



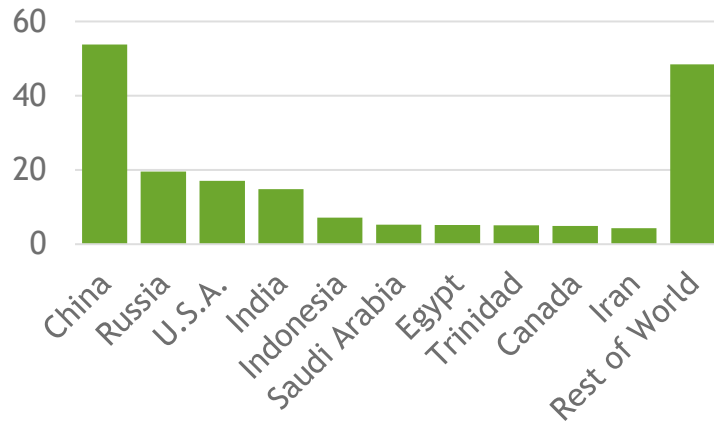
Insights on the Fertilizer Industry

Geopolitics of Global Fertilizer Supply Chains: Implications of the War in Ukraine

Laura Cross, International Fertilizer Association - 4th October 2023

Product market structure and price elasticity matters

Nitrogen



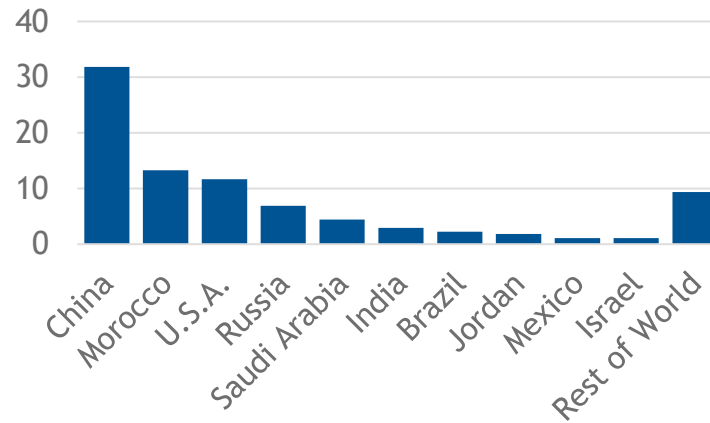
Energy-intensive

Marginal producers in Europe

Crop price inelastic

