



Global Fertilizer Demand Outlook

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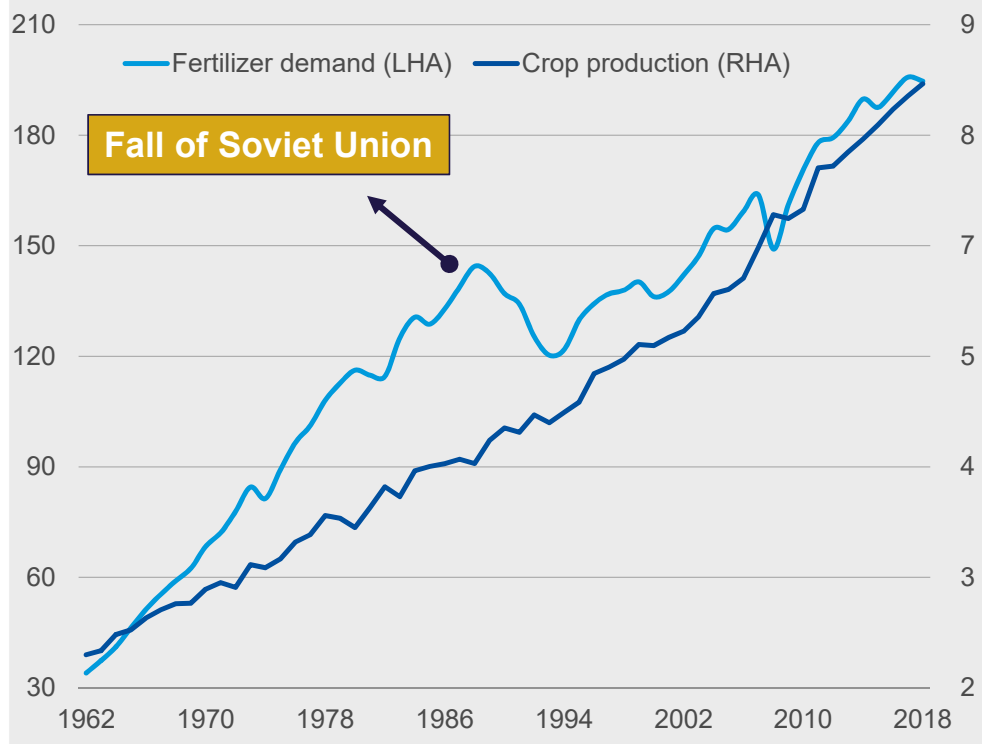
Presentation overview

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- A photograph of a person in a white shirt and dark pants, seen from behind, spraying a large, vibrant green field of crops. The field is divided into rows, and the person is walking through them, holding a spray nozzle. The background shows a hazy horizon with some trees under a bright sky.
- ▶ **Overview of global fertilizer demand**
 - ▶ **Near term: challenging 2019 but will there be a 2020 rebound?**
 - **USA:** global demand underpinned by US recovery but possible recession risk
 - Trade war: continued upside for **Brazil**
 - **African Swine Fever (AFS):** when will soy imports recover?
 - **China:** ongoing weakness has major impact on global demand
 - **India's** love affair with urea
 - Exchange rate volatility in **mid-tier markets**
 - ▶ **Medium term outlook**
 - ▶ **Long term outlook**

Global agricultural production strongly linked to fertilizer usage

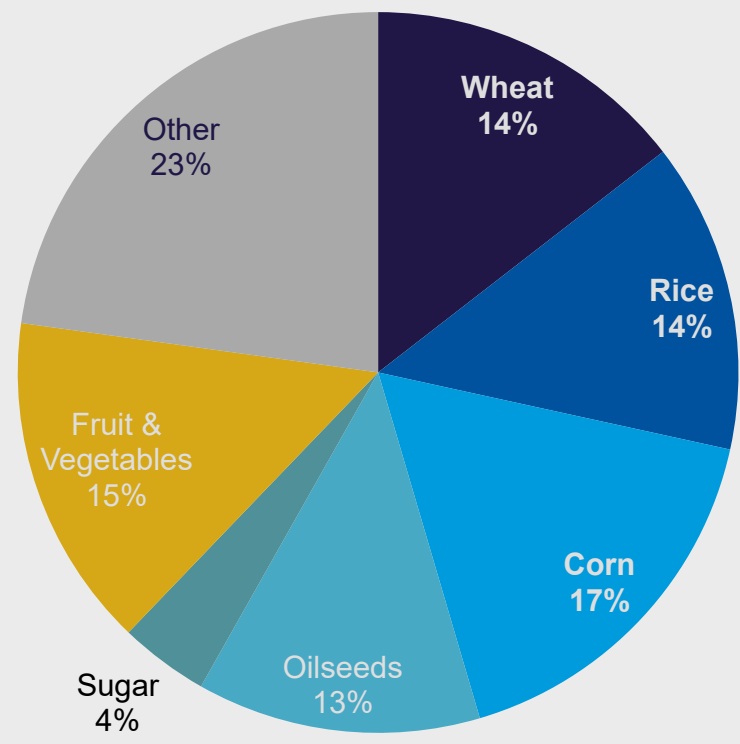
Global Fertilizer demand vs agricultural production

LHA: Fertilizer demand, Mt nutrient
RHA: Crop production, billion tonnes



The grains sector drives fertilizer demand

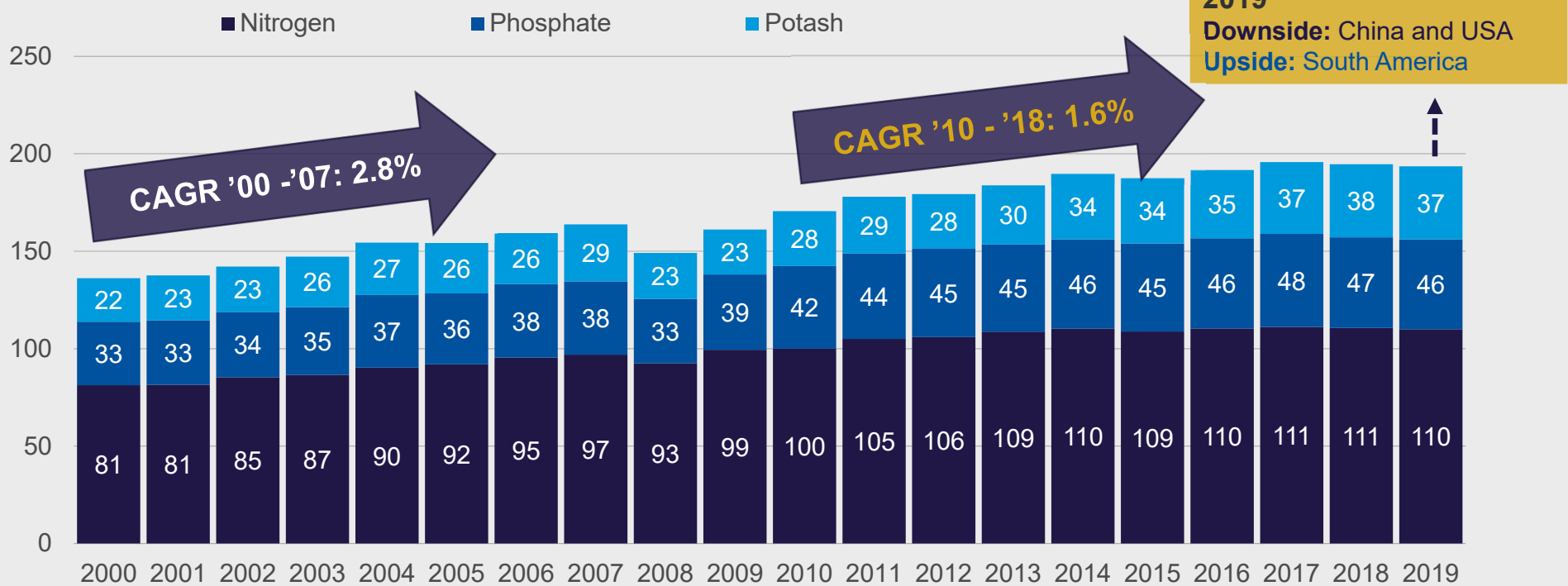
Global fertilizer use by crop, % share (average 2017-19)



