

FERTILIZER MARKET UPDATE

December 2022

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StoneX Financial Inc – FCM
Division**



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My current positions



My current positions

- 0 tons long or short physical fertilizer



My current positions

- 0 tons long or short physical fertilizer
- 0 tons long or short paper fertilizer



My current positions

- 0 tons long or short physical fertilizer
 - 0 tons long or short paper fertilizer
- 0 shares long or short fertilizer stocks



My current positions

- 0 tons long or short physical fertilizer
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WHICH REALLY SUCKS



Bucket List Car



Bucket List Car



Factors Driving Current Markets:

| | | |
|----------|---------------------|--|
| Jun 2020 | Mosaic CVD | Stoppage of Moroccan/Russian Phosphate |
| Aug 2020 | Derecho | Drop in crop production / spike in crop prices |
| | Covid Checks | Massive influx of cash to the farmgate |
| Feb 2021 | Spike in US NG \$ | Plant shutdowns – lost production |
| Mar-Jun | Strong '21 Spring | Low downstream/producer ending inventory |
| Aug | Hurricane Ida | Plant shutdowns – lost production |
| | | Logistics – Damaged barges, river restrictions |
| Summer | Drought UMW | Reduced corn production |
| | Turnarounds/Outages | Lower than expected output |
| Summer | CF CVD/A-D | Stoppage of Trinidad/Russian UAN |
| Sep | Supply Chain Issues | Lack of vessels / long demerge / jump in rates |
| | Energy Crisis | |
| | - EU | Plant shutdowns / jump in imports |
| | - China export ban | Reduced production / Export ban |
| | - India | Reduced production / Supply shortfall |
| Oct | India tenders | Limited tonnage offered / record prices |
| Oct-Nov | Russia export caps | Limited tonnage available to the world |
| Q4 '21 | China export ban | Will they reenter the market |
| Q1 '22 | Russian invasion | Possible loss of Russian exports |
| | Black Sea missiles | Possible loss of transit for fertilizer/grains |
| | New trade flows | Who will take Russian product? |

Factors Driving Current Markets:

| | | |
|--------|---|--|
| Q2 '22 | Poor preplant demand | Poor NH3/P/K demand |
| | Russian exports massive | Higher global supplies |
| | Poor planting U.S. | Corn acres drop from 93M to possible 88.5M |
| | Lower grain values | |
| | European natural gas | Massive cost of production for N |
| Q3 '22 | China exports return? | |
| | CF counter vailing/anti-dumping duty case no vote | |
| | U.S. exports NPK | |

Factors Driving Current Markets:

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| | <i>U.S. exports NPK</i> | |

Newest entries to the list:

- ***Loss of European nitrogen production due to high natural gas values***
- ***Regaining European production due to lowered natural gas values***
 - ***Nordstream sabotage***
 - ***North America logistics***

Factors Driving Current Markets:

Q2 '22

***Poor preplant demand
Russian exports massive
Poor planting U.S.
Lower grain values***

***Poor NH3/P/K demand
Higher global supplies
Corn acres drop from 93M to possible 88.5M***

***European natural gas
China exports return?***

Massive cost of production for N

Q3 '22

***CF counter vailing/anti-dumping duty case
U.S. exports NPK***

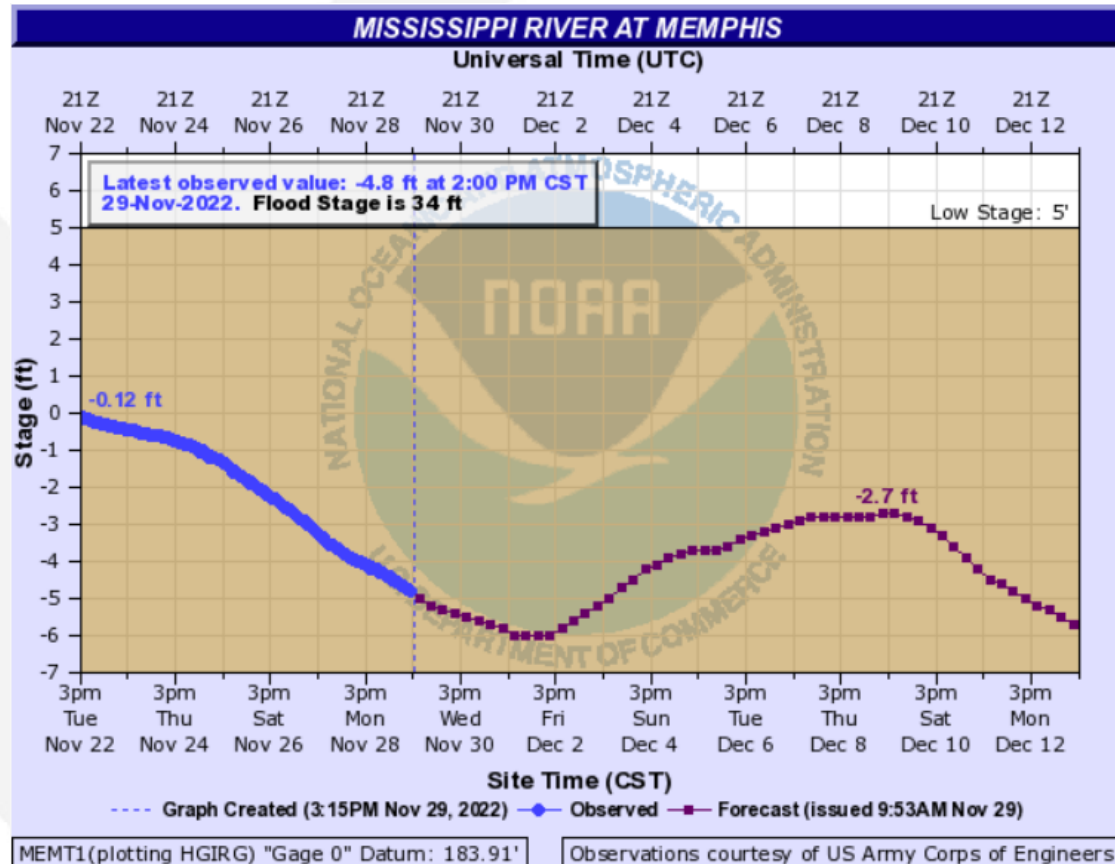
***Almost impossible to forecast with so many
Black Swan events***



OVERARCHING ISSUES



North America logistics



Scott Olson/Getty Images

North America logistics



















European natural gas values fall

DUTCH TTF NATURAL GAS (USD/MMBTU) (ICIS HEREN) FRONT MONTH FUTURES - QUOTES

VENUE: GLOBEX

  AUTO-REFRESH IS OFF Last Updated 29 Nov 2022 03:26:15 PM CT. Market data is delayed by at least 10 minutes.

| MONTH | CHART | LAST | CHANGE | PRIOR SETTLE | OPEN | HIGH | LOW | VOLUME | UPDATED |
|---|---|------|--------|--------------|------|------|-----|--------|----------------------------|
|  JAN 2023 TTEF3 |  | - | - | 39.136 | - | - | - | 0 | 12:24:26 CT 29 Nov 2022 |
|  FEB 2023 TTEG3 |  | - | - | 39.656 | - | - | - | 0 | 12:24:26 CT 29 Nov 2022 |
|  MAR 2023 TTEH3 |  | - | - | 39.739 | - | - | - | 0 | 12:24:26 CT 29 Nov 2022 |
|  APR 2023 TTEJ3 |  | - | - | 39.604 | - | - | - | 0 | 12:24:26 CT 29 Nov 2022 |
|  MAY 2023 TTEK3 |  | - | - | 39.564 | - | - | - | 0 | 12:24:26 CT 29 Nov 2022 |
|  JUN 2023 TTEM3 |  | - | - | 39.855 | - | - | - | 0 | 12:24:26 CT 29 Nov 2022 |
|  JUL 2023 TTEN3 |  | - | - | 40.111 | - | - | - | 0 | 12:24:26 CT 29 Nov 2022 |
|  AUG 2023 TTEQ3 |  | - | - | 40.135 | - | - | - | 0 | 12:24:26 CT 29 Nov 2022 |

Russian fertilizer export duties

Still in proposed stages

- No duty rate up to \$450
- 23.5% duty on anything above \$450

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Russia accounts for:

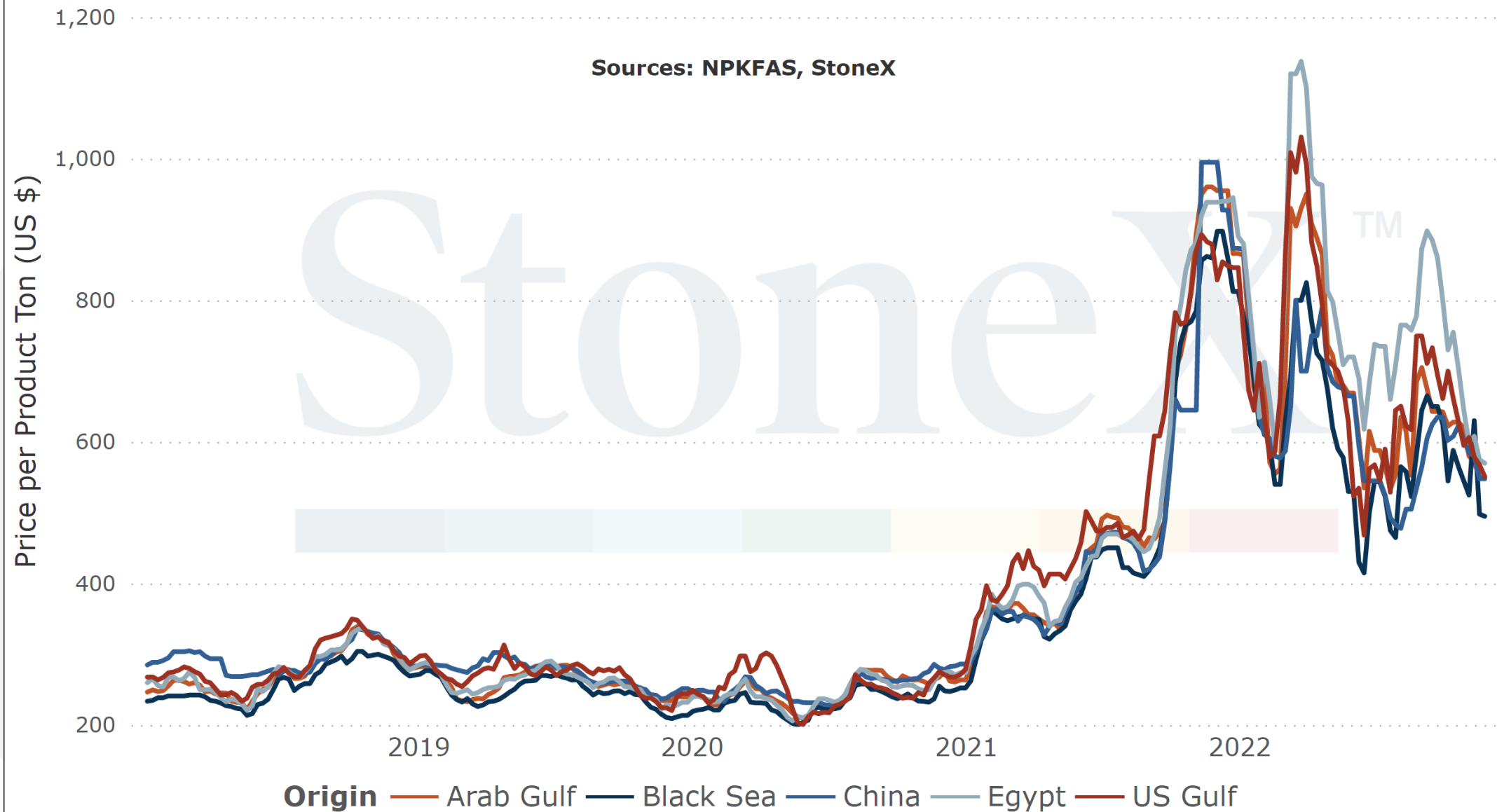
- Urea – 5% of global production
- UAN – 9% of global production
- Phosphate – 6% of global production
- Potash – 19% of global production

UREA



Arab Gulf, Black Sea, China, Egypt, US Gulf Urea Price History (\$/MT)