Production by country, Mt product

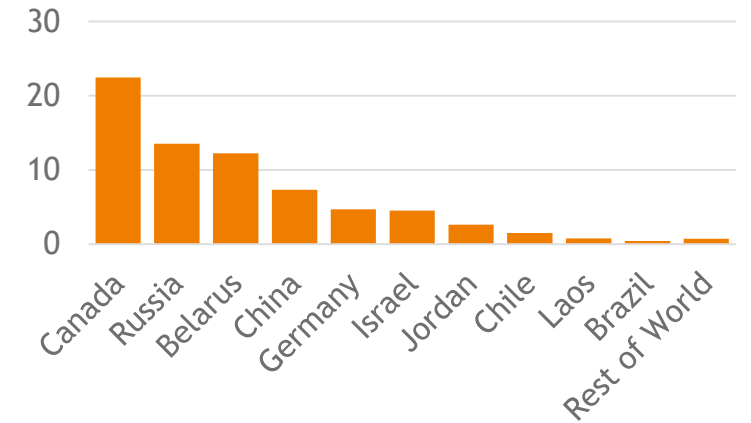
Phosphate



Exposed to energy-derived products

Use correlated with affordability

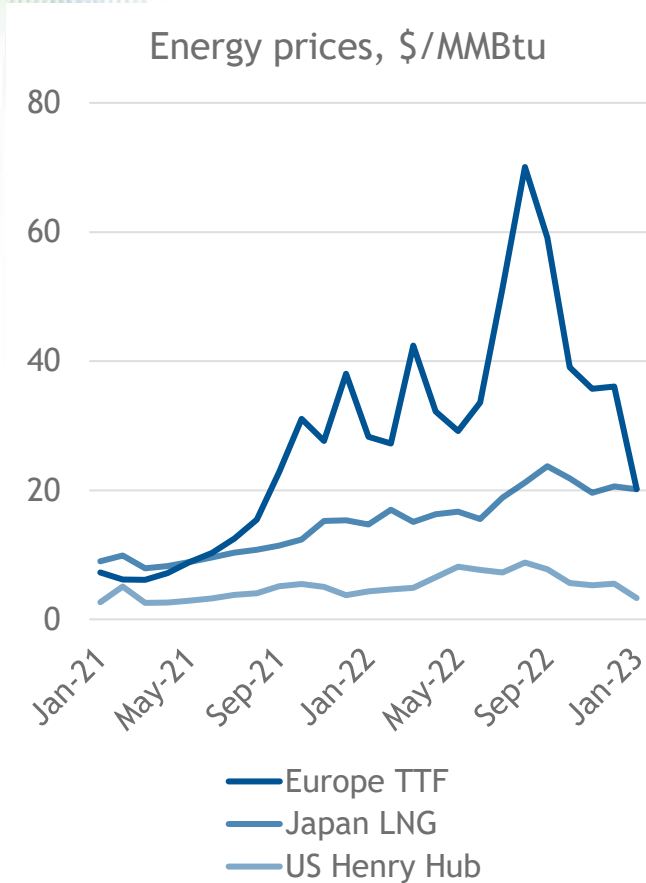
Potash



40% of global trade from sanctions countries

Use correlated with affordability, capped by availability

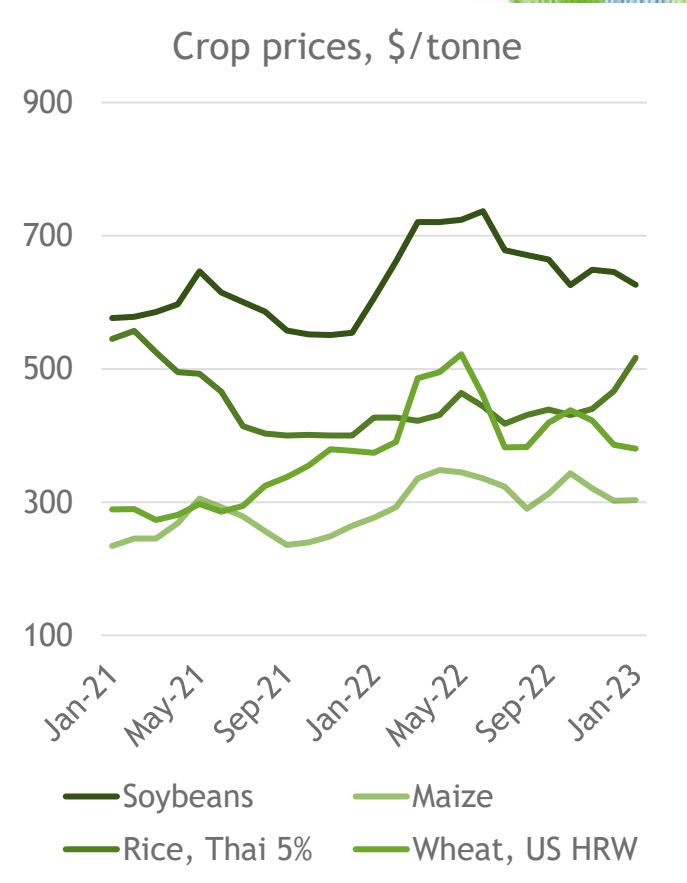
What drives global fertilizer markets?