Fertilizer demand growth good over past 18 years

Global fertilizer use has increased since 2000 (excluding impact of global financial crisis)

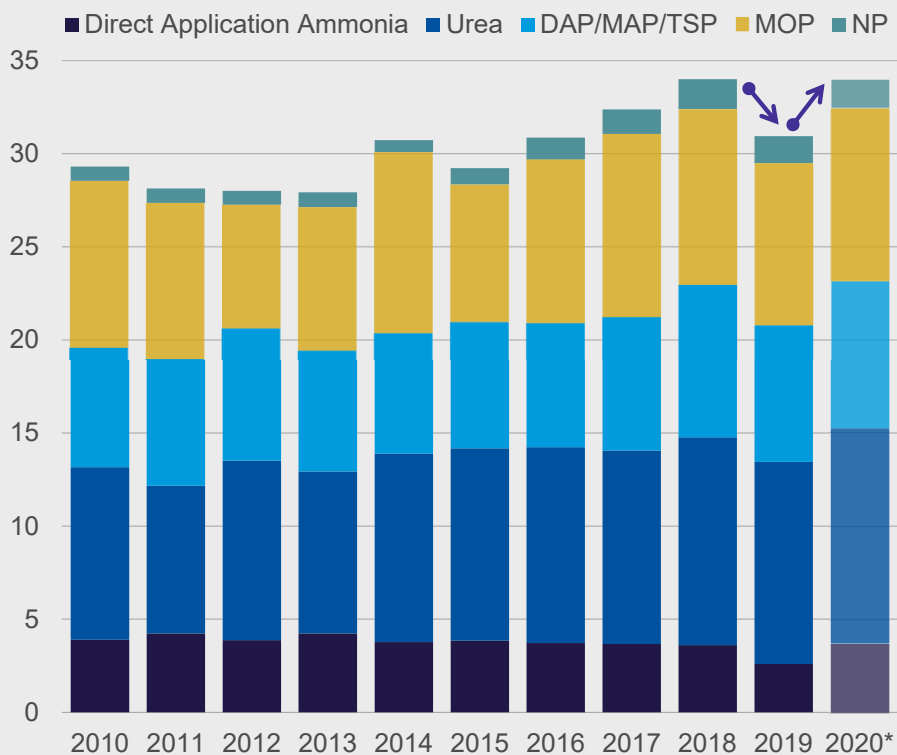
Fertilizer demand by nutrient, Mt nutrient



Strong rebound in US demand anticipated in 2020 after challenging 2019

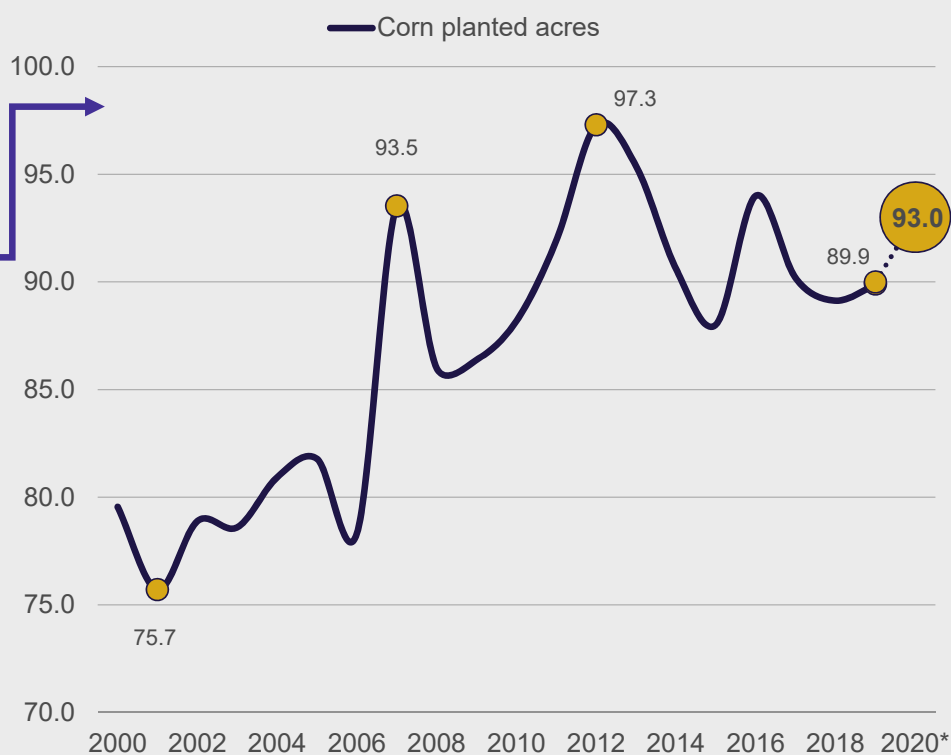
Fall in 2019 US demand but upside in 2020

Fertilizer demand by product, Mt product



US corn plantings are projected to jump in 2020, boosting demand

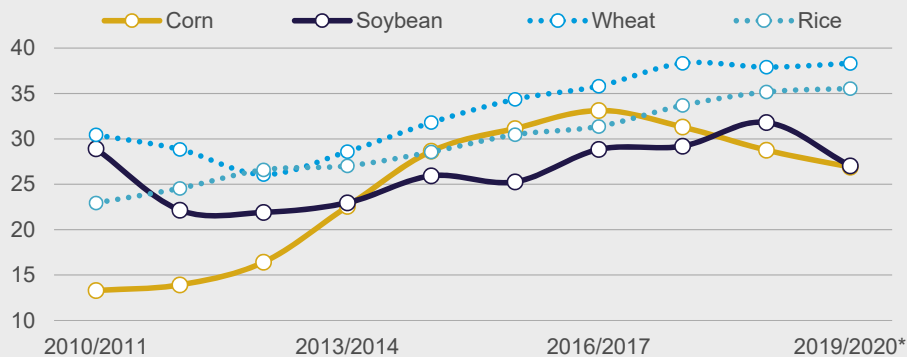
Corn planted area, M acres



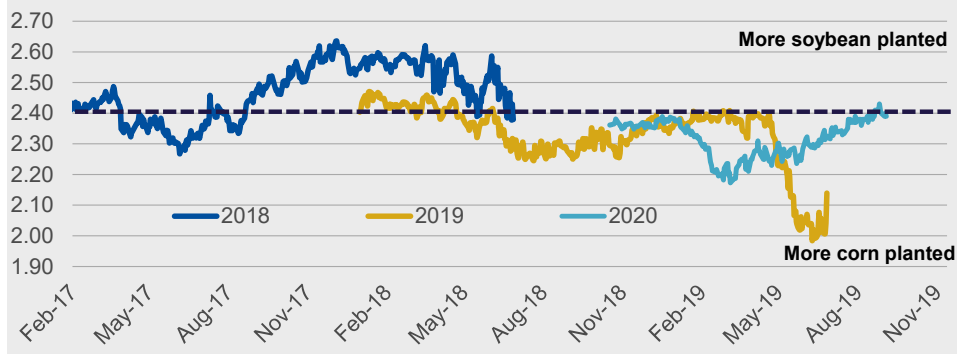
Data: CRU, USDA, *estimate/forecast

There are supporting factors for a US rebound....