Sources: NPKFAS, StoneX



3 Main Focuses for Urea Today

European production

Chinese exports

Russian exports

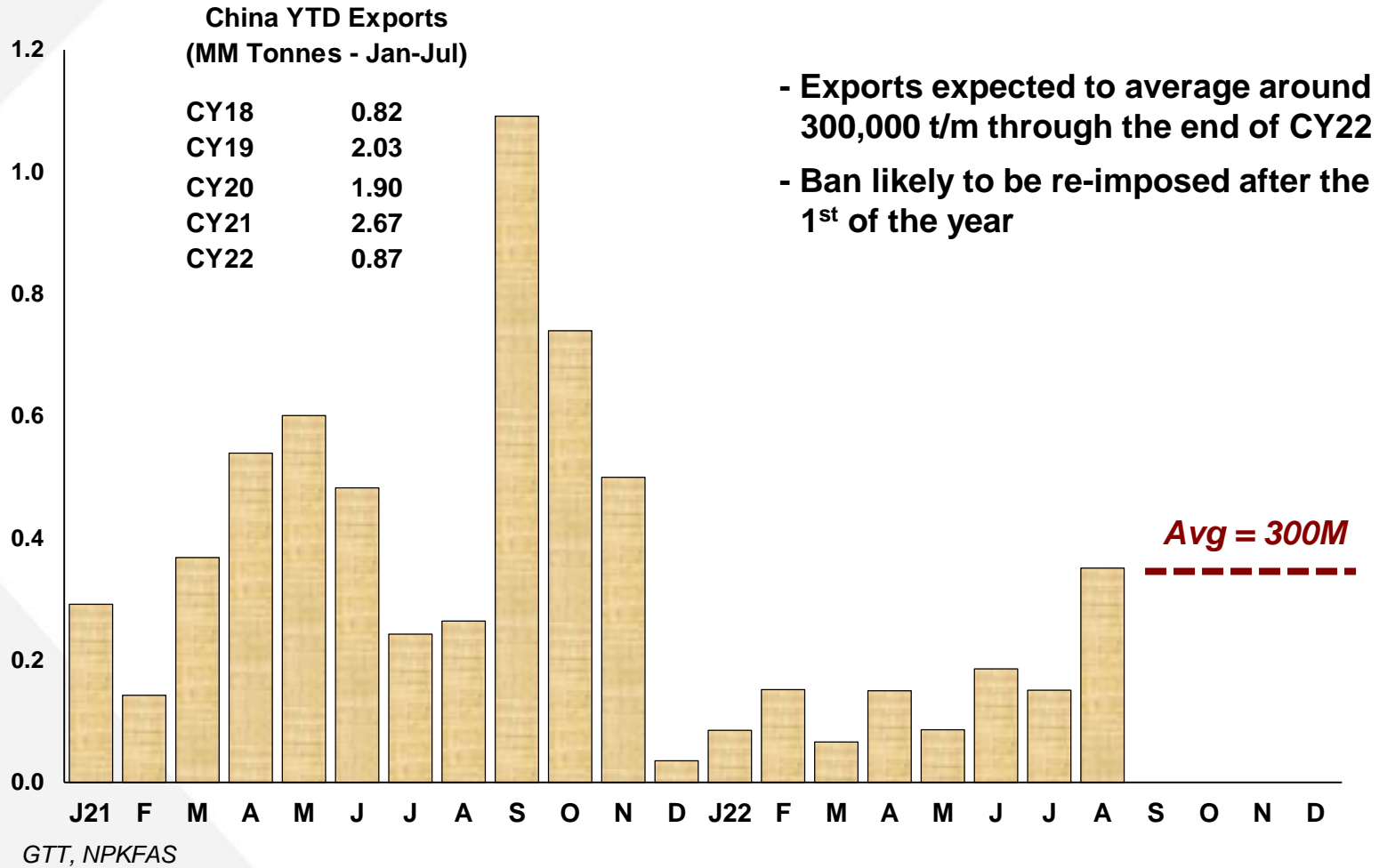
European Urea Capacity

2022 Urea Capacity by Region

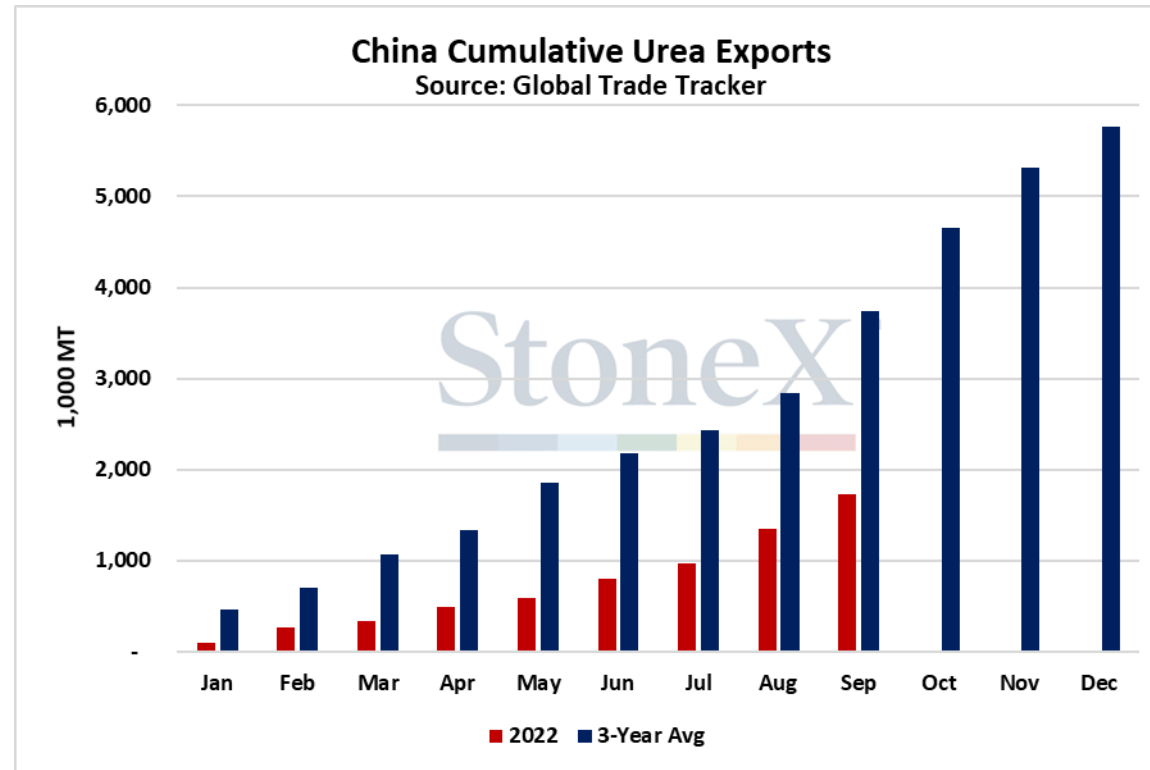
| Region | Capacity (000 Product Tons) | Market Share |
|----------------------|--------------------------------|--------------|
| China | 65,413 | 29.1% |
| South Asia | 40,972 | 18.2% |
| Arab Gulf | 24,722 | 11.0% |
| East Asia (ex China) | 17,046 | 7.6% |
| Russia | 12,624 | 5.6% |
| U.S. | 12,557 | 5.6% |
| Europe | 11,270 | 5.0% |
| North Africa | 11,265 | 5.0% |
| E. Europe/C. Asia | 9,433 | 4.2% |
| Latin America | 8,054 | 3.6% |
| Nigeria | 5,778 | 2.6% |
| Canada | 4,143 | 1.8% |
| Oceania | 574 | 0.3% |
| Other | 663 | 0.3% |
| World Total | 224,513 | 100% |



China Urea Exports (MM Product Tonnes)



China Urea Exports (MM Product Tonnes)

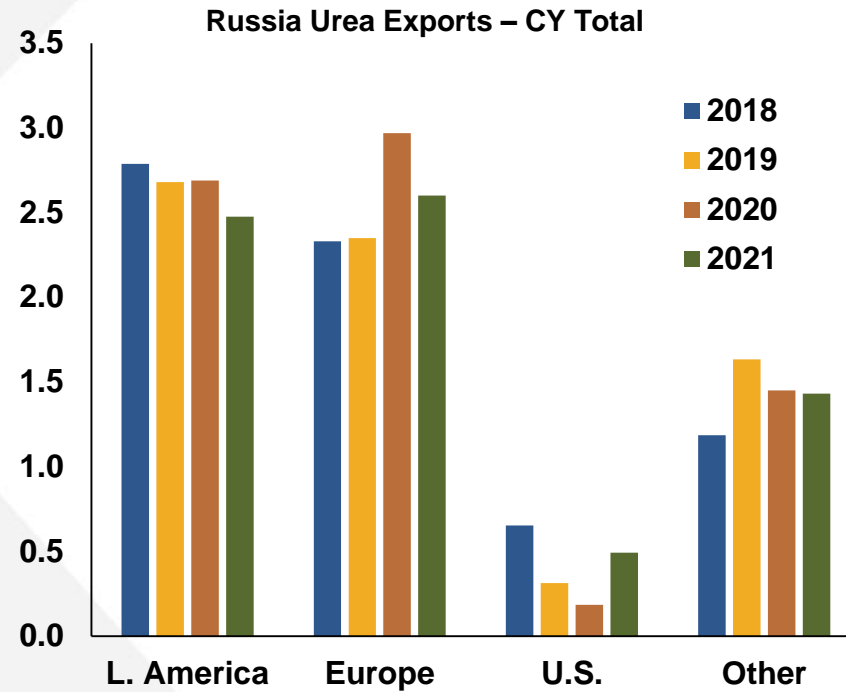


GTT, NPKFAS

While exports have increased, still well behind “normal”

Russian Urea Exports

(000 Product Tonnes)



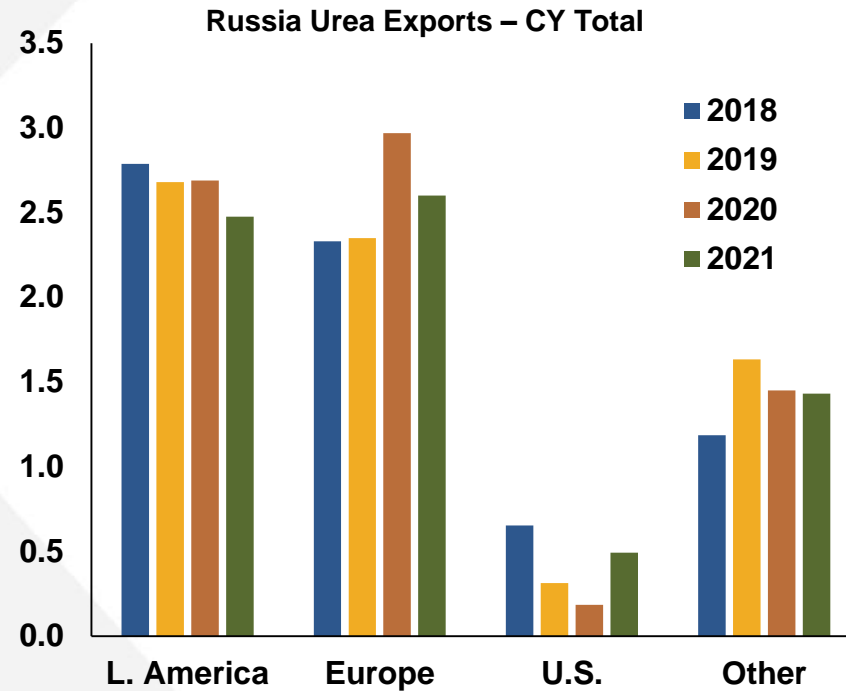
Source: GTT

Russia YTD Urea Exports
YTD (Jan-May) - MM Tonnes

| | CY20 | CY21 | CY22 | Change |
|-------------|-------|-------|-------|---------|
| EU | 422 | 370 | 293 | (77) |
| EEC/CA | 517 | 413 | 423 | 10 |
| U.S. | 391 | 693 | 303 | (390) |
| Canada | 133 | 233 | 163 | (70) |
| Mexico | 303 | 215 | 44 | (171) |
| Brazil | 363 | 682 | 413 | (269) |
| Other LA | 550 | 461 | 214 | (247) |
| India | 95 | 47 | 296 | 248 |
| ROW | 152 | 93 | 50 | (43) |
| World Total | 2,926 | 3,207 | 2,198 | (1,010) |

Russian Urea Exports

(000 Product Tonnes)



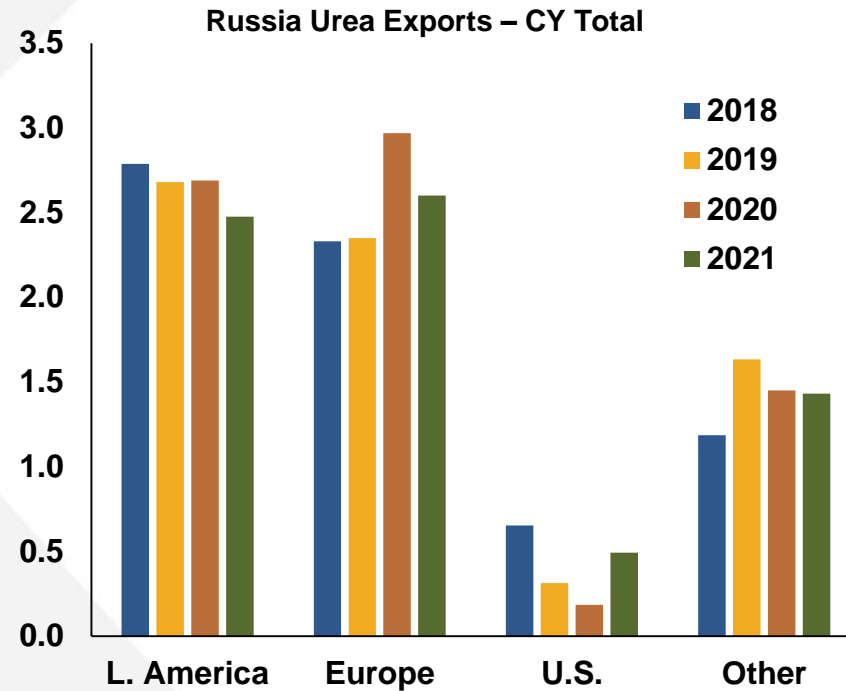
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Will the proposed duty rate reduce exports?

