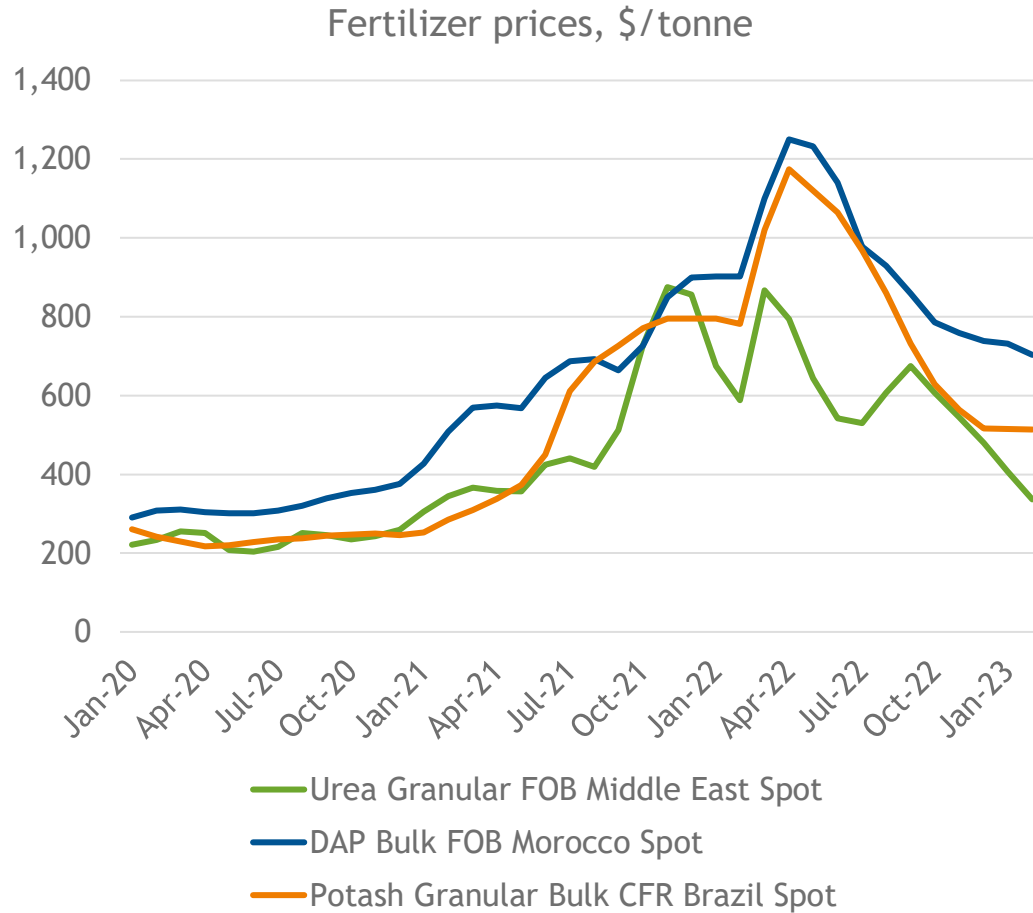


Source: IFA Short-Term Outlook, November 2022

Myth #1 - there is a fertilizer shortage



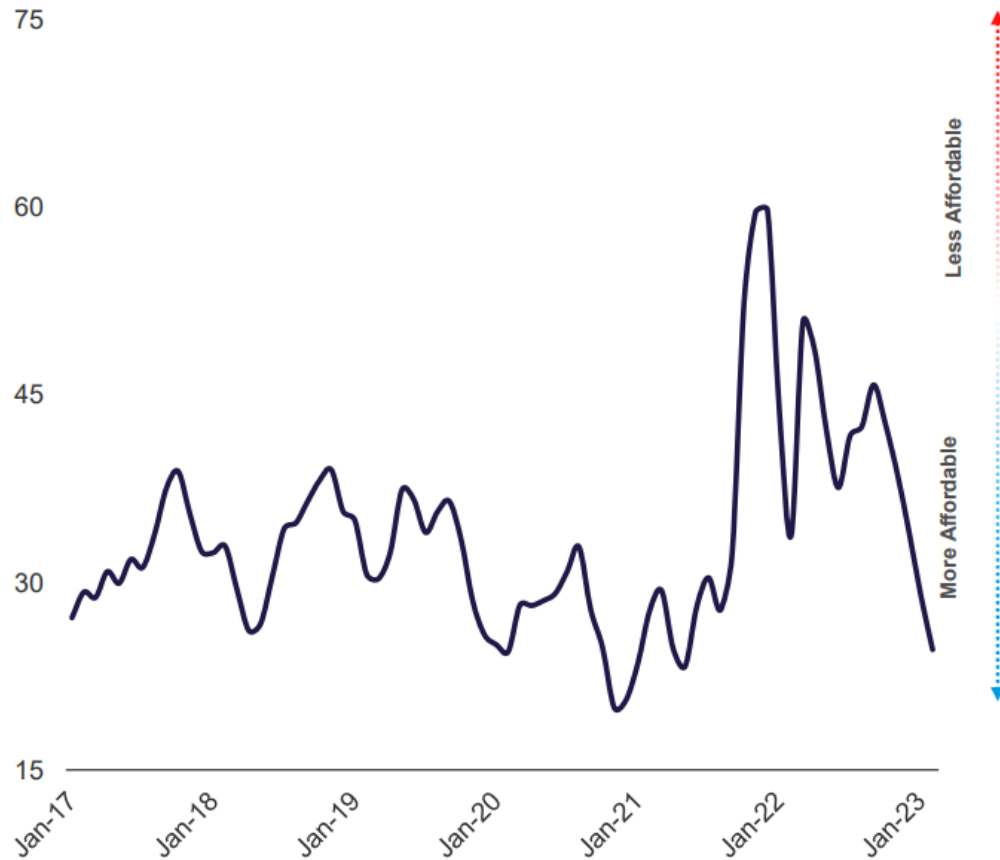
Myth #2 - fertilizer prices are at record highs