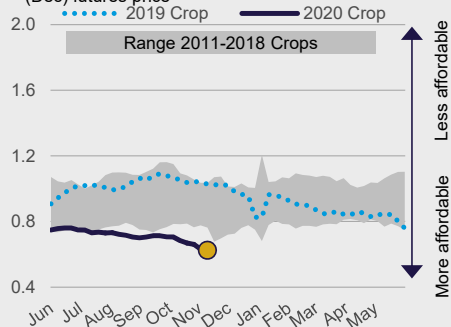
Global STU to fall for corn and soy are falling
Global crop stocks:use ratio (STU)



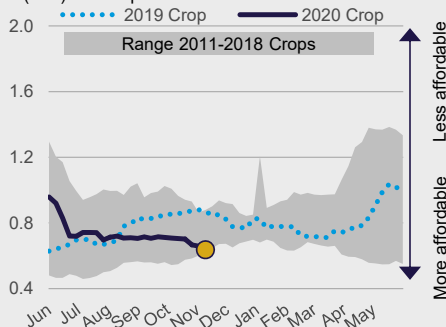
US soy:corn future favours both crops but with more upside for soy
Soy:corn price ratio



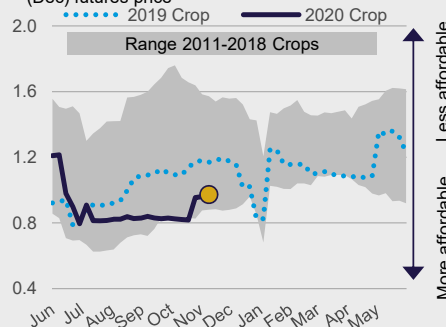
DAP has never been more affordable
Ratio - Current fertilizer price:forward CME corn crop (Dec) futures price



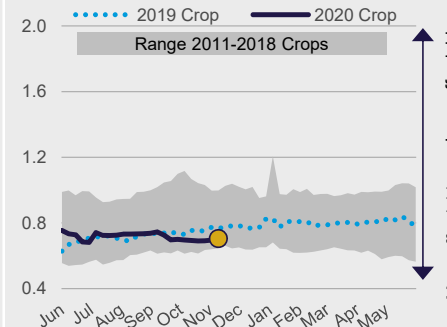
Urea is becoming more affordable
Ratio - Current fertilizer price:forward CME corn crop (Dec) futures price



Ammonia is also very affordable
Ratio - Current fertilizer price:forward CME corn crop (Dec) futures price



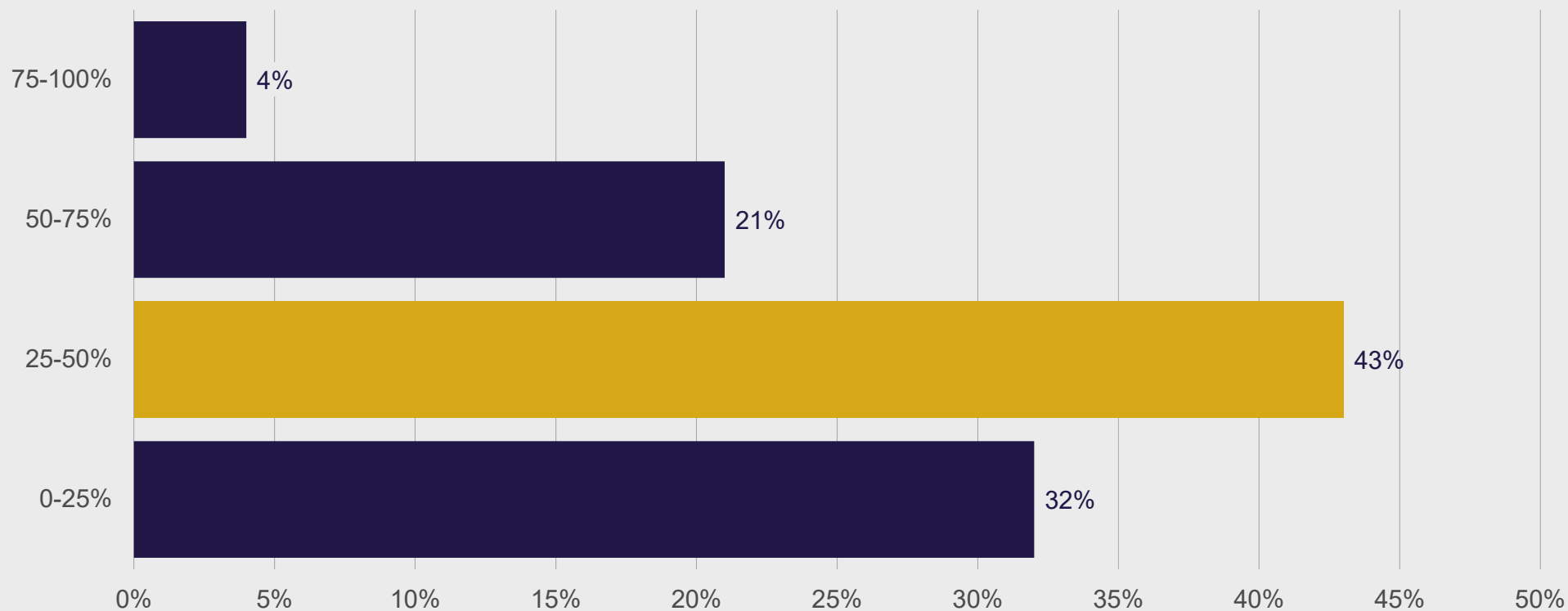
Potash affordability is stable
Ratio - Current fertilizer price:forward CME corn crop (Dec) futures price



What are the chances of a US recession?

CRU survey LME week: What is the probability of a US recession in the next four quarters?

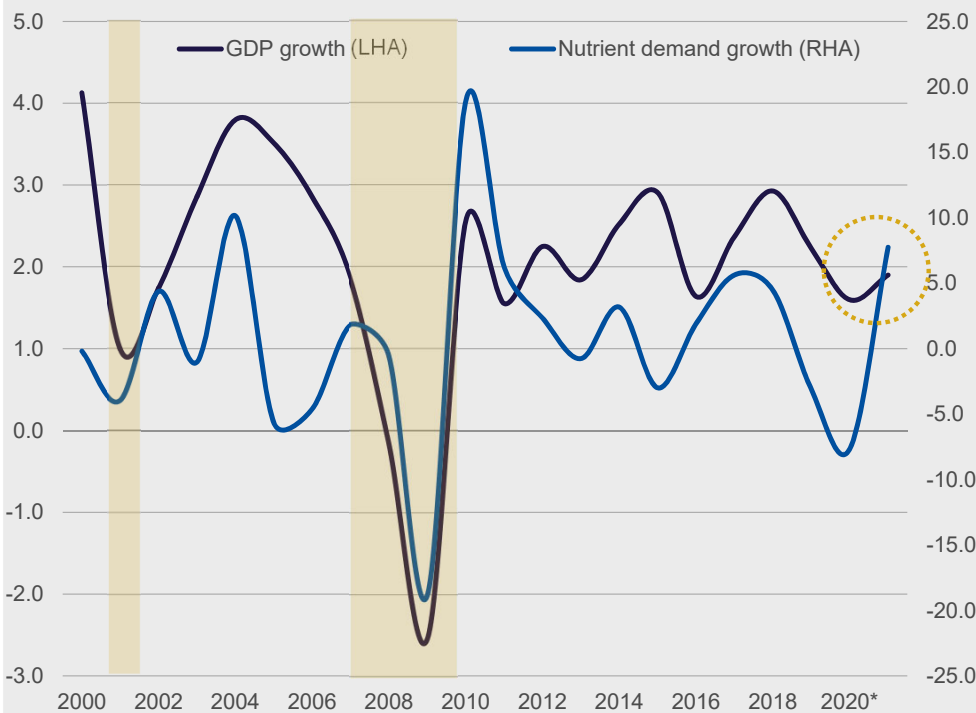
% share



Is an economic slowdown a downside risk for US fertilizer demand?