Russian Urea Exports (000 Product Tonnes)



Source: GTT

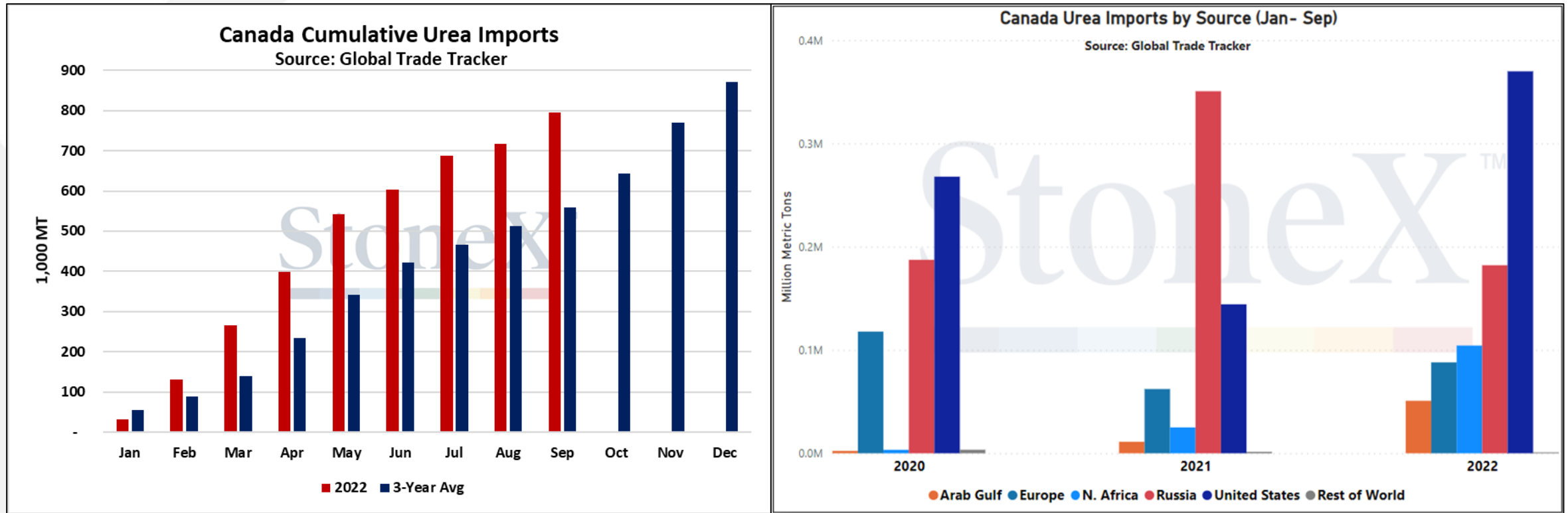
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Will the proposed duty rate reduce exports?

It shouldn't

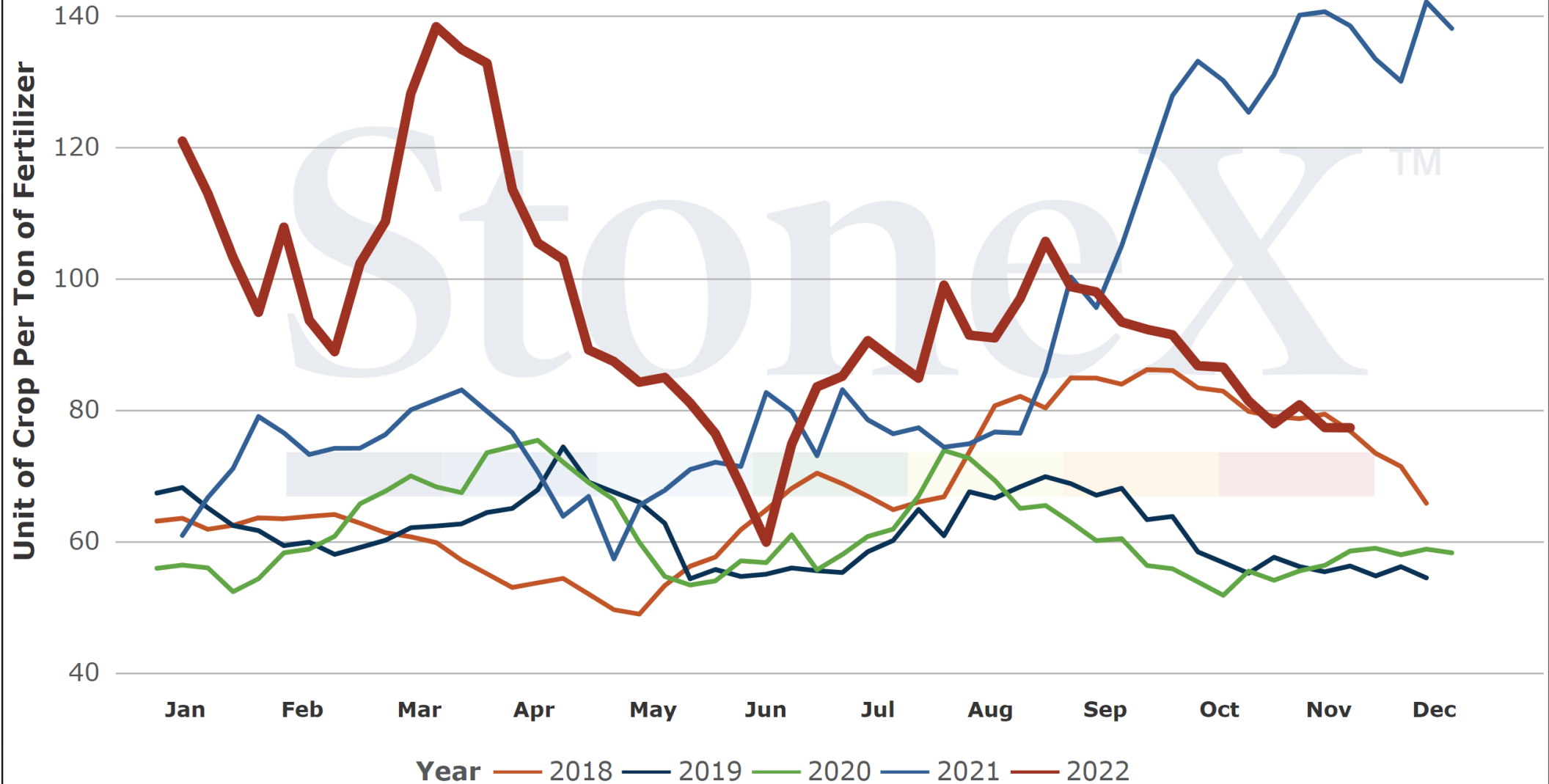
How does Canada sit?



Source: GTT

NOLA Urea / New Crop Corn Ratio

Sources: Argus, ProphetX





Long-Term Outlook

Bullish factors

- **European production remains low thru winter**
- **Urea remains low priced vs UAN/NH3**
- **N.A. logistics continue to struggle**

Bearish factors

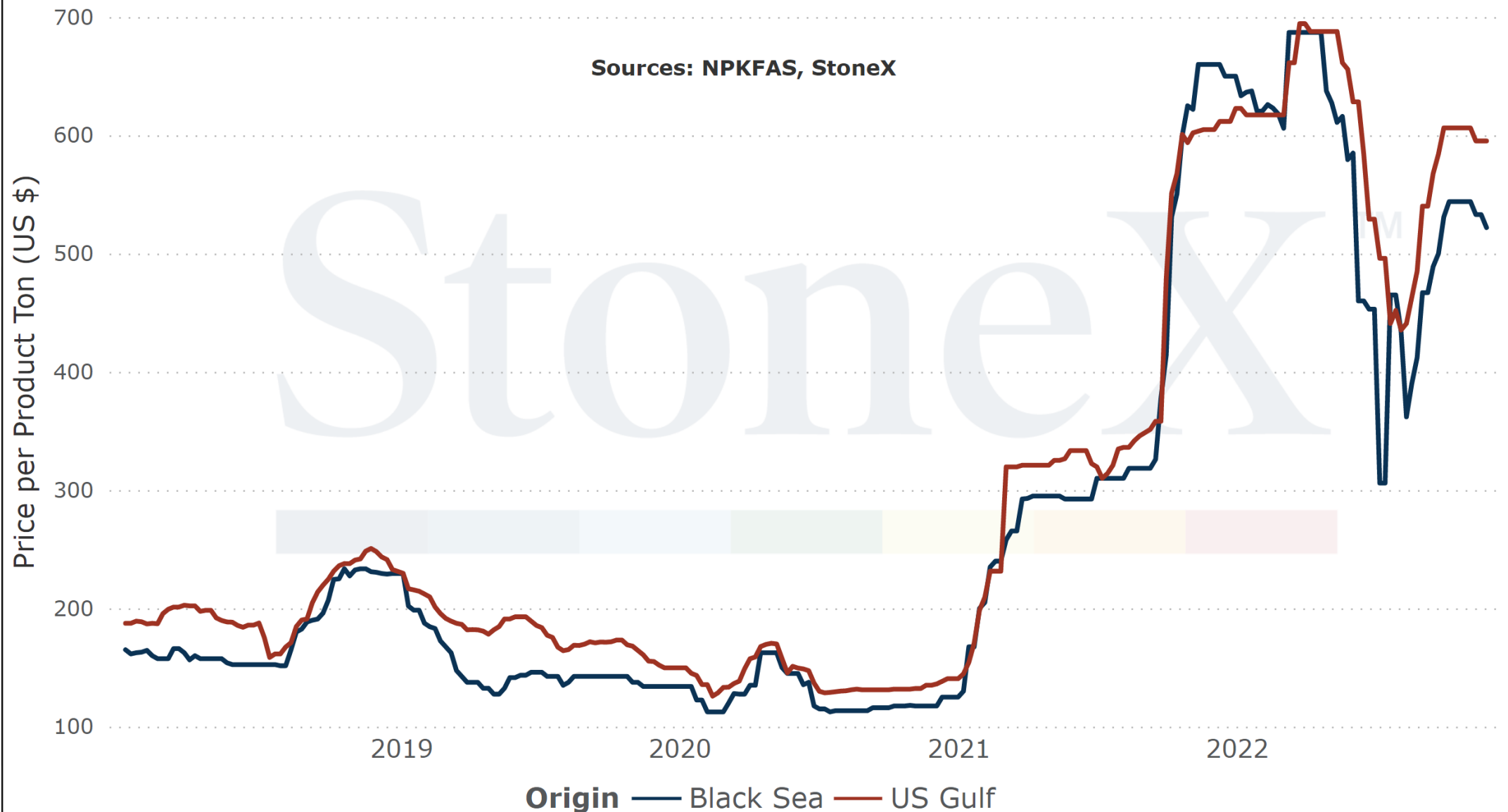
- **European production continues to outpace expectations**
- **Chinese/Russian exports continue to pick up**
- **World demand points better purchased than expected**

UAN



Black Sea, US Gulf UAN Price History (\$/MT)

Sources: NPKFAS, StoneX



4 Main Focuses for UAN Today

European production

Russian exports/approaches

N price spreads leading to demand switches

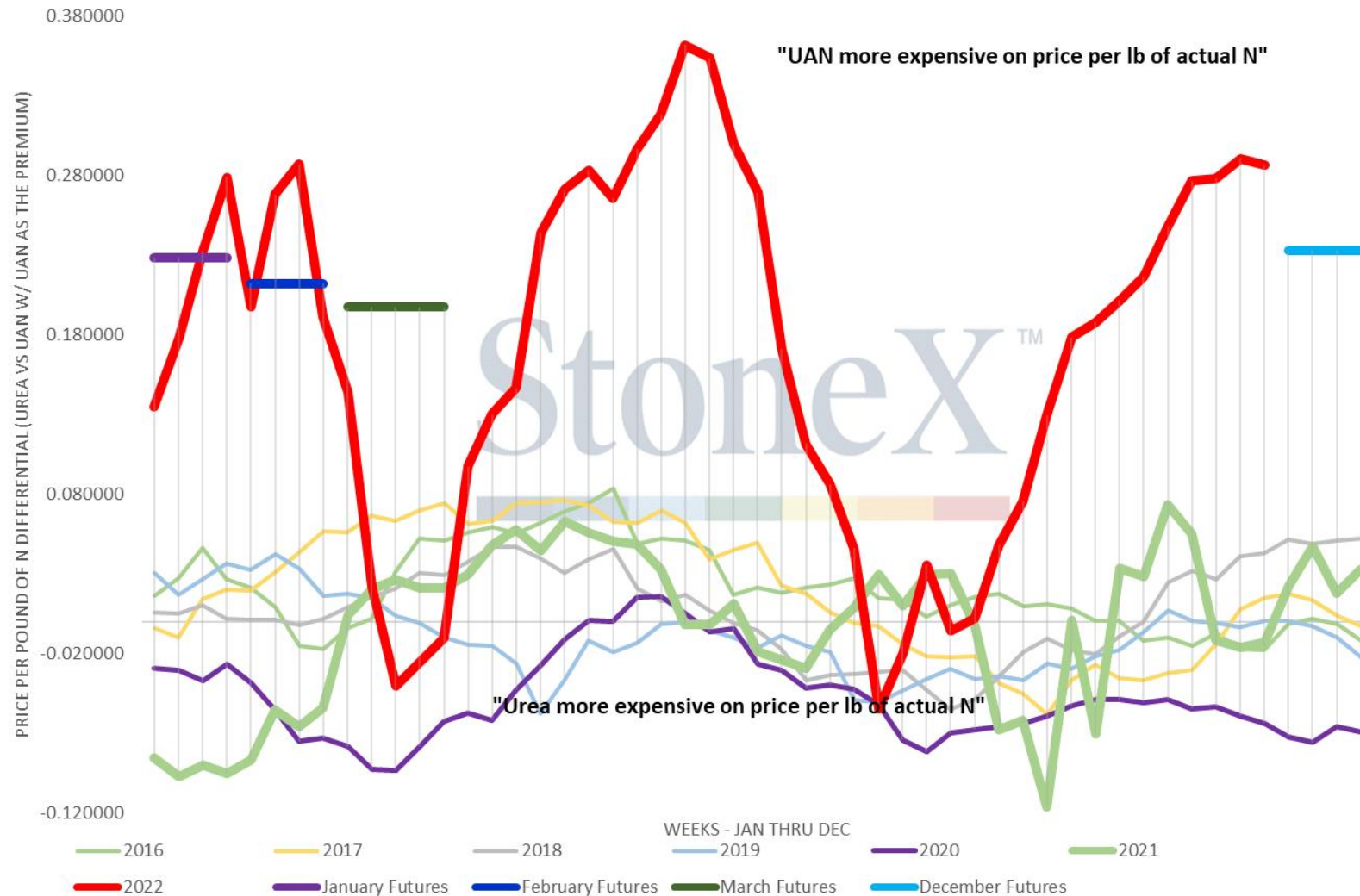
CF Approach to Sales

World UAN Capacity / Exports

(CY 20 MM Product Tonnes)