Marginal cost of production - energy and presence of raw materials



Global food demand, crop prices, ability to pay, FX



Price floor



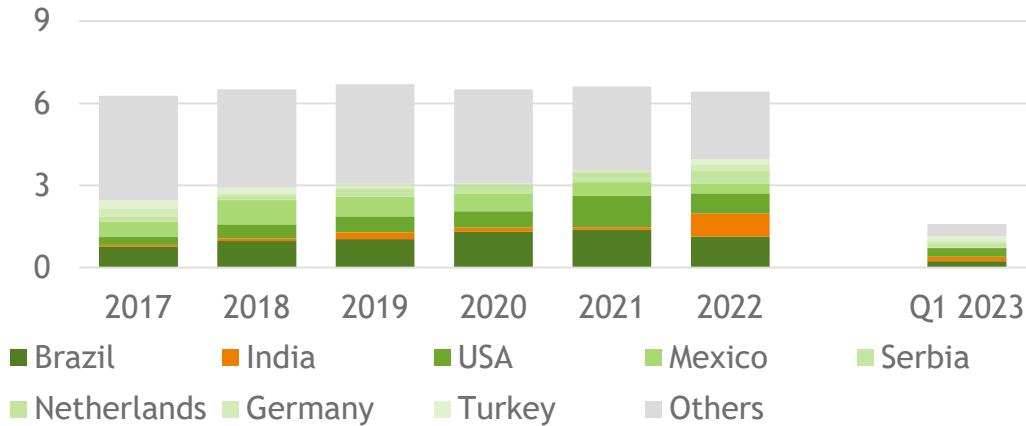
Price ceiling

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

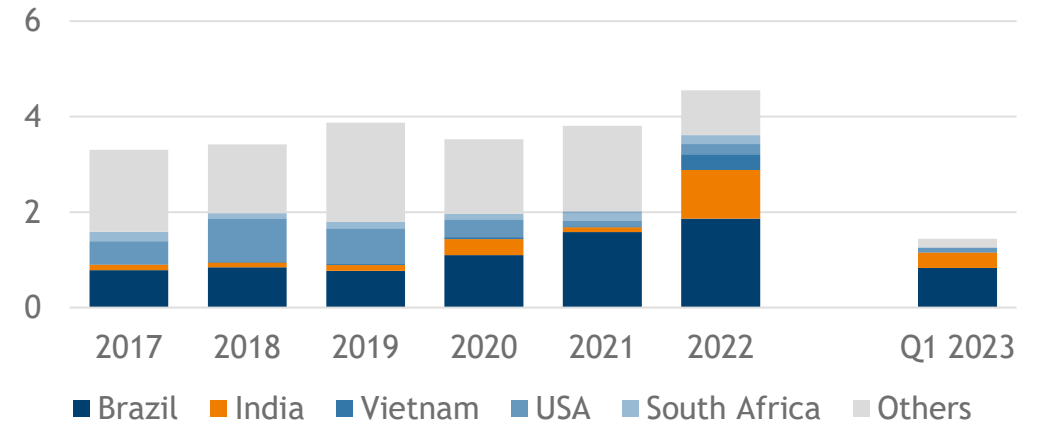
Source: World Bank, IFA

Rerouting of trade - Russia leans to the Baltic