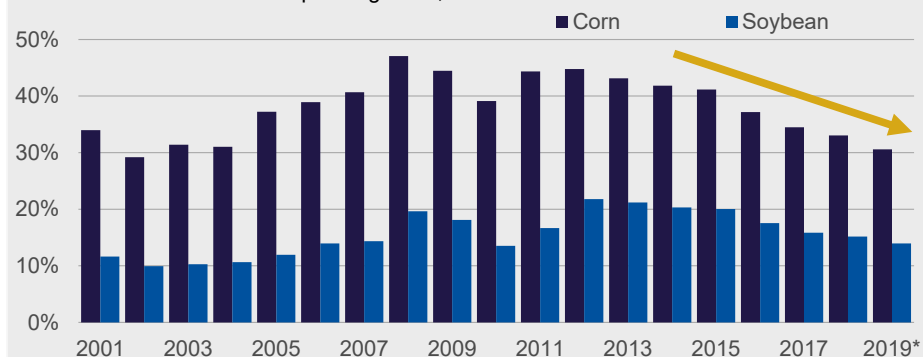
Changes in US economic growth affect nutrient demand

LHA: US GDP growth, %
RHA: US nutrient demand growth (lagged), %

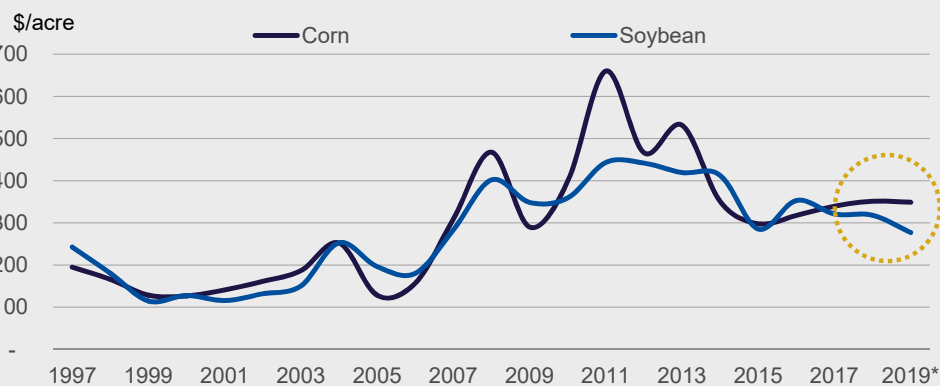


US farmers spend twice as much on fertilizers for corn than soybean

Fertilizer cost as share of operating costs, %



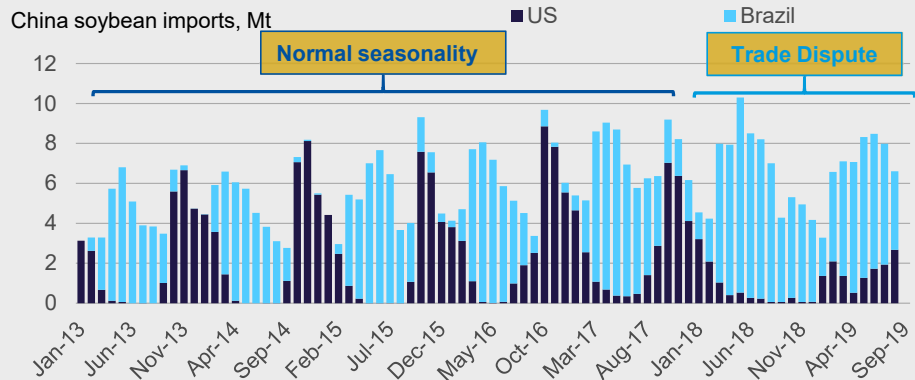
US farm returns (over operating costs) excluding government payments



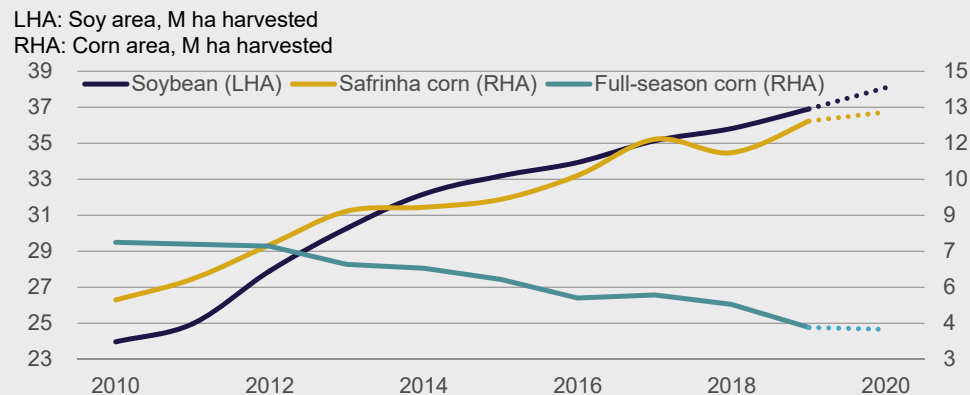
Data: CRU, USDA, *=estimate/forecast

US-China trade war bolsters Brazilian fertilizer demand

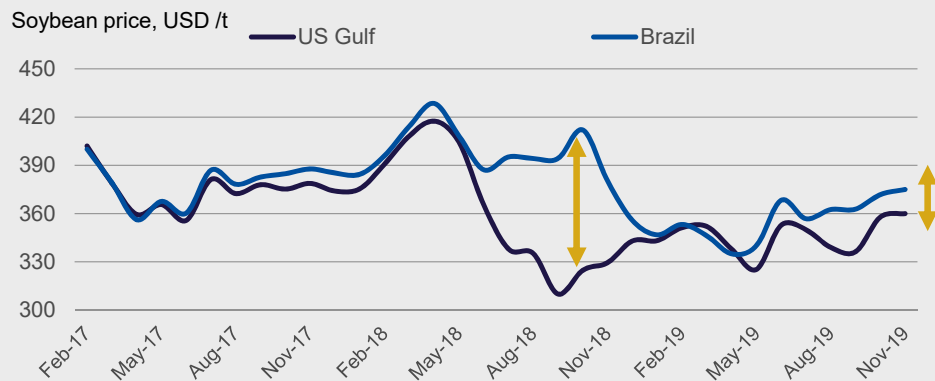
Soybean trade into China shows strong seasonal patterns



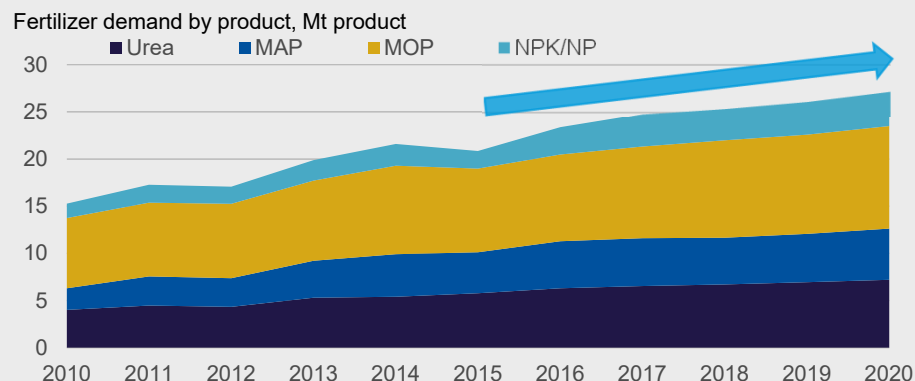
Brazil crop area to continue growing in 2020



Brazil soy price premium emerges since H1 2018



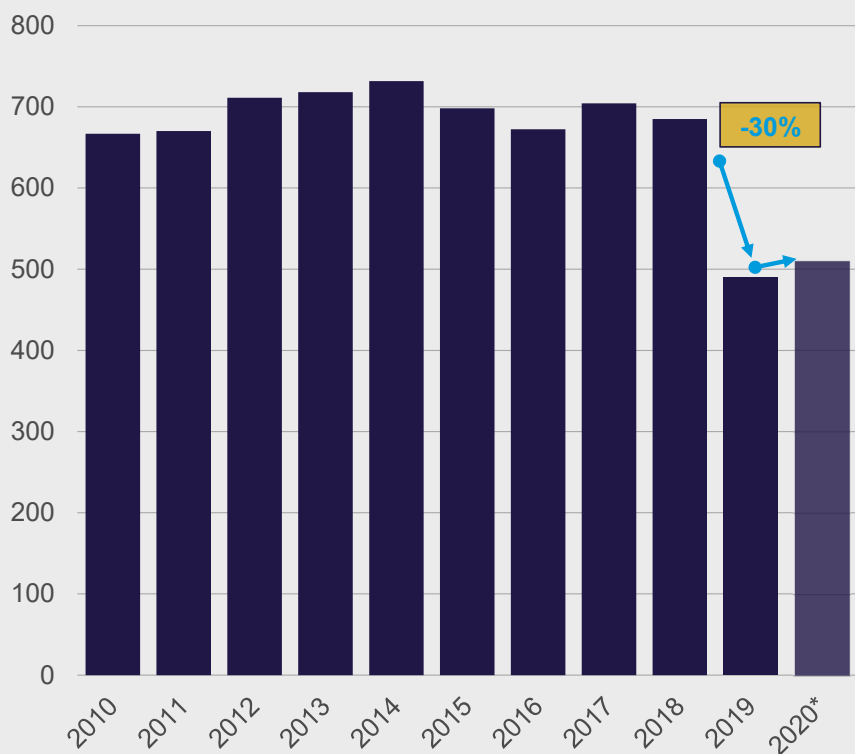
Brazilian product demand to rise for fifth consecutive year in 2020