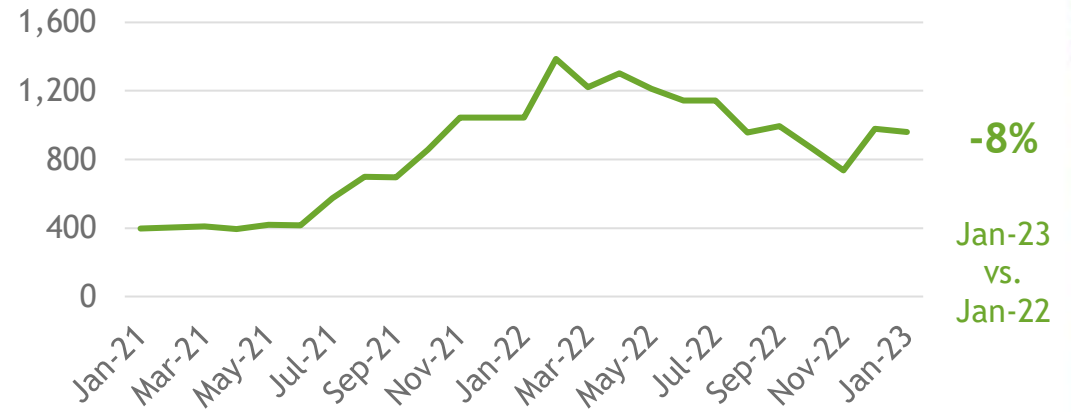
Source: CRU, IFA

Myth #2 - fertilizer prices are at record highs

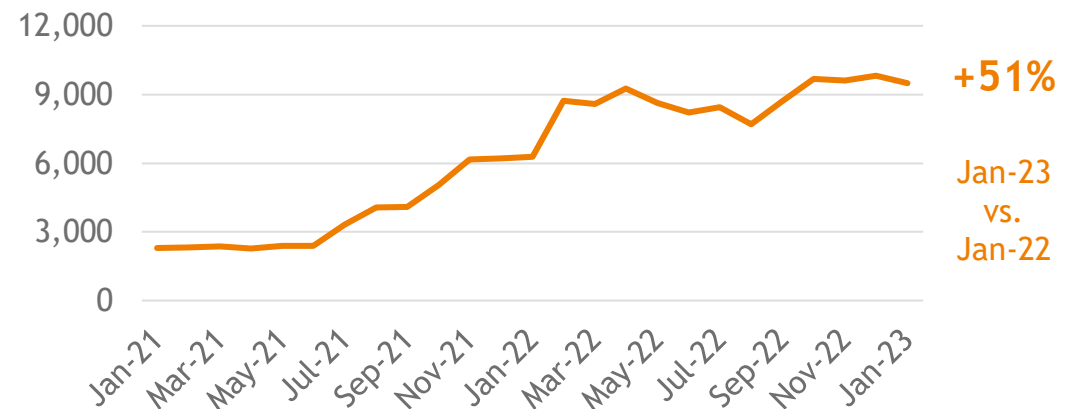
Brazilian barter ratio
(no. 60 kg bags of corn for 1 tonne urea)