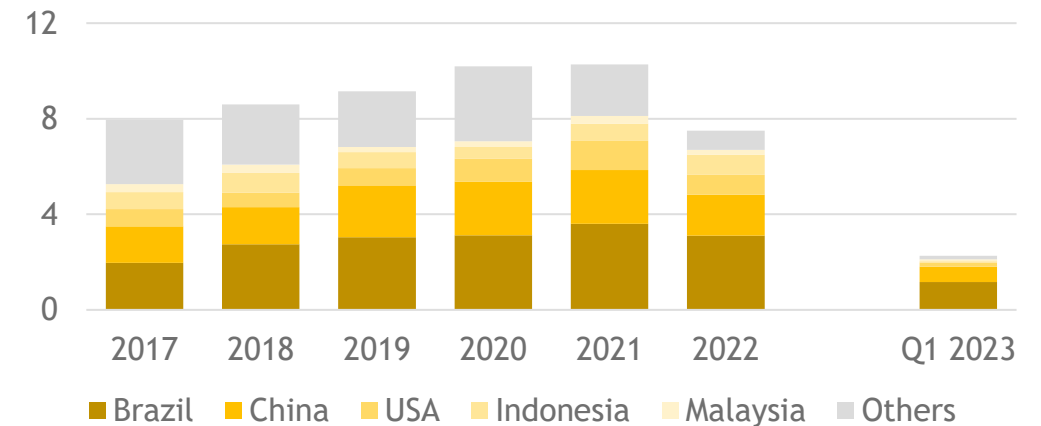
Russian urea exports*, Mt



Russian MAP+DAP exports*, Mt



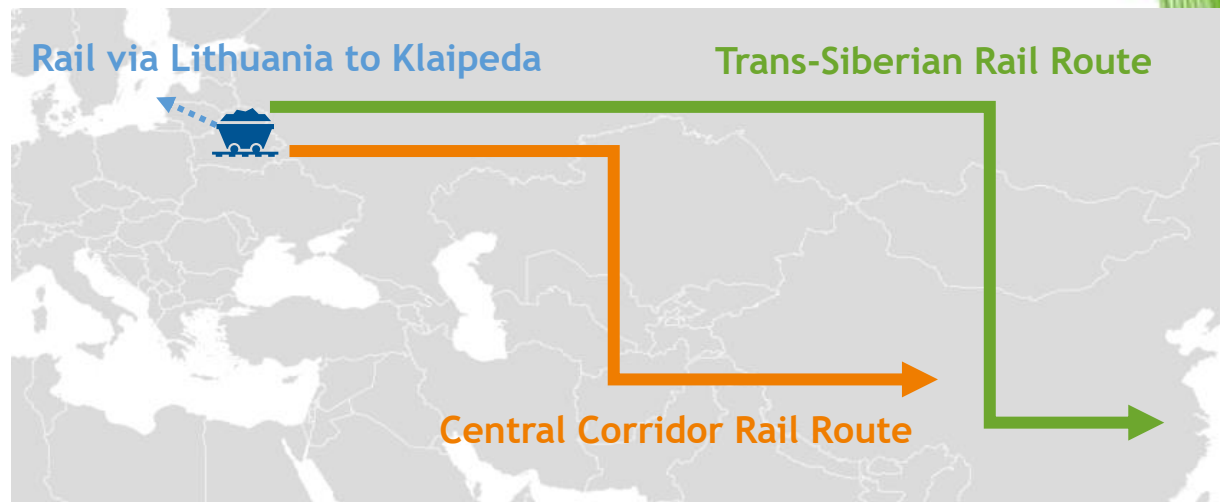
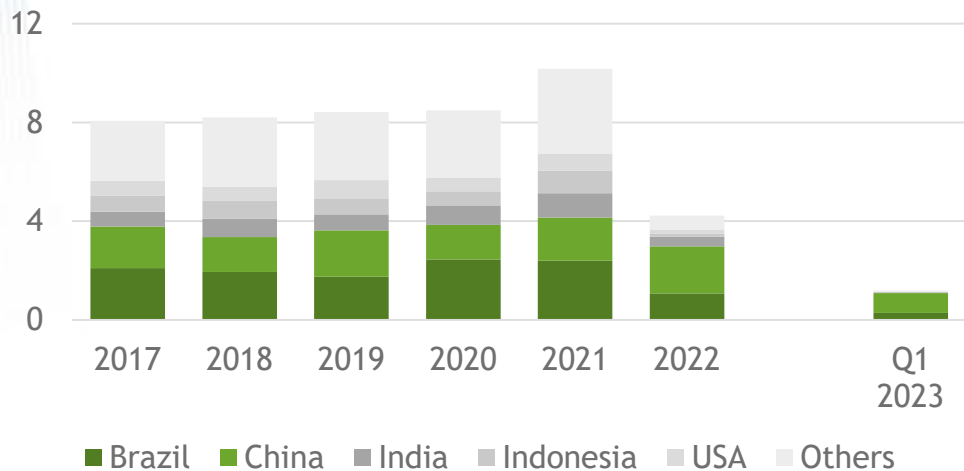
Russian MOP exports*, Mt



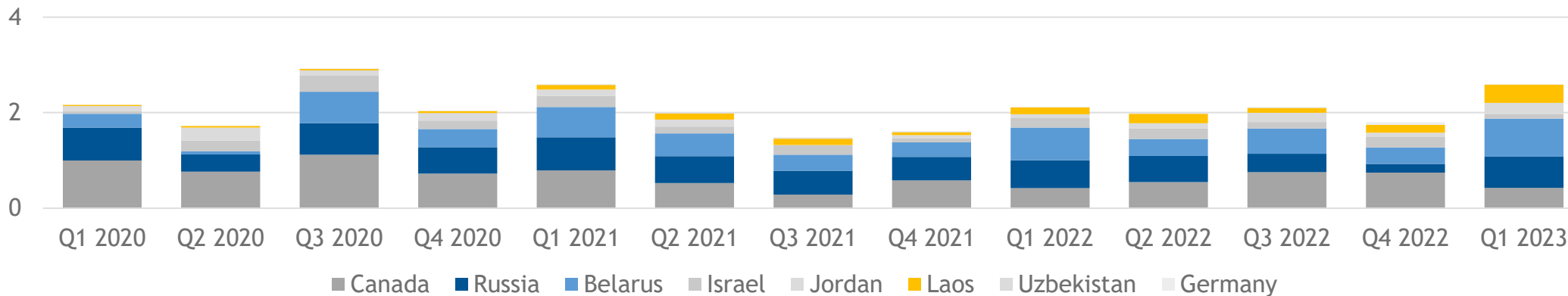
Source: GTT. * Mirror trade = 95% of historical IFA urea exports, 91% MAP+DAP, 93% MOP