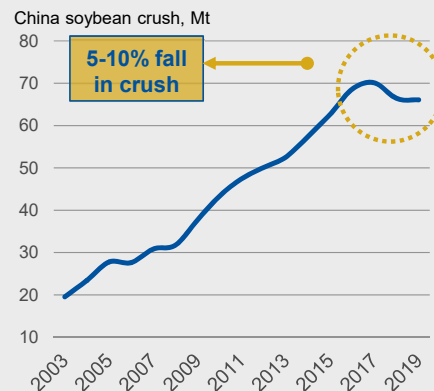
Will there be a recovery in China soybean imports in 2020?

African Swine Fever to reduce China pork output in 2019

China swine herd, million head



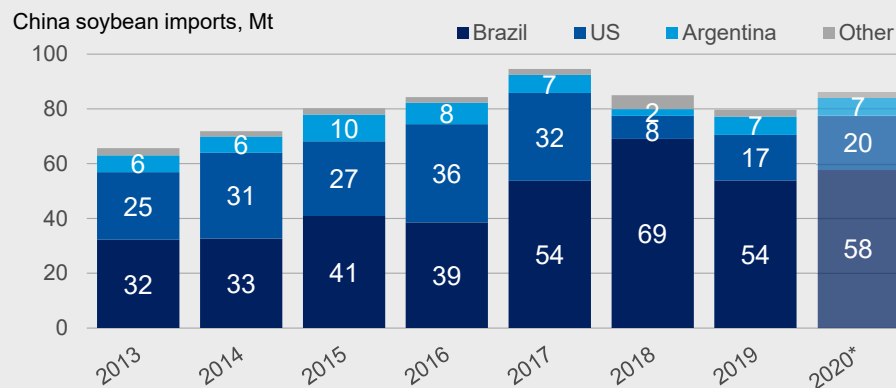
The impact on soybean crush is not as bad



China pork prices have more than doubled



China soybean imports to recover as China rebuilds its swine herd



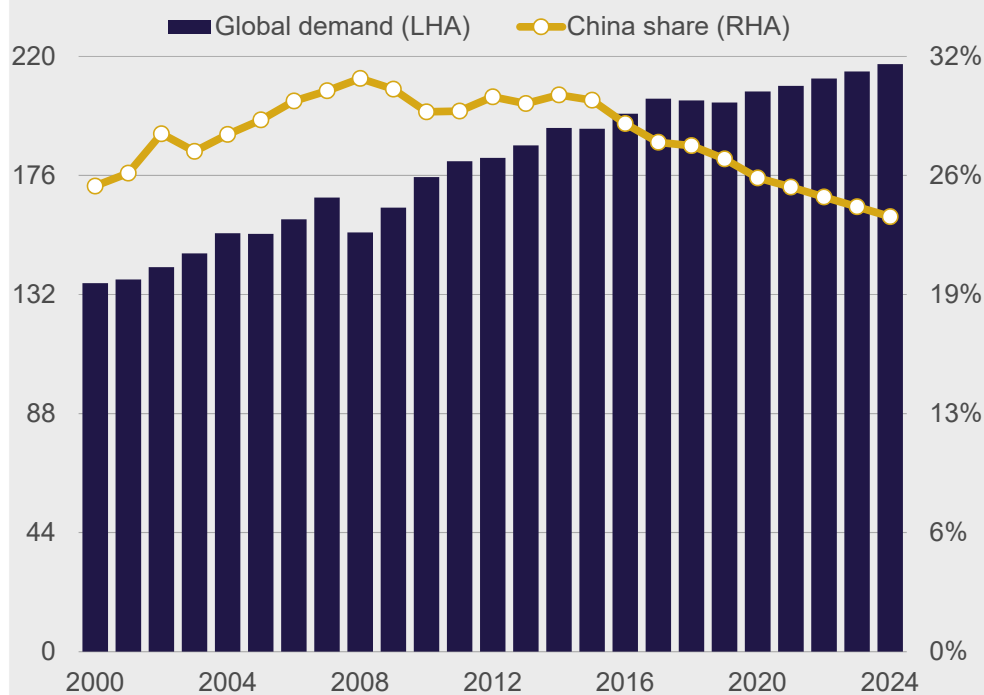
Data: CRU, Bloomberg, USDA *=estimate/forecast

Changes in China have a huge impact on global fertilizer demand!

China share of global nutrient demand large but falling

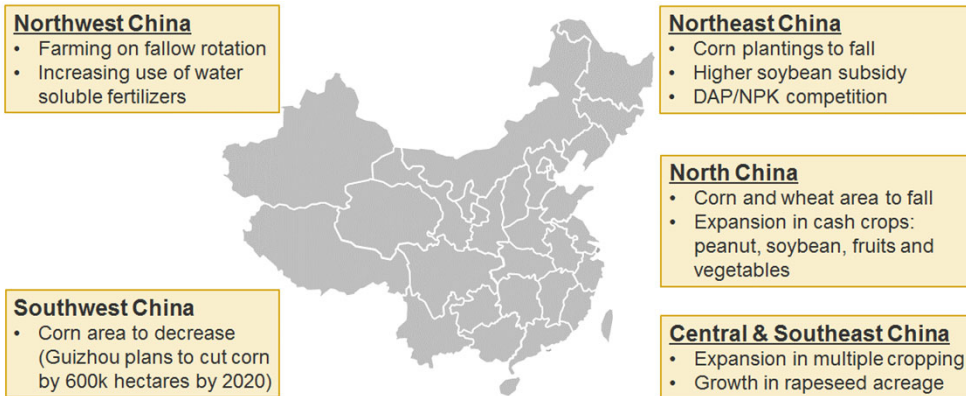
LHA: Global nutrient demand, Mt nutrient

RHA: China share of global demand, %



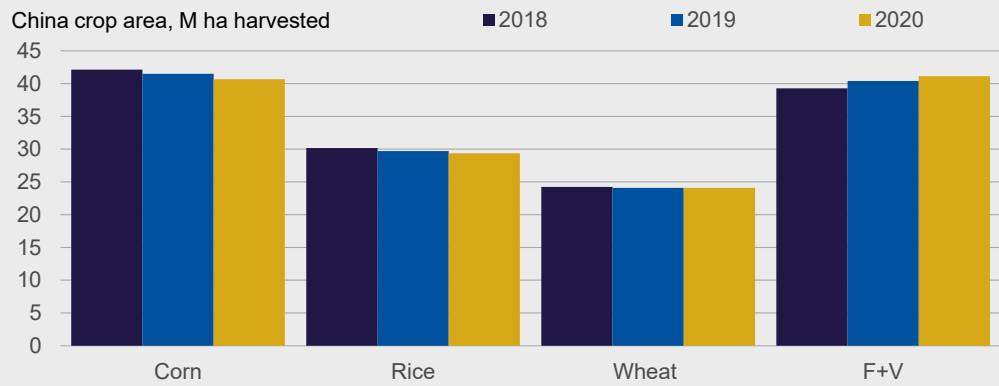
Why is there weakness in China?