| | Capacity | | Exports | | |
|-------|----------|------|---------|------|-------|
| | 14.32 | 40% | 0.96 | 12% | |
| | 1.63 | 5% | 0.43 | 5% | |
| | 1.42 | 4% | 1.46 | 18% | |
| → → → | 3.07 | 9% | 2.72 | 34% | ← ← ← |
| → → → | 7.29 | 21% | 1.17 | 14% | ← ← ← |
| | 3.53 | 10% | 0.84 | 10% | |
| | 1.06 | 3% | 0.35 | 4% | |
| | 2.60 | 7% | 0.00 | 0% | |
| | 0.54 | 2% | 0.17 | 2% | |
| | 35.46 | 100% | 8.10 | 100% | |

NOLA Urea/UAN N Spread



What will CF do?

Europe restarting = less export options

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Large carryover from spring = less storage available domestic

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U.S. 5 straight months of net export = large export volumes

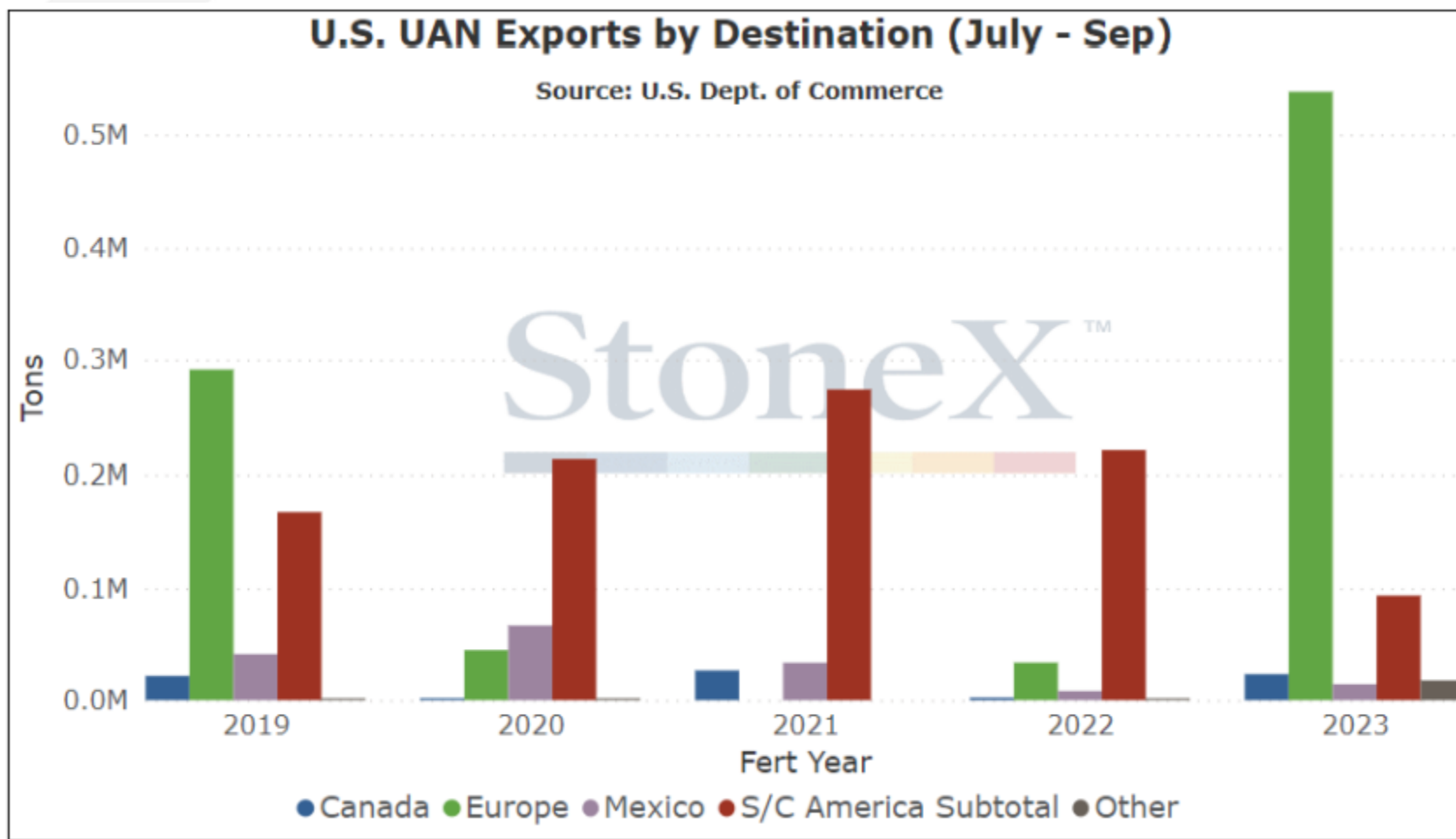
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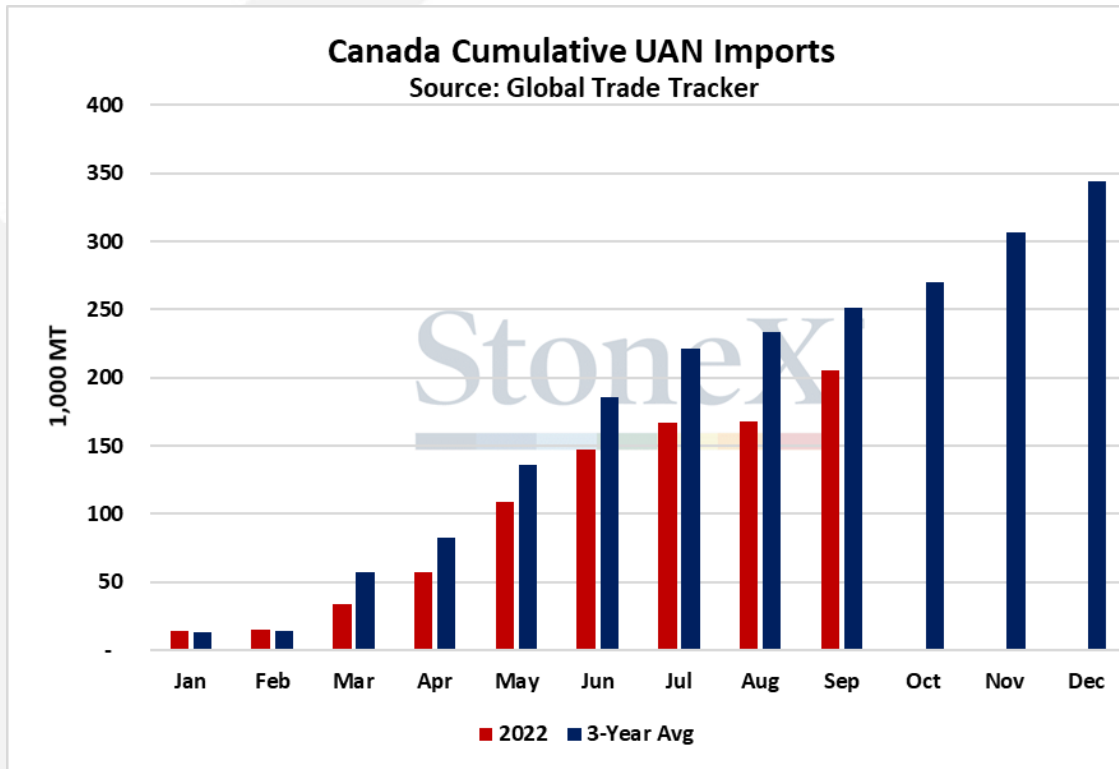
Move more production toward urea or UAN = rebalance w/
production?

What will CF do?

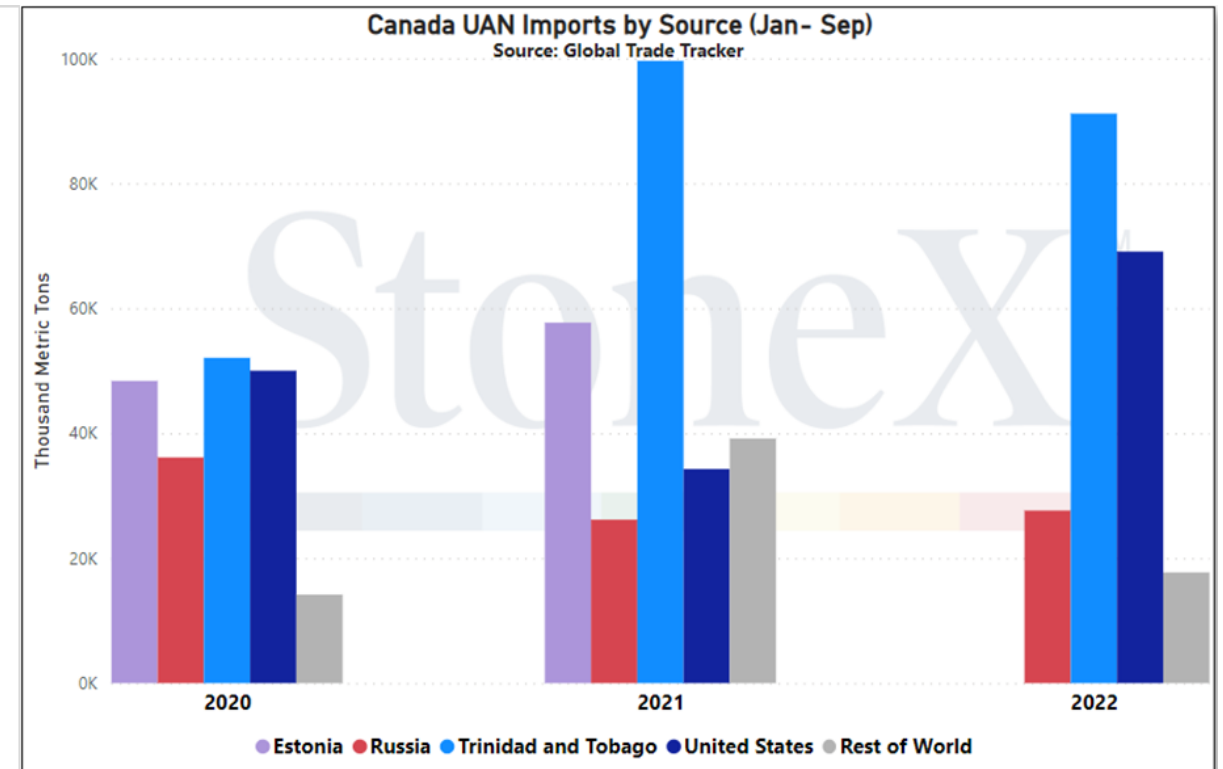
Europe restarting = less export options
Large carryover from spring = less storage available domestic
U.S. 5 straight months of net export = large export volumes
Continue exporting to Europe = possible with restarts?
Move more production toward urea or UAN = rebalance w/
production?

They typically determine the market

How does Canada sit?