Rerouting of trade - Belarus goes East

Belarusian MOP exports*, Mt

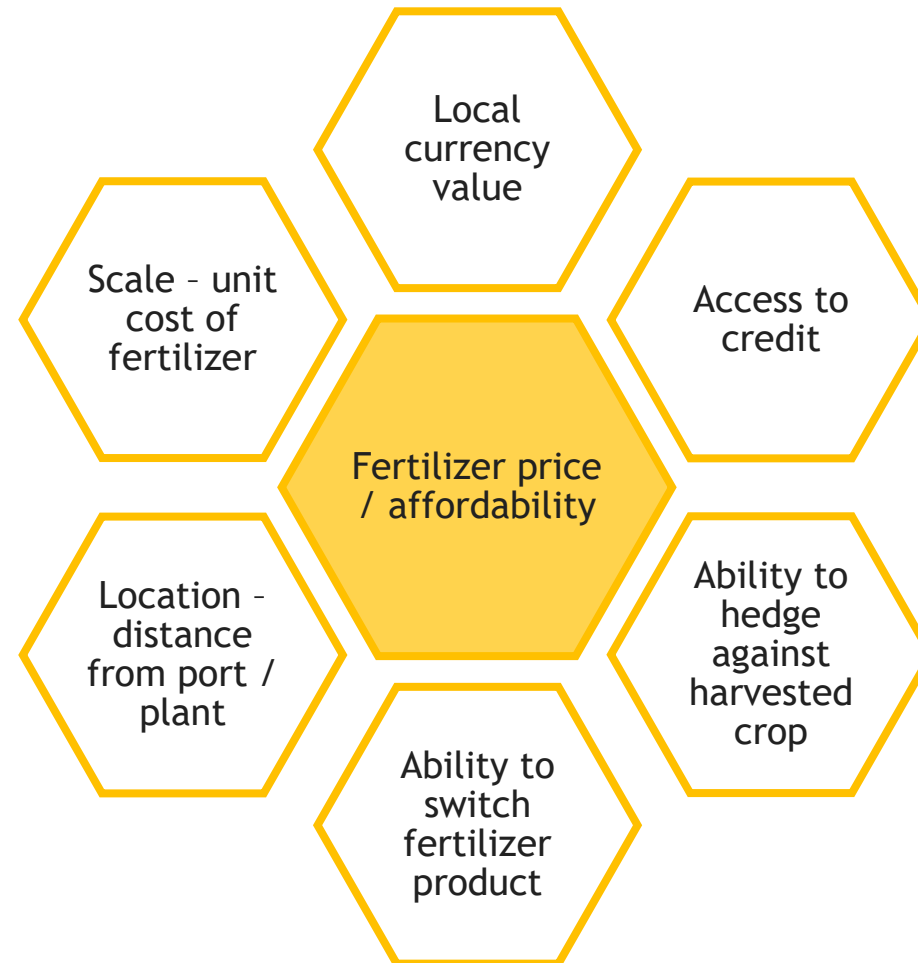
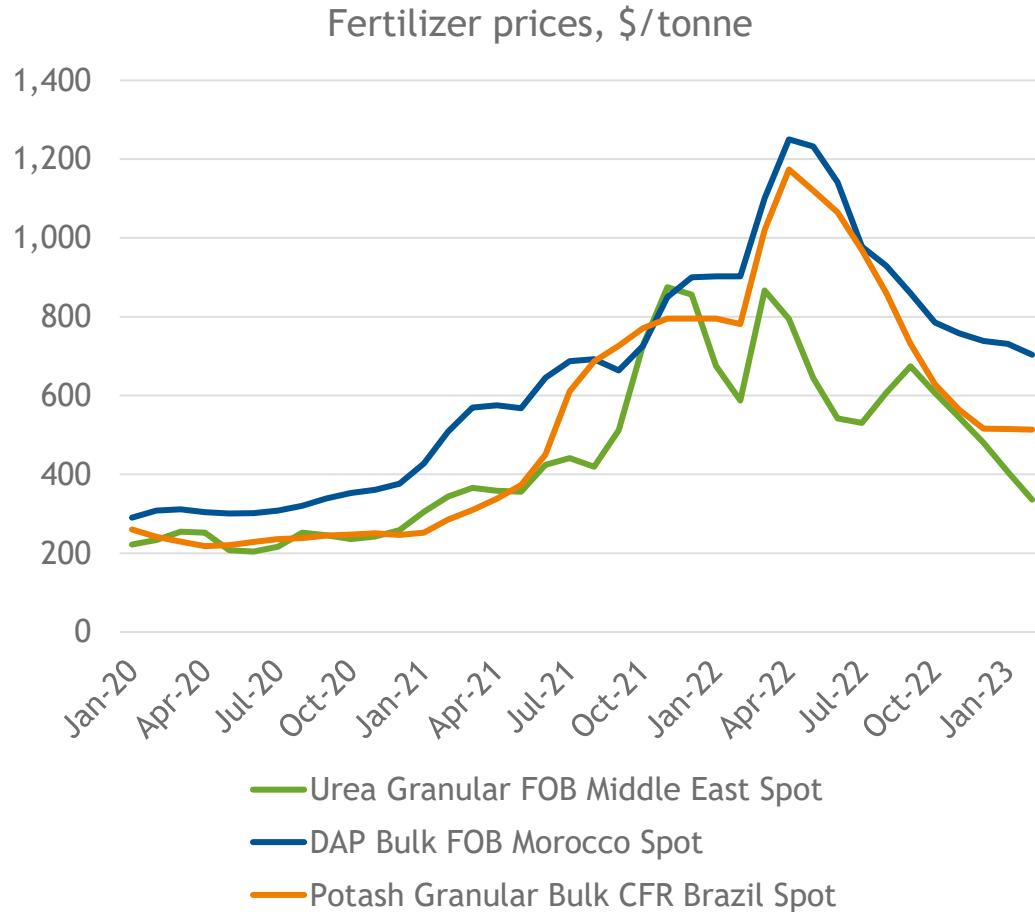