- Unsupportive **crop market** fundamentals.
- Fertilizer efficiency: zero growth policy and **falling application rates**.
- Increasing **farm size** and efficiency.
- Changing **fertilizer practices**.

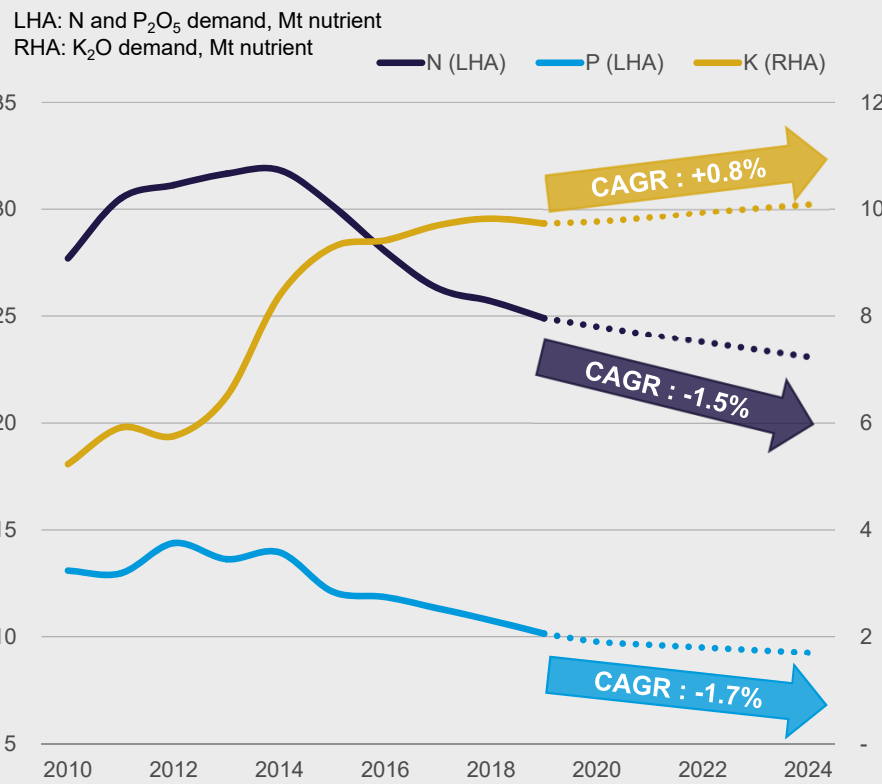


Chinese demand is evolving rapidly

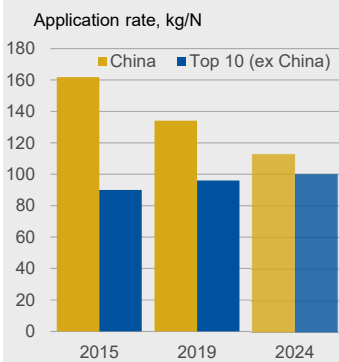
Falling grains area offset by growing fruit and vegetable area



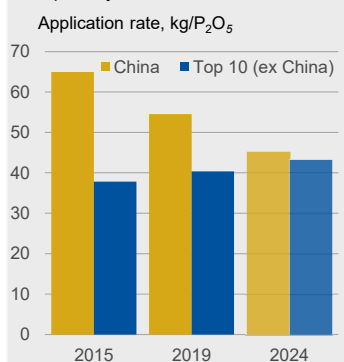
China Nitrogen and Phosphate demand to fall but rising Potash use



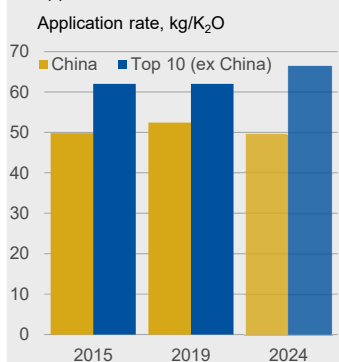
Further room to reduce N application



P₂O₅ application more in line with top 10 by 2024



China lags behind top 10 in K₂O application

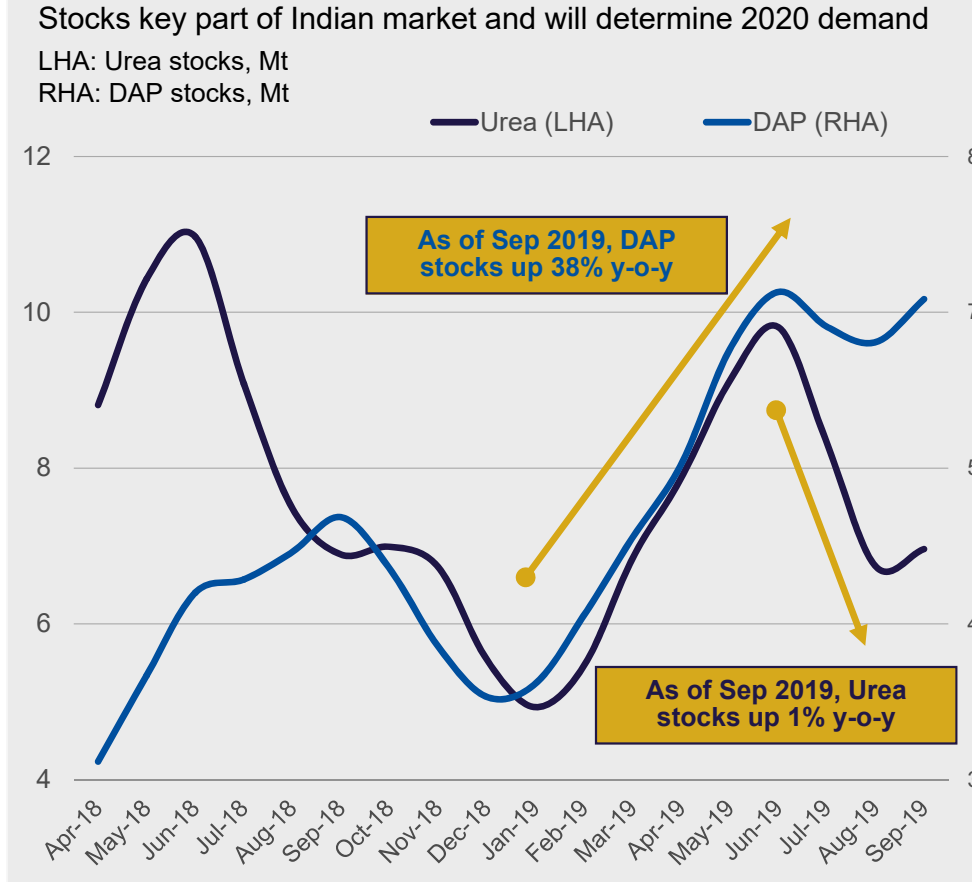
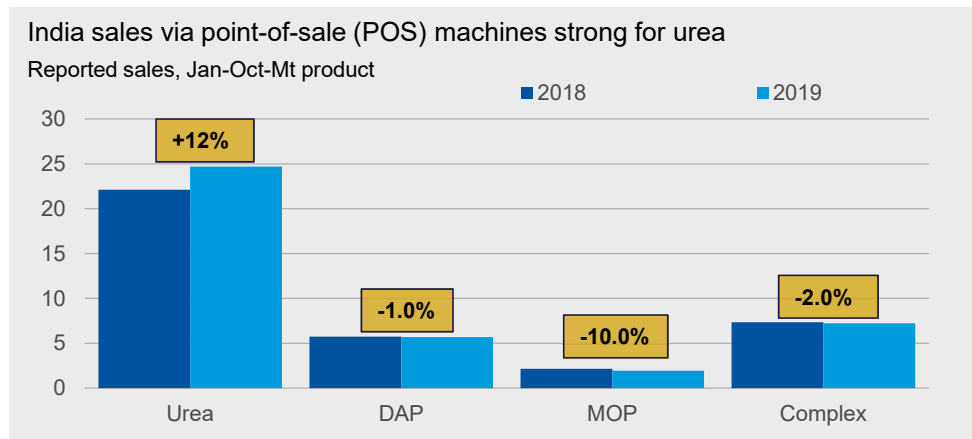
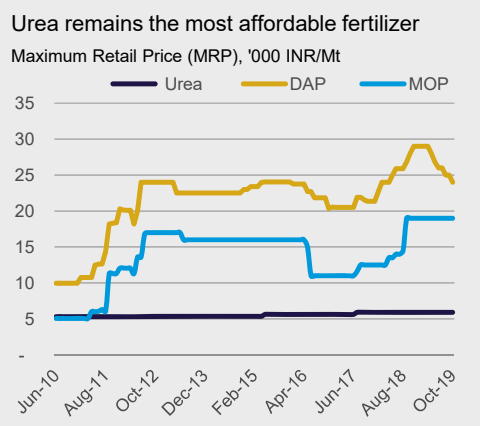