Urea open market retail price, Ghana,
US\$/tonne



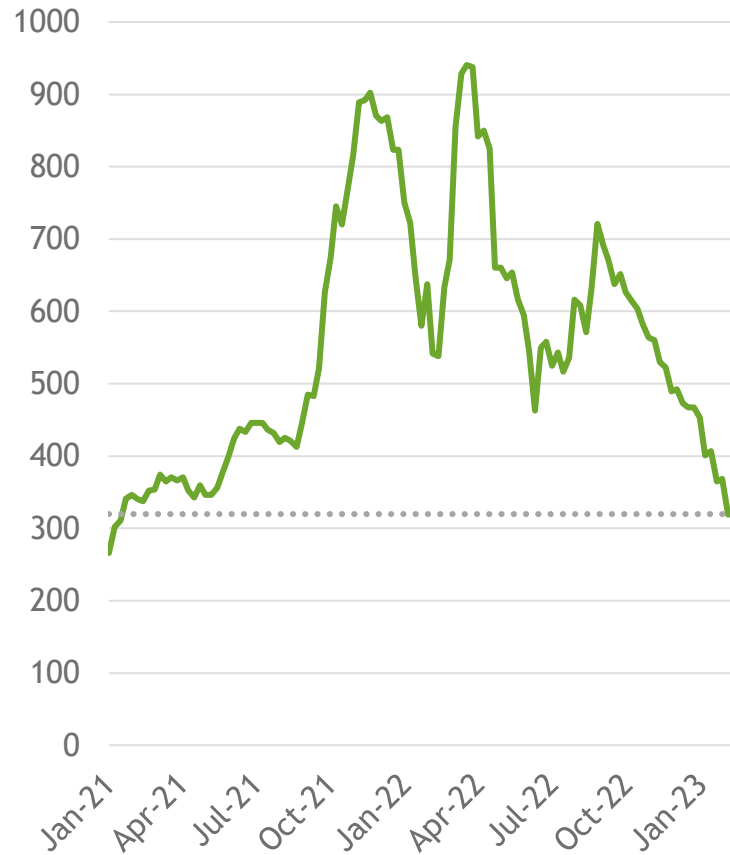
Urea open market retail price, Ghana,
Ghanaian cedi/tonne



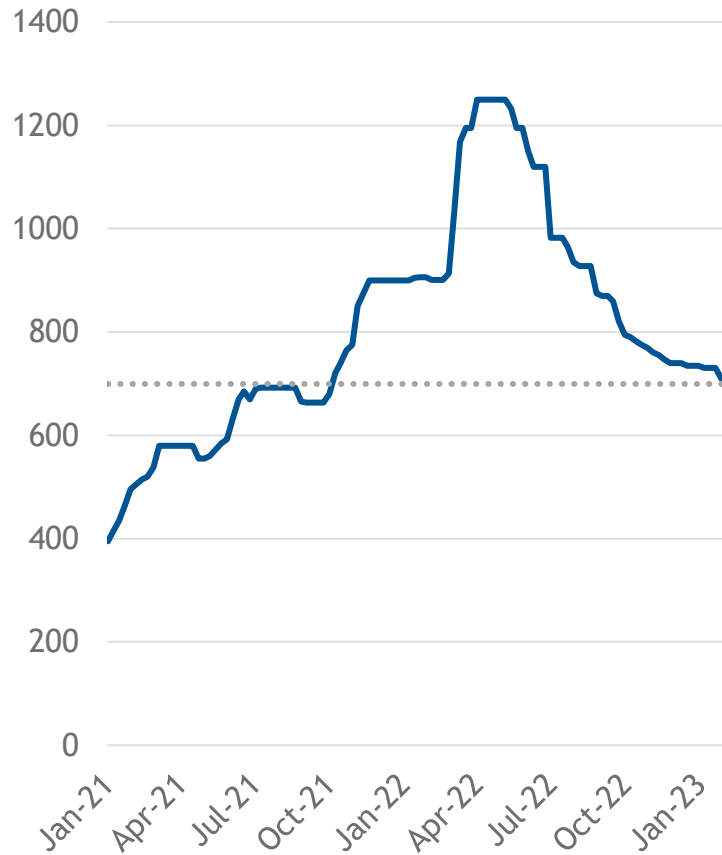
Source: CRU, Agrolink, AfricaFertilizer.org, Bank of Ghana, IFA