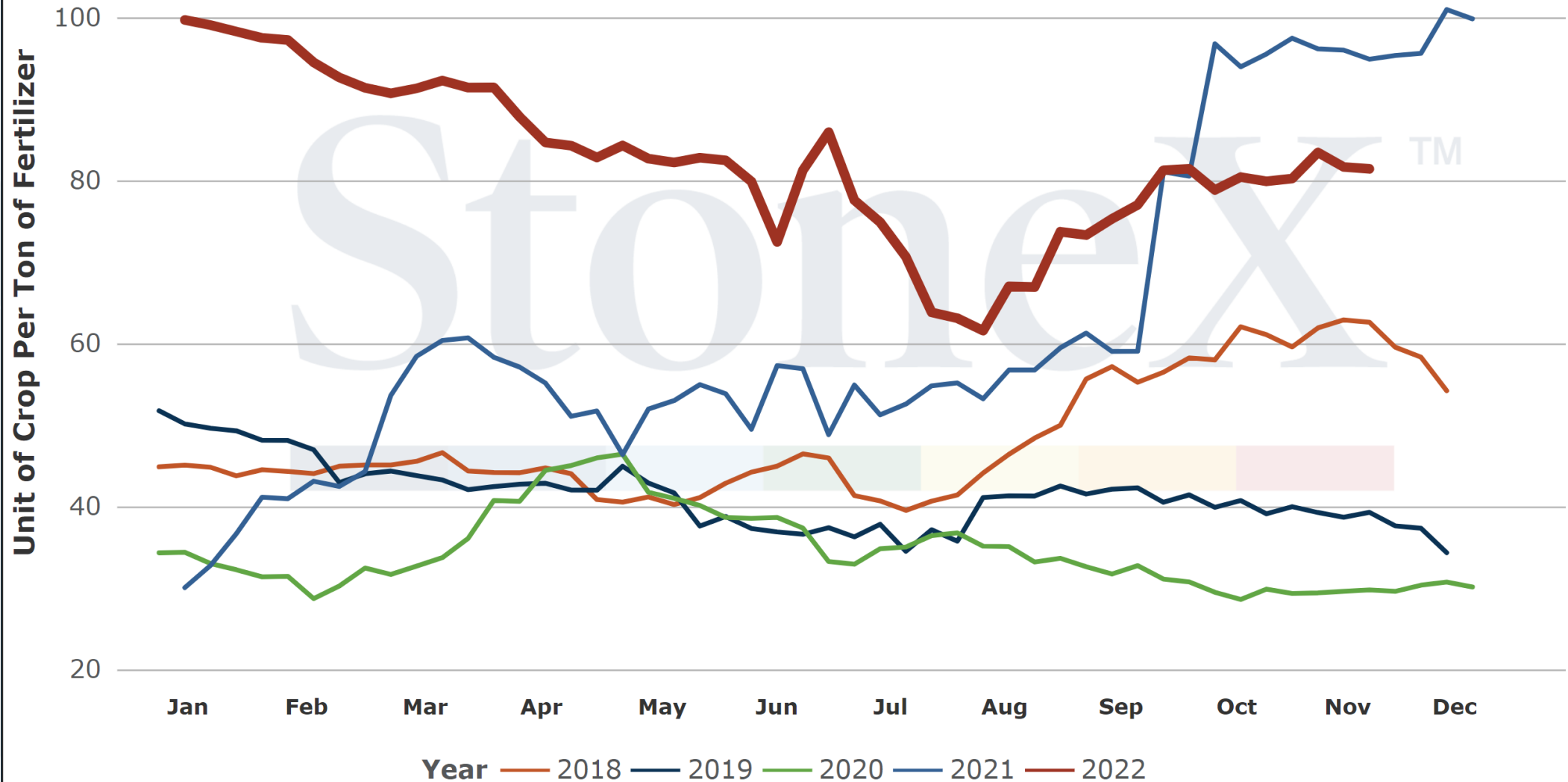
Source: GTT



Source: GTT

NOLA UAN / New Crop Corn Ratio

Sources: Argus, ProphetX





Long-Term Outlook

Bullish factors

- **Europe production falters again**
- **Strong N.A. export opportunities to Europe**
- **Strong N demand for 2023 crop**

Bearish factors

- **UAN currently big premium vs urea**
- **Spring inventory carryover may haunt us this winter**
- **Europe restarting reduces/stops export options**

NH₃



Midwest Avg NH3 Price History (\$/ST)

Sources: NPKFAS, StoneX



3 Main Focuses for NH3 Today

European production

Industrial demand

N.A. fall demand

What have we lost?

2022 Ammonia Capacity by Region

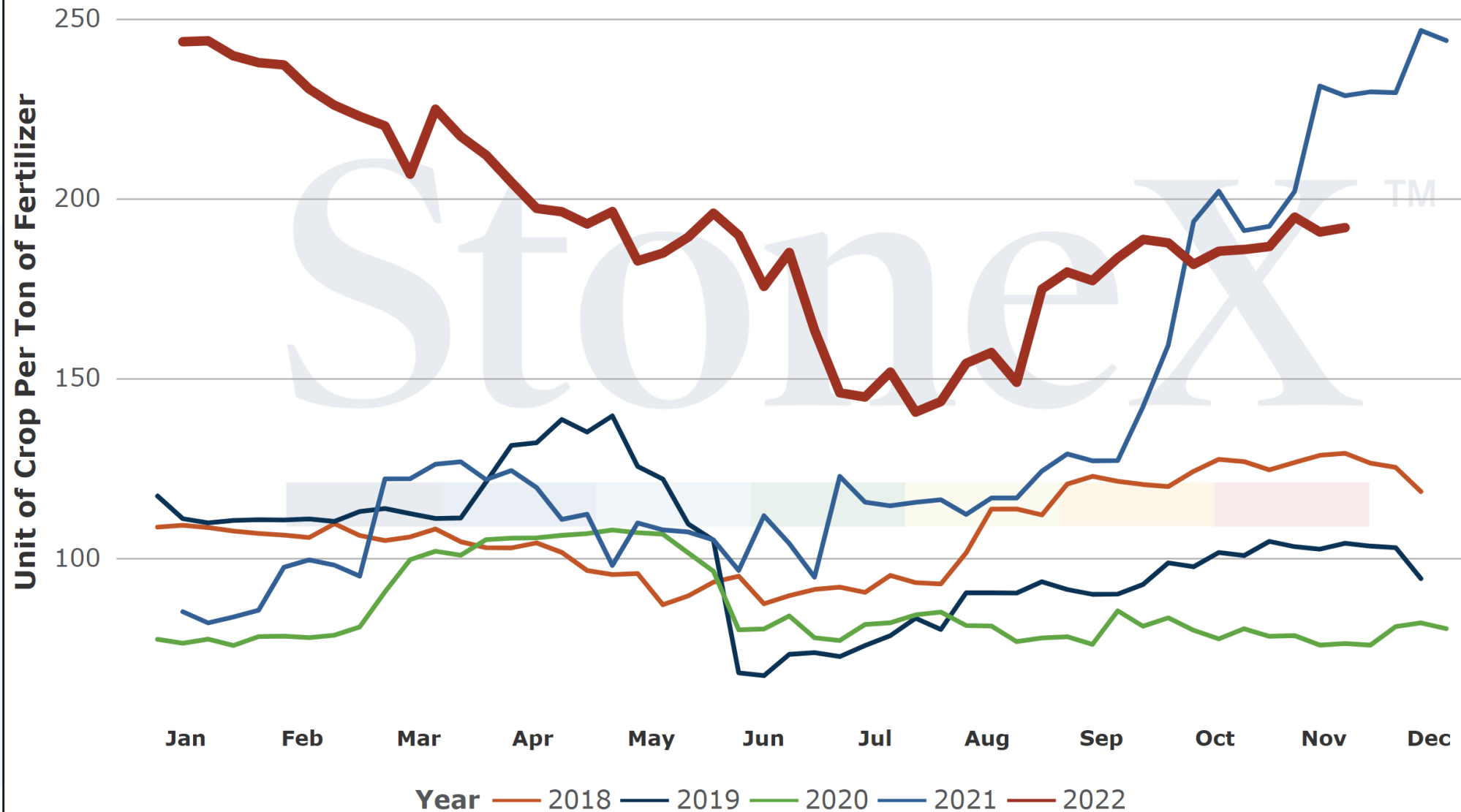
| Region | Capacity (000 Product Tons) | Market Share |
|---------------------|--------------------------------|--------------|
| East Asia | 82,507 | 35.6% |
| E. Europe & C. Asia | 32,526 | 14.0% |
| South Asia | 25,694 | 11.1% |
| North America | 22,733 | 9.8% |
| West Asia | 21,930 | 9.5% |
| Europe | 19,224 | 8.3% |
| Africa | 13,557 | 5.8% |
| Latin America | 11,423 | 4.9% |
| Oceania | 2,281 | 1.0% |
| World Total | 231,875 | 100% |



Will we see a major recession?

Western Corn Belt NH3 / New Crop Corn Ratio

Sources: Argus, ProphetX





Long-Term Outlook

Bullish factors

- **Europe production falters again**
- **Fall N.A. demand better than expected (clears excess inventories)**
- **Very little new capacity expected near term while demand climbs**

Bearish factors

- **European production continues to rise**
- **Recession cuts industrial demand higher than expected**
- **High price/poor weather equate to poor fall application run**

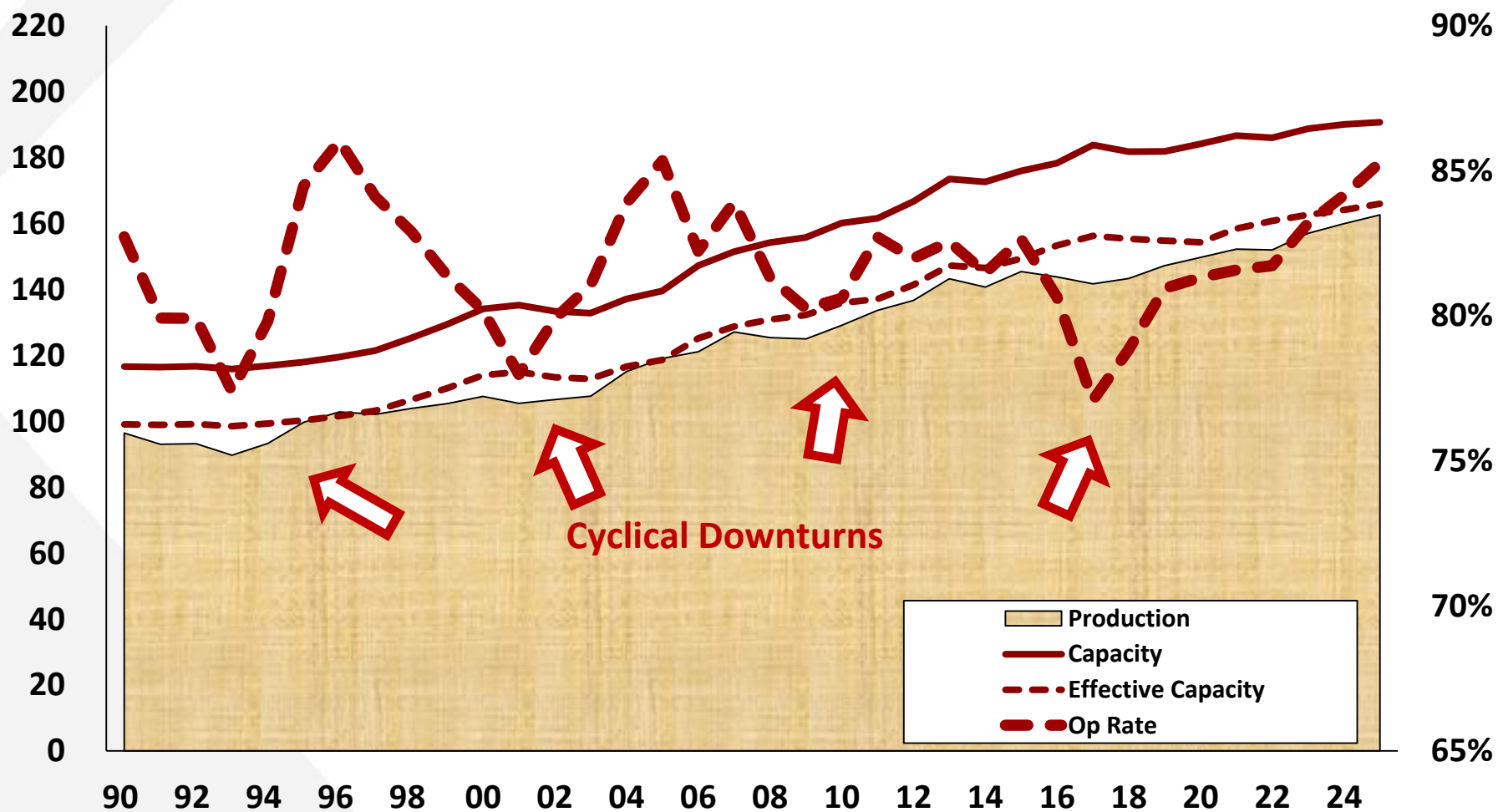
WHAT DOES LONGER TERM NITROGEN MARKET LOOK LIKE?



World Nitrogen Supply/Demand

(Million Tonnes N)

- The World nitrogen s/d balance is currently in an upcycle as growth in demand exceeds the net change in expected capacity."