Data: CRU, Chinese Ministry of Agriculture, IFA

India's love affair with urea shows no signs of slowing

Key developments

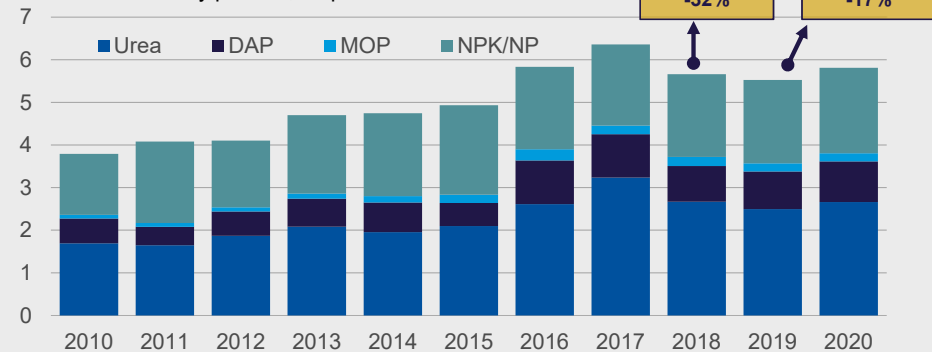
- Greater efforts to streamline fertilizer sector in recent years
- Election year
- Mixed results for product demand this year
- Late monsoon boost for Rabi season



Exchange rate volatility provides both upside and downside

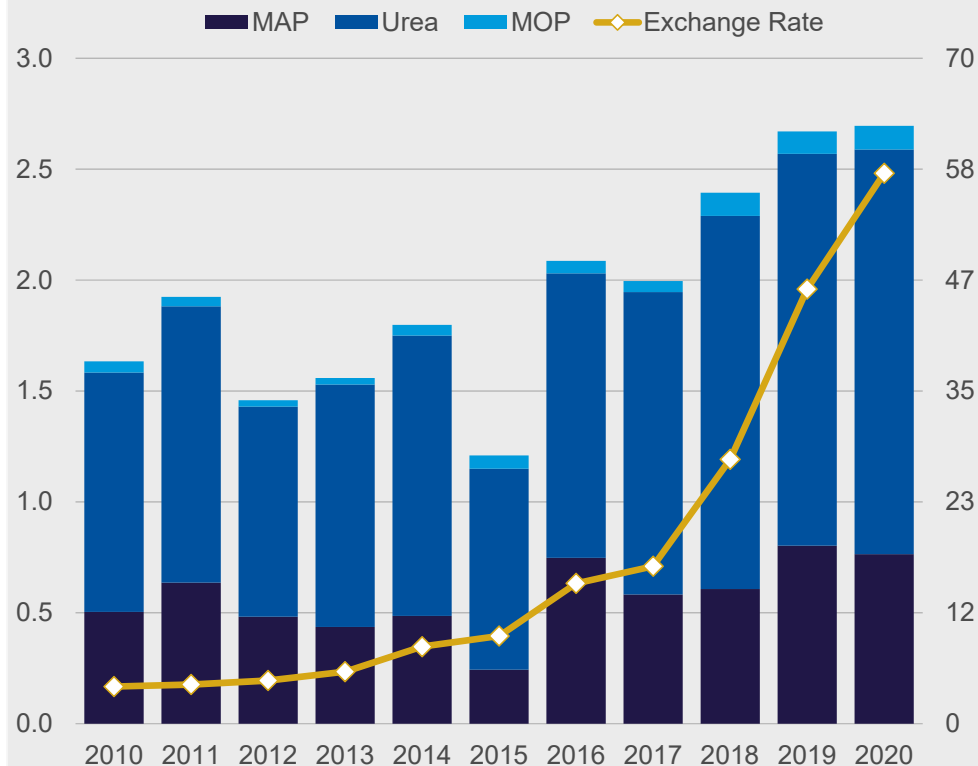
Turkey demand pressure following Lira Depreciation

Fertilizer demand by product, Mt product



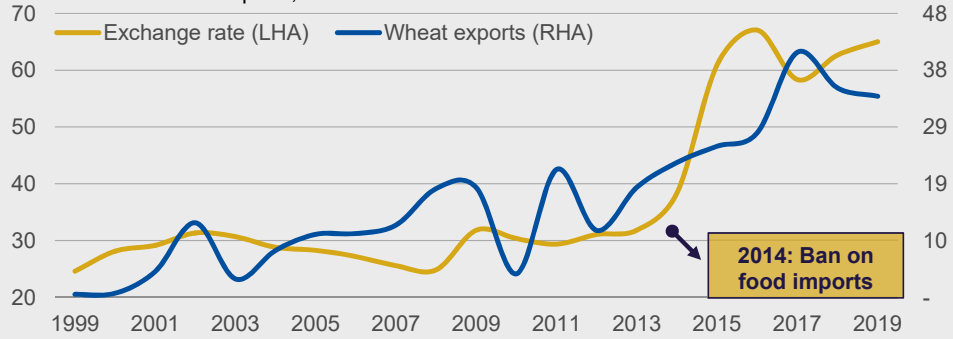
Argentine fertilizer demand resilient despite weakening exchange rate

LHA: Fertilizer demand, Mt product
RHA: Exchange rate, Argentine Peso: USD



Depreciation in Russia Rouble boosts wheat exports

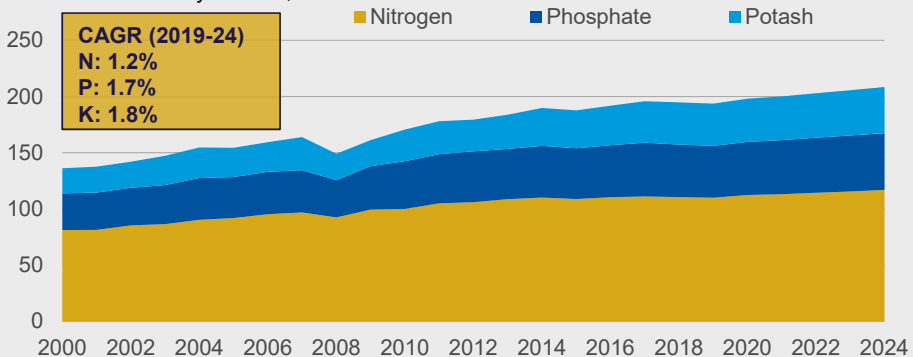
LHA: Exchange rate, Russian Rouble: USD
RHA: Russian wheat exports, Mt



Looking ahead to the medium term

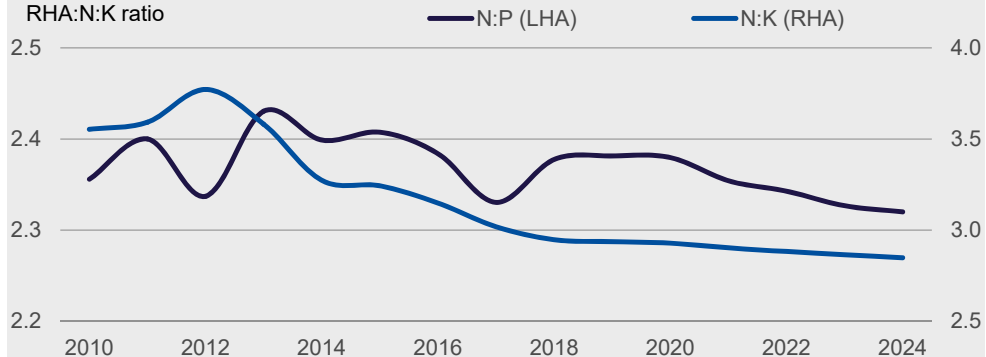
Good prospects for global nutrient demand growth in medium term