Crossroad #1 - the market is at an in-season impasse

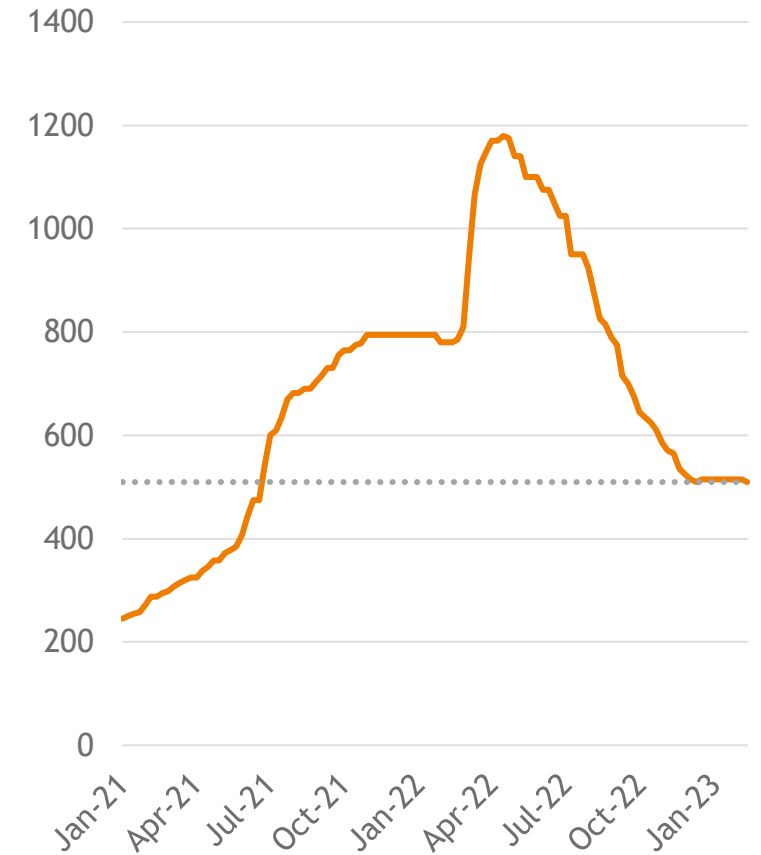
Urea granular bulk FOB Middle East
\$/tonne