Source: IFA, NPKFAS

Calendar Years

PHOSPHATES



Black Sea, China, Morocco, Saudi Arabia, US Gulf DAP Price History (\$/MT)

Sources: NPKFAS, StoneX



3 Main Focuses for Phosphate Today

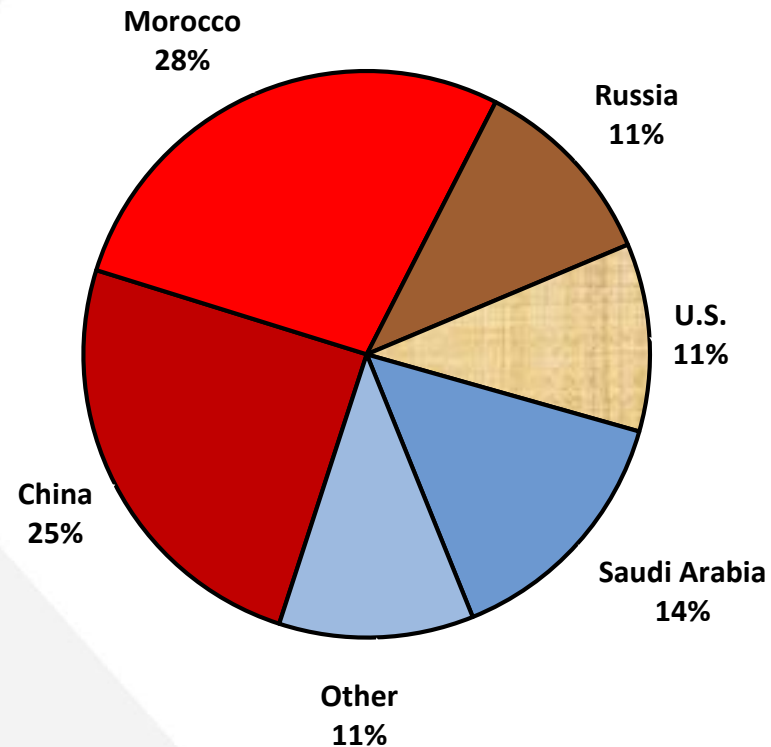
Chinese export programs

Demand during the Fertilizer Year 2023 cycle

Cost of production / possible firm price floor

World DAP/MAP Trade (CY20 = 15.4 MM Tonnes P2O5)

Exports



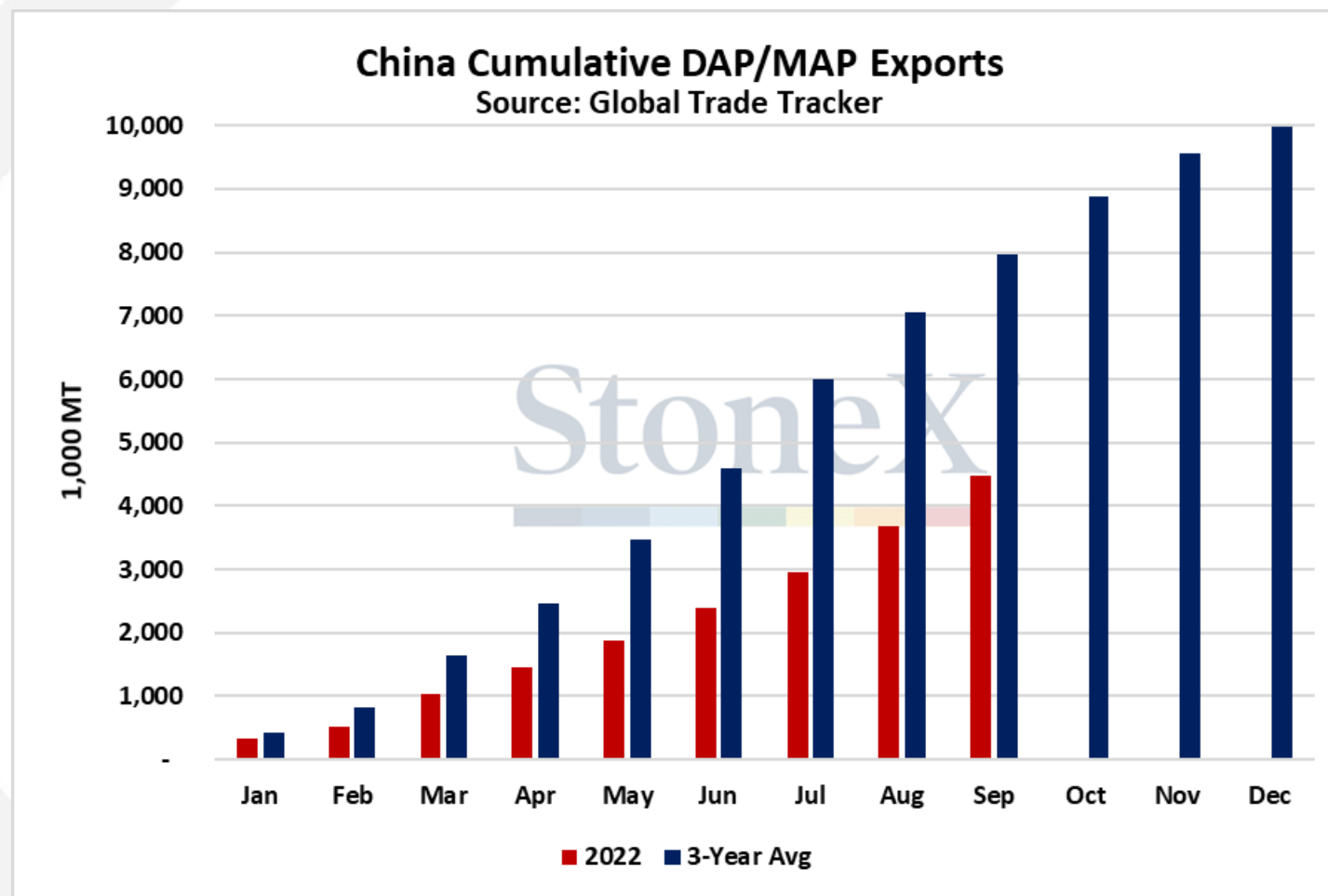
“Morocco, Russia and China account for roughly two-thirds of total world trade”

| | Capacity | | Exports | |
|--------------|----------|------|---------|------|
| China | 15,785 | 38% | 3,801 | 25% |
| U.S. | 5,804 | 14% | 1,643 | 11% |
| Morocco | 4,710 | 11% | 4,246 | 28% |
| India | 3,840 | 9% | 0 | 0% |
| Saudi Arabia | 3,060 | 7% | 2,222 | 14% |
| Russia | 2,609 | 6% | 1,710 | 11% |
| Brazil | 788 | 2% | 0 | 0% |
| Australia | 540 | 1% | 220 | 1% |
| Mexico | 532 | 1% | 249 | 2% |
| Jordan | 420 | 1% | 325 | 2% |
| Tunisia | 501 | 1% | 186 | 1% |
| Lithuania | 455 | 1% | 265 | 2% |
| Sub-Total | 39,044 | 93% | 14,866 | 97% |
| Other | 2,861 | 7% | 508 | 3% |
| Total | 41,905 | 100% | 15,374 | 100% |

Subject to U.S. Import Duties

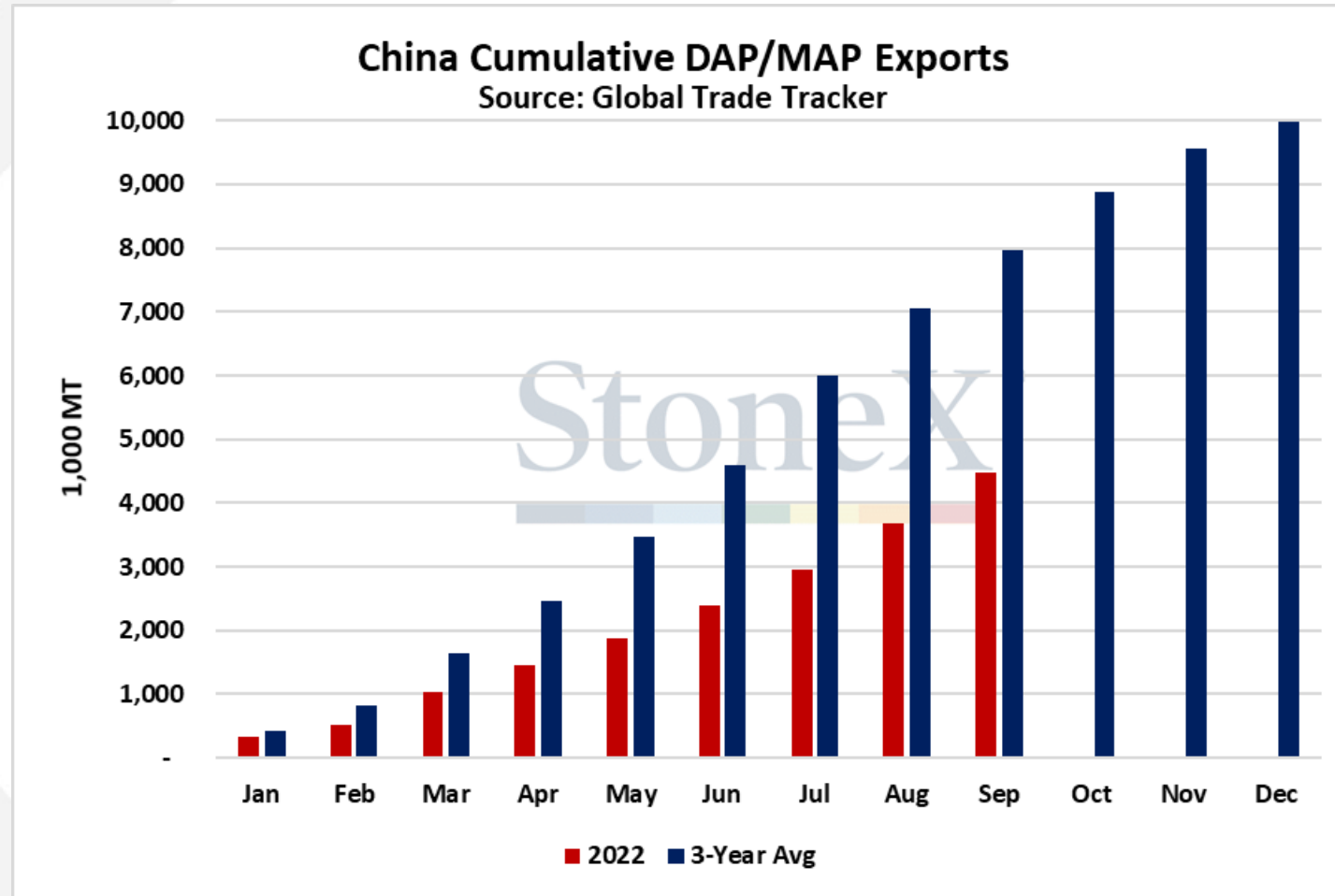
Source: International Fertilizer Association

Chinese exports



Source: GTT

Chinese exports



Source: GTT

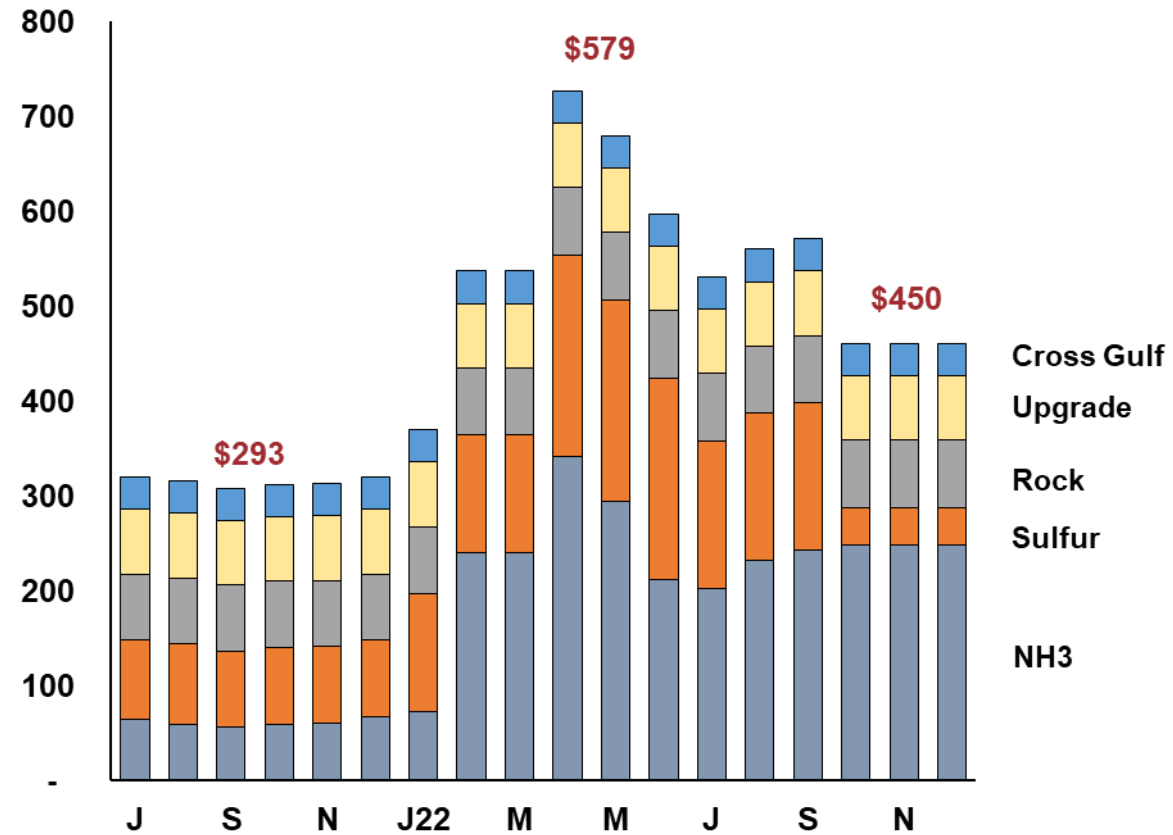
Losing our largest producer and one of largest exporters

Global phosphate demand?