Chinese MOP imports by origin, Mt



Source: GTT, BCI Global. * Mirror trade = 83% of historical IFA MOP exports

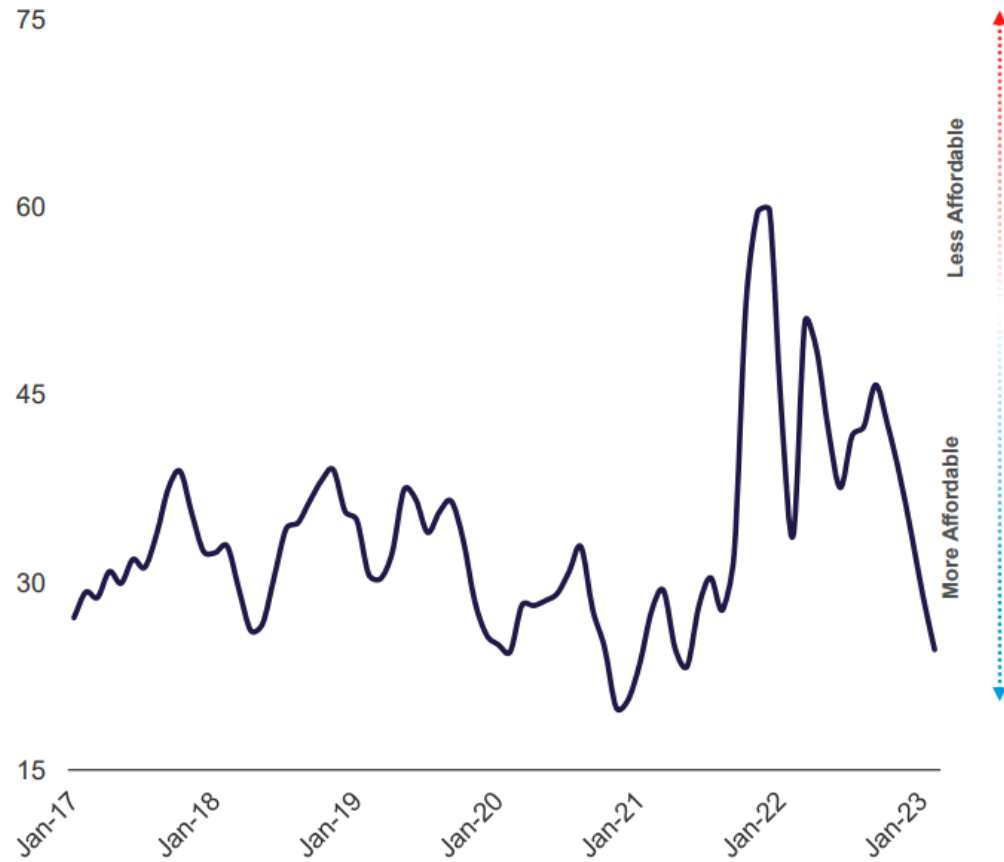
Fertilizer prices declined as quickly as they rose in 2022, but farmer affordability is driven by much more than price