DAP bulk FOB Morocco
\$/tonne

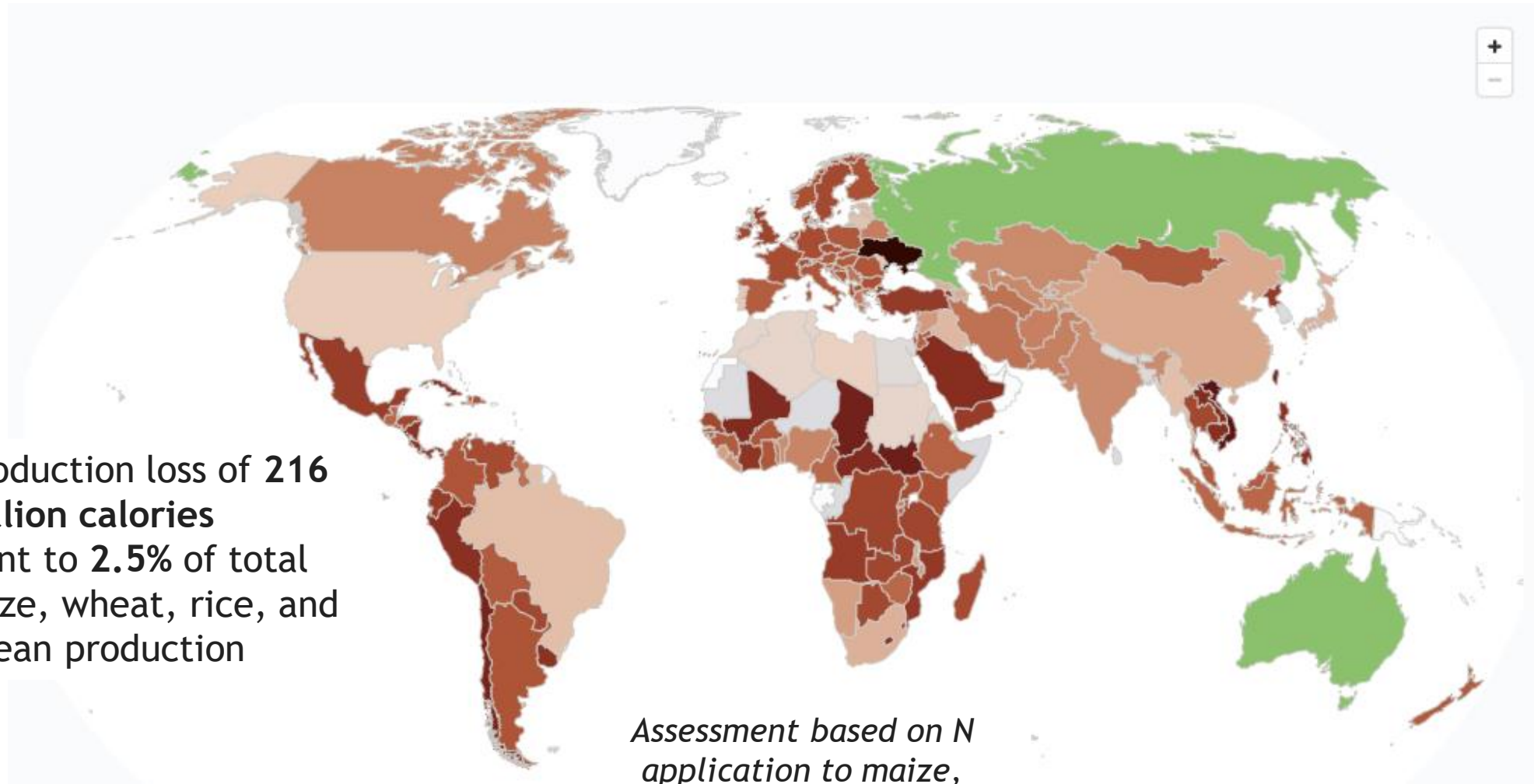


Potash granular bulk CFR Brazil
\$/tonne



Reduced fertilizer application has implications for global food production

Projected production change in calories, by country, 2022



Global production loss of **216 trillion calories**
Equivalent to **2.5%** of total global maize, wheat, rice, and soybean production