Phosphate is historically high priced

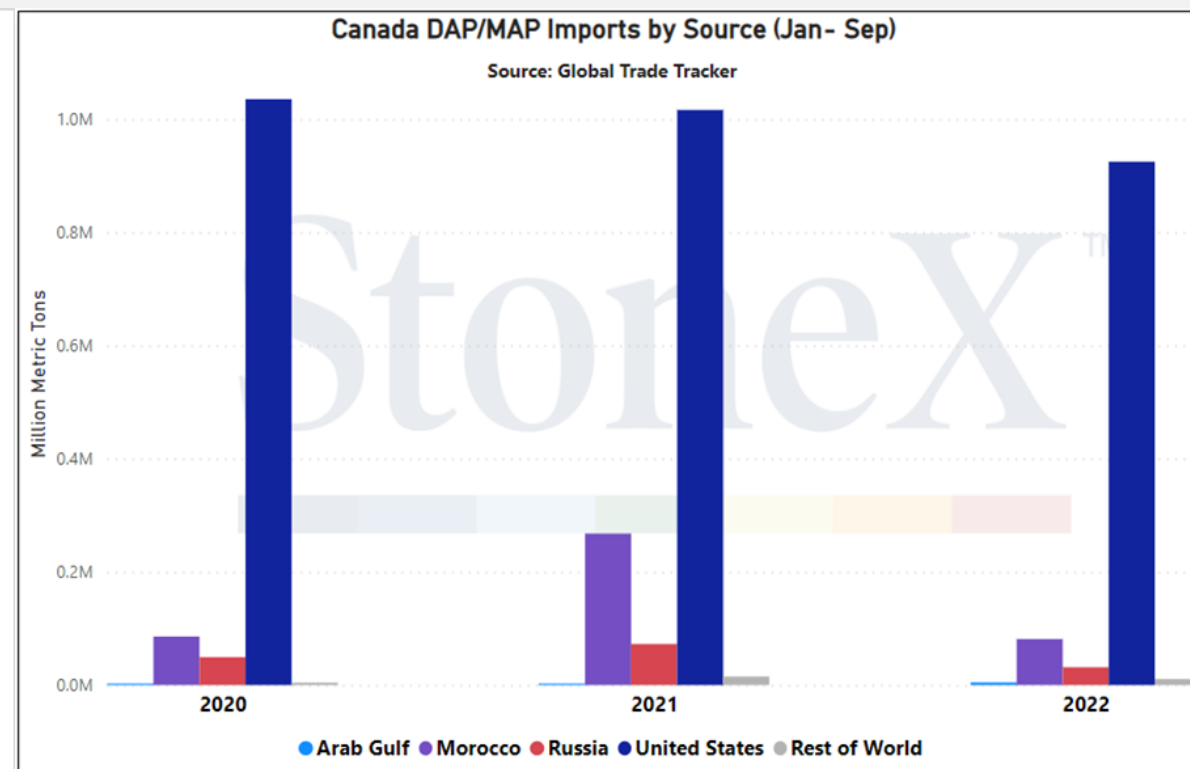
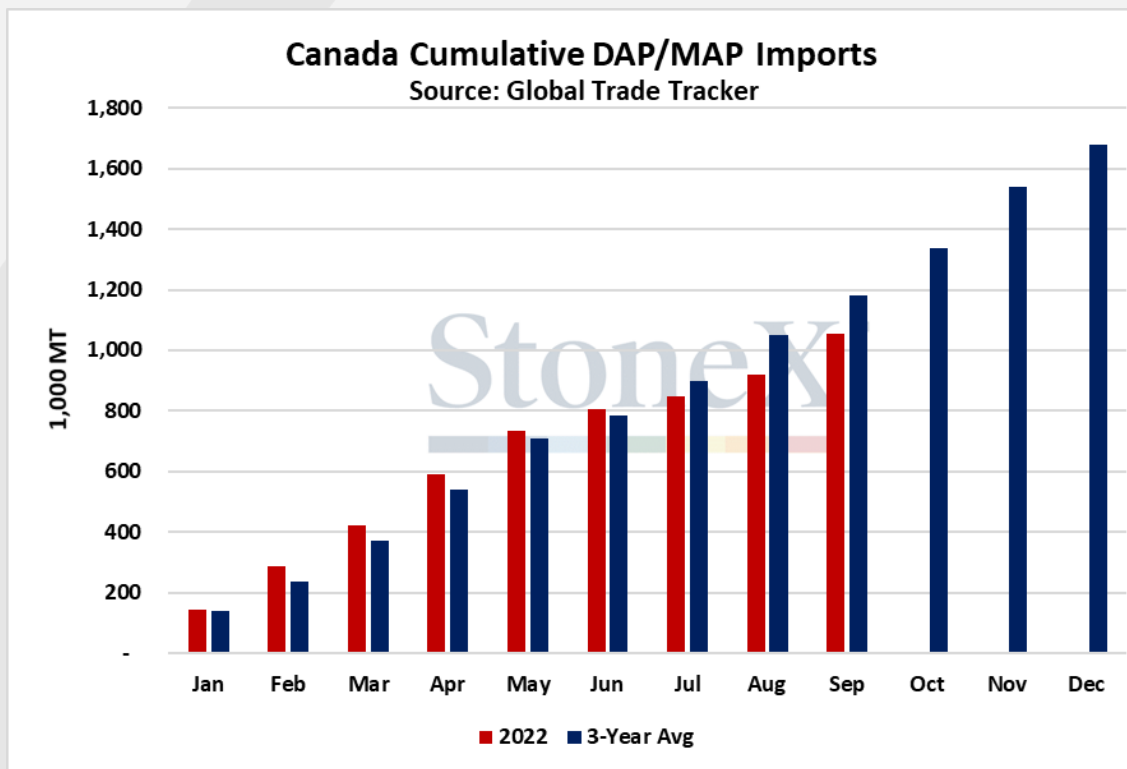
Will farmers spend the money?

U.S. Phosphate Cost of Production Dropping





How does Canada sit?

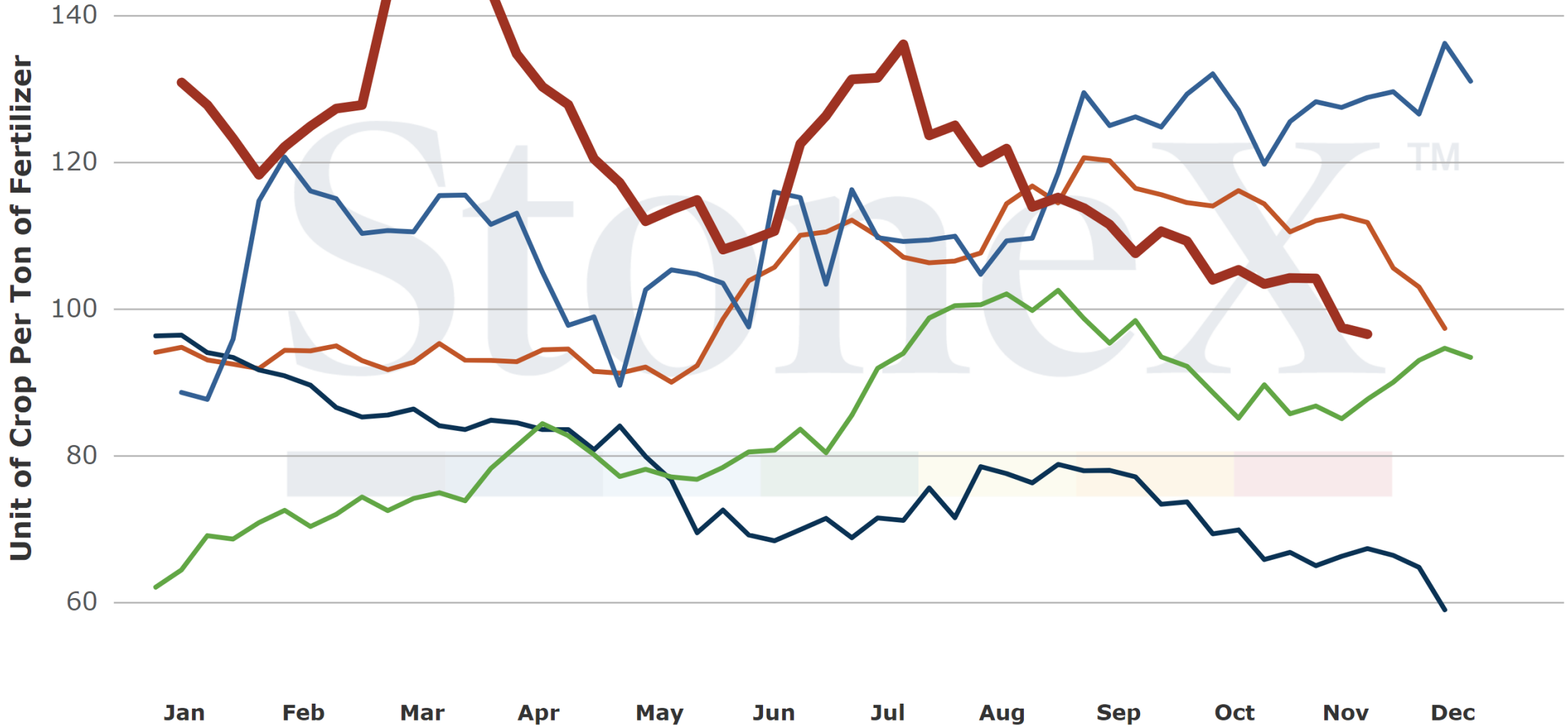


Source: GTT



NOLA DAP / New Crop Corn Ratio

Sources: Argus, ProphetX





Long-Term Outlook

Bullish factors

- **Chinese exports turn off again**
- **Fall/overall demand better than expected**
- **Reduced production levels**

Bearish factors

- **Chinese exports return to normal**
- **Falling N.A. production values**
- **Poor demand as farmers push back**

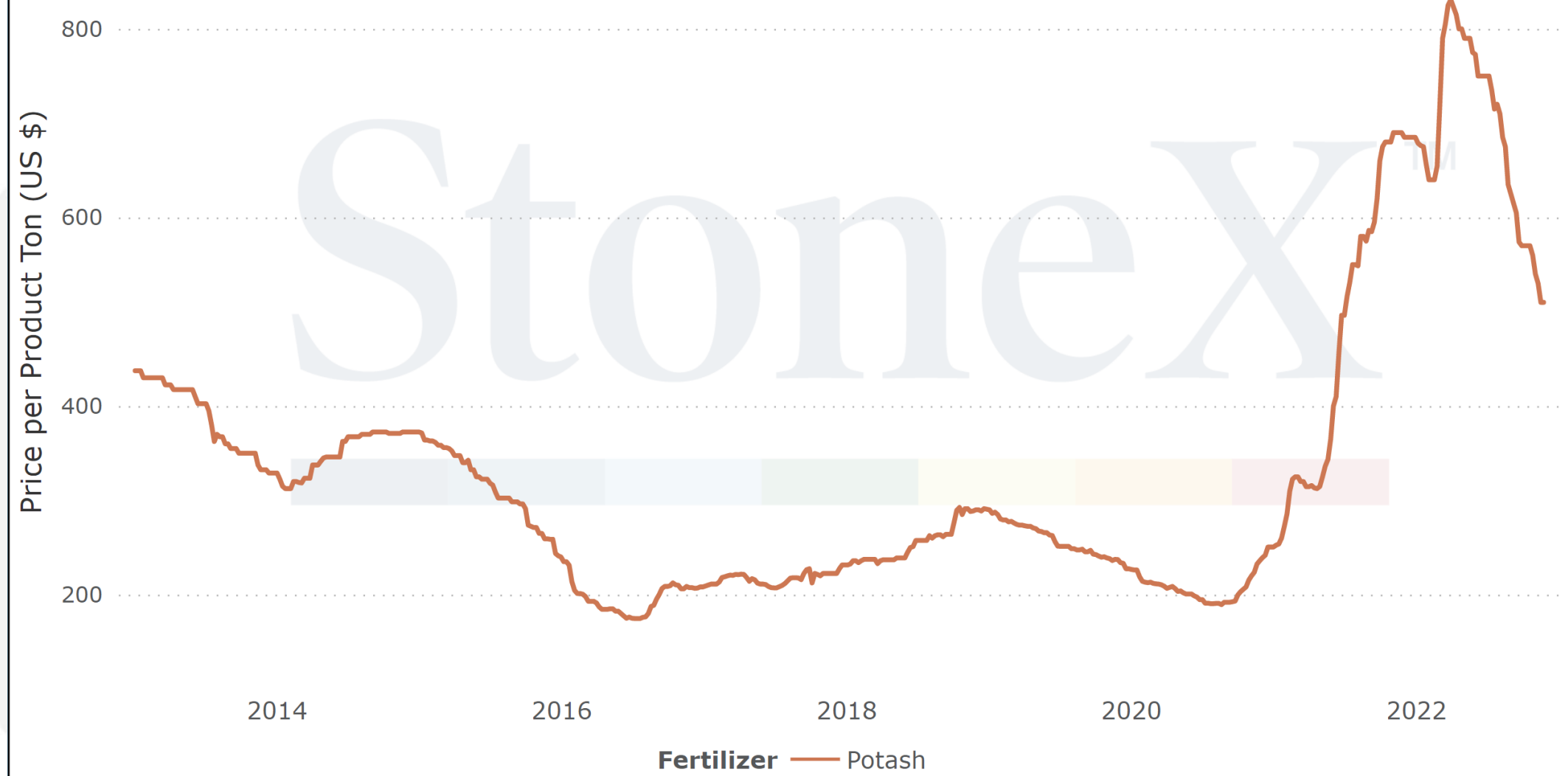


POTASH



NOLA Potash Price History (\$/ST)