Fertilizer demand by nutrient, Mt nutrient



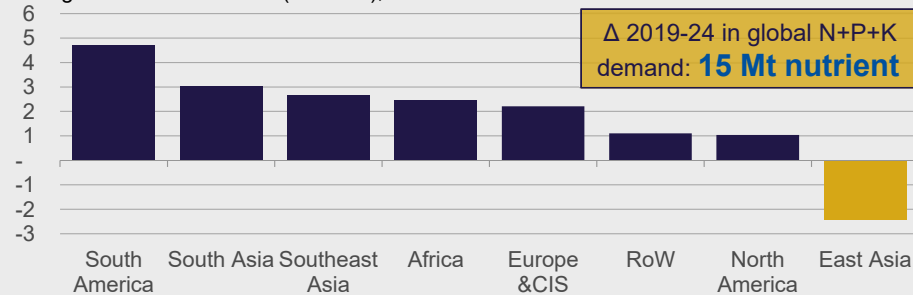
Global nutrient ratios favour P + K over N in medium term

LHA: N:P ratio
RHA: N:K ratio



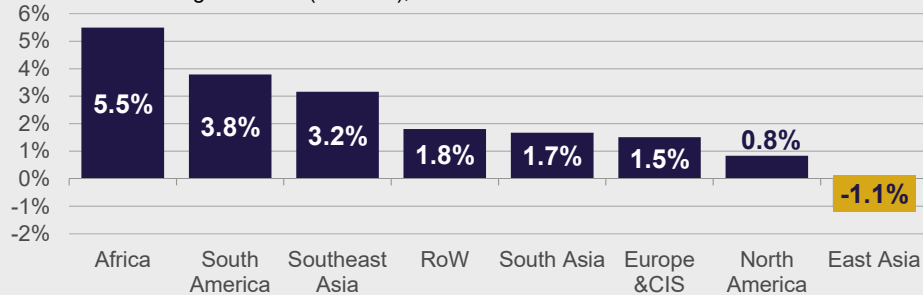
Largest volume change in fertilizer demand in South America

Change in fertilizer demand (2019-24), Mt nutrient



Highest rate of N+P+K growth in Africa

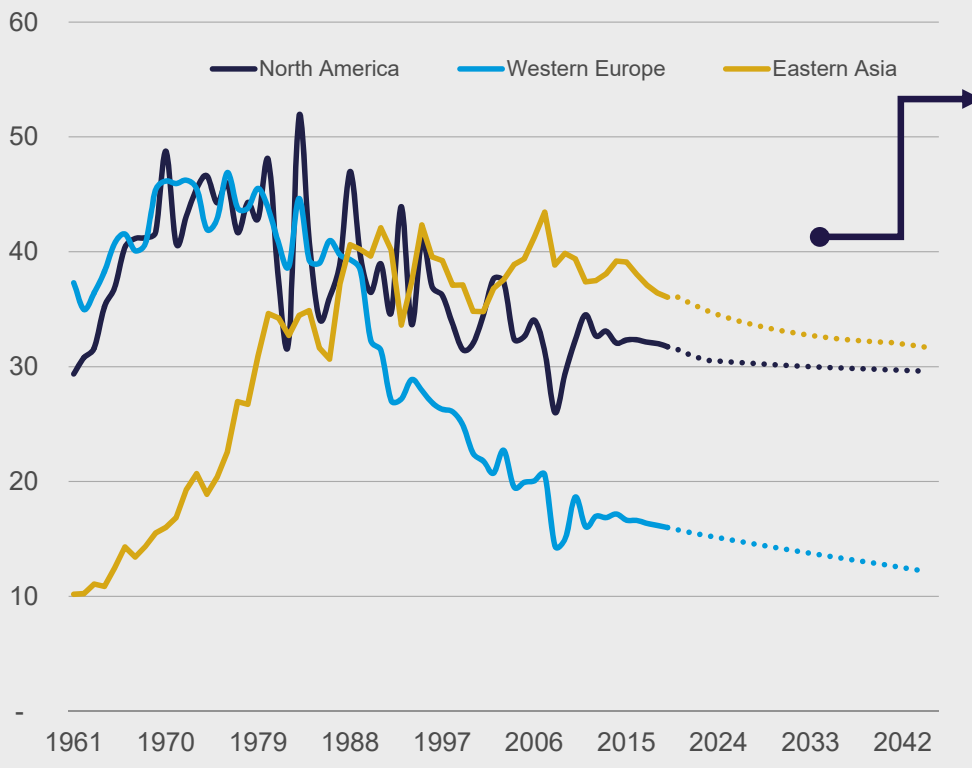
Fertilizer demand growth rate (2019-24), %



Long term: fertilizer intensity of use underpinned by developing regions

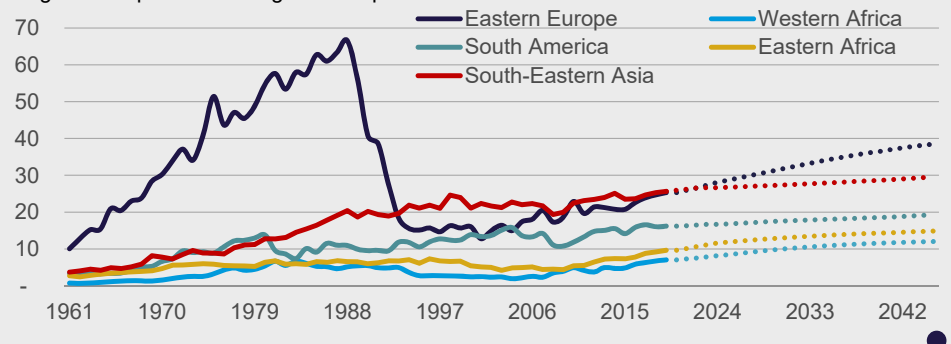
Increased efficiency measures in some regions.....

kg/nutrient per tonne of agricultural production



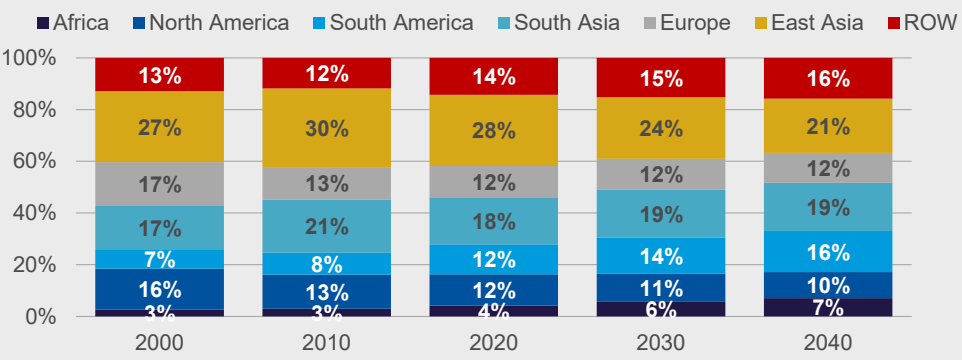
.....to be offset by rising fertilizer intensity in emerging regions...

kg/nutrient per tonne of agricultural production



.....means changing market shares to in long term

Fertilizer market share



Summary

- **Strong rebound** in 2020 fertilizer demand underpinned by return of **USA**.
- *2020 global risks: trade war, AFS, economic downturn, weather issues.*
- **Ongoing weakness** in **China** has a major impact on global demand.
- **Medium Term** and **Long Term**: market shares shifting to developing regions.





Thank you for listening!