Assessment based on N application to maize, wheat, rice and soybeans

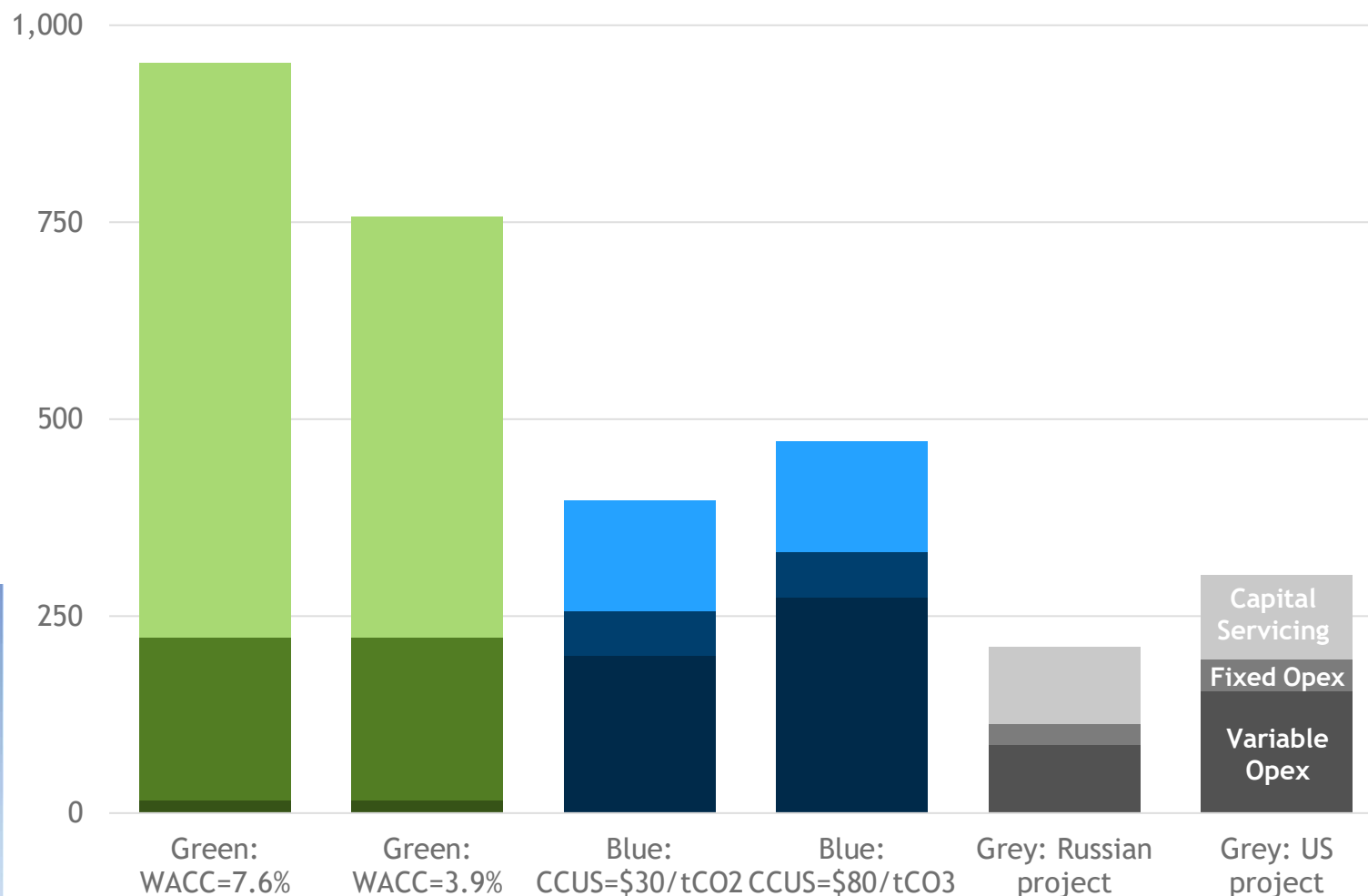
Source: Gro Intelligence, IFA, Nov 2022

Crossroad #2 - the fertilizer investment cycle is changing

- The fertilizer industry is decarbonising
- But the investment case is no longer black and white
- New expansions will be driven by local approach to regulation, incentives, and renewable energy economics



Levelized cost of ammonia, 2022\$/t



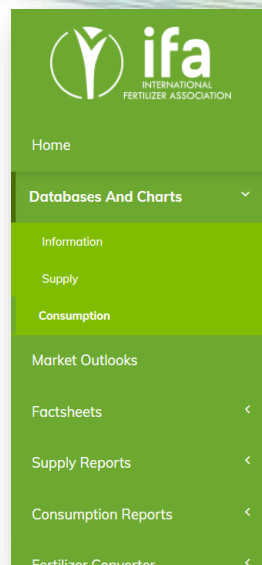
Source: Argus (impact of local incentives and carbon schemes not accounted for)

* Includes sustaining capital

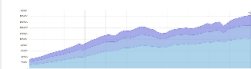
Thank you!

lcross@fertilizer.org

www.IFASTAT.org



Quick access to consumption charts



Fertilizer Consumption -
Historical Trends by Country or
Region

Fertilizer consumption for N, P2O5
and K2O by country or region.

1.1



Fertilizer Consumption -
Nutrient Breakdown by
Product

Shares of each region in global
consumption of a given fertilizer
product.

1.3

Public Summary Short-Term Fertilizer Outlook 2022 – 2023

IFA Market Intelligence Service