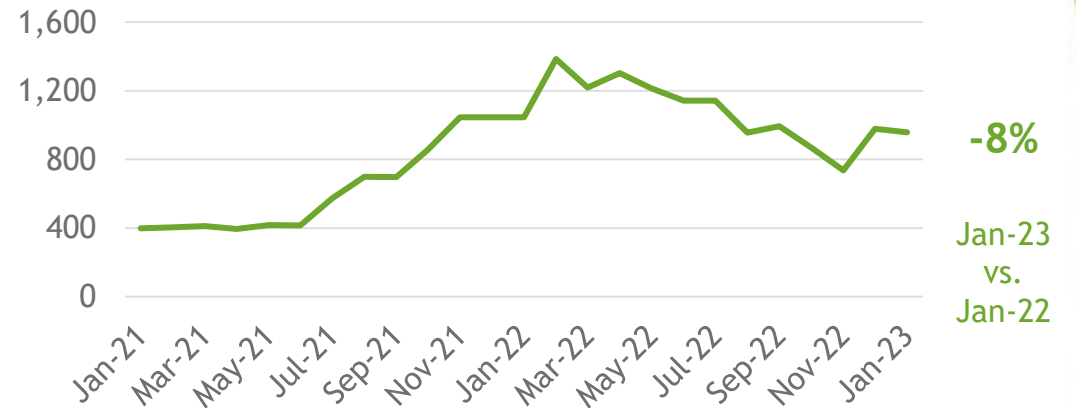
Source: CRU, IFA

Case study - regional affordability

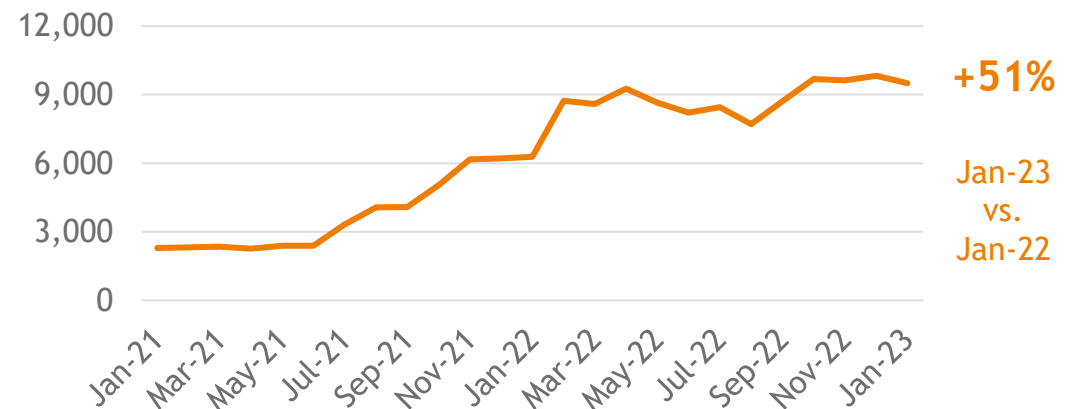
Brazilian barter ratio
(no. 60 kg bags of corn for 1 tonne urea)



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