Sources: NPKFAS, StoneX



4 Main Focuses for Potash Today

Lithuania / Belarus relations

Russian export flows

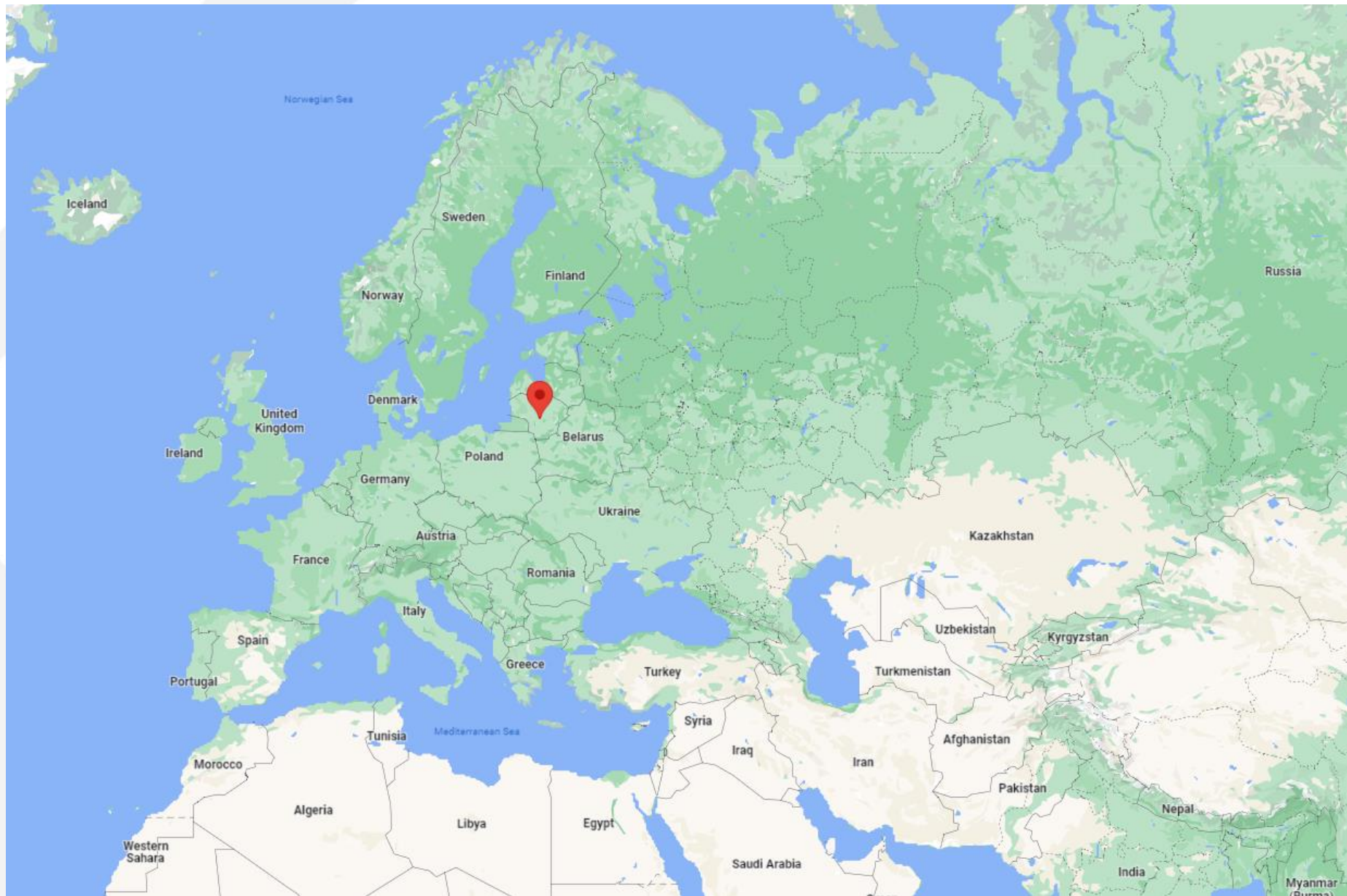
New supplies coming

Sketchy demand

Global potash market linchpin

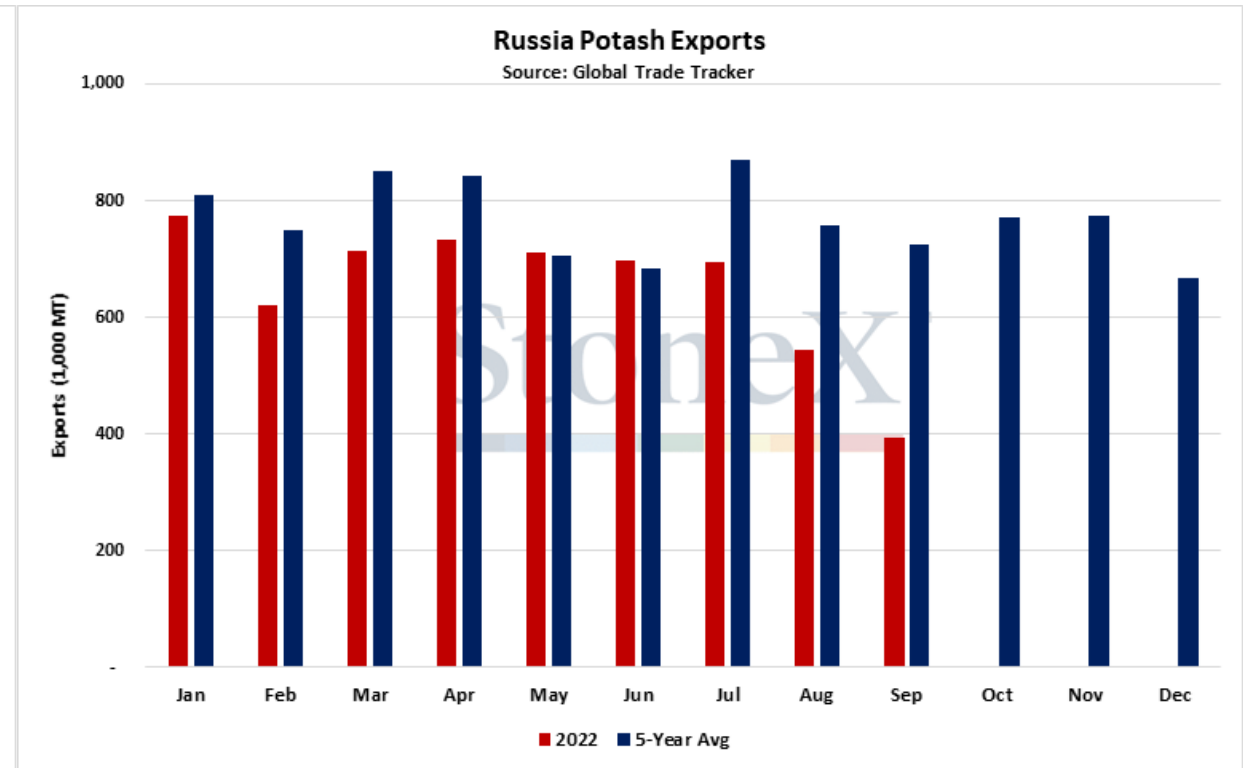
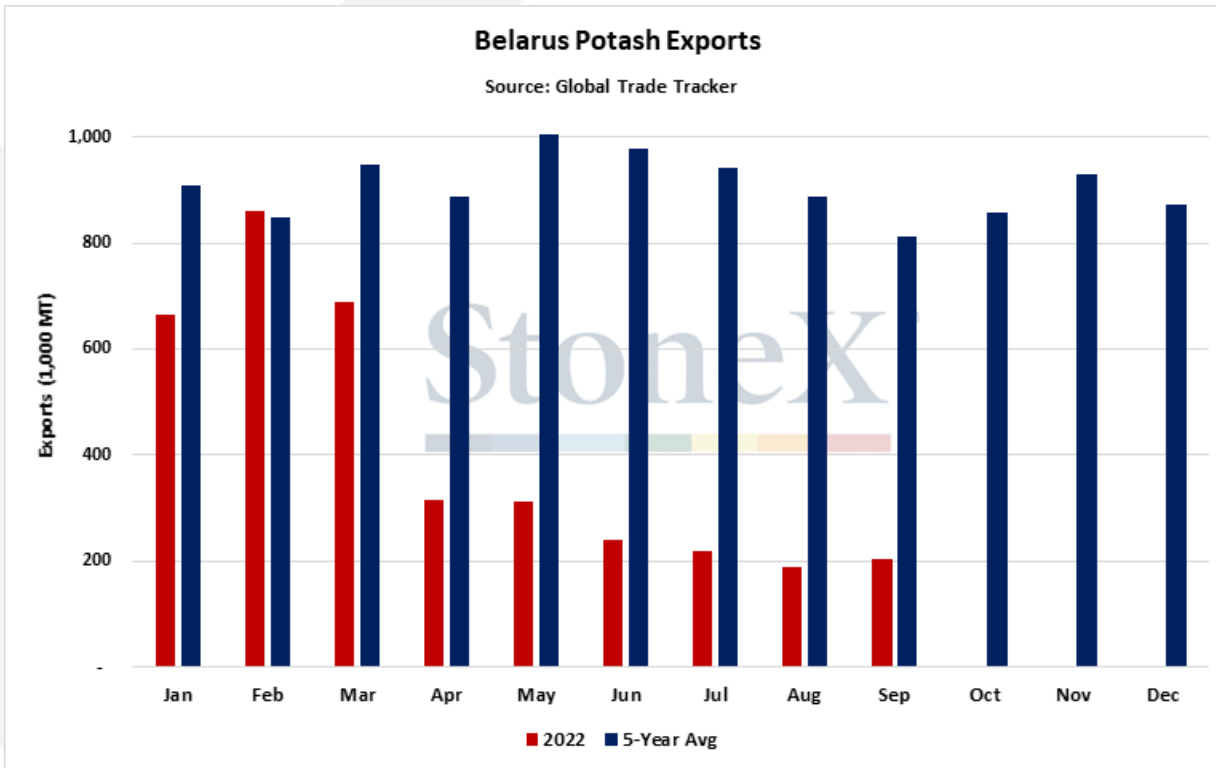
Lithuania??





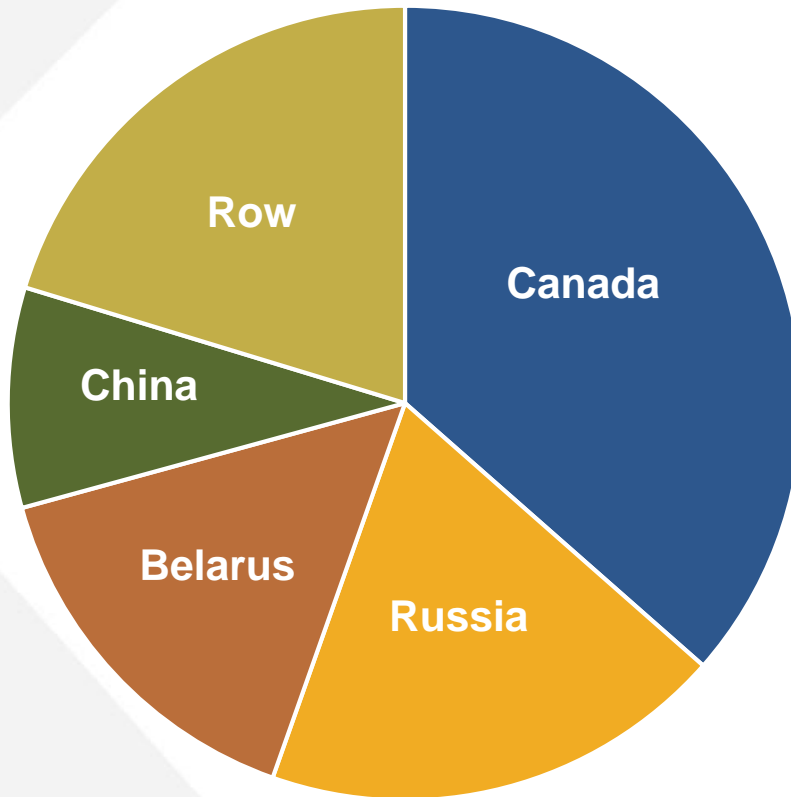
Source: Google Maps

Russia / Belarus Potash Exports



World Potash Capacity (MOP)

(000 Tonnes of Product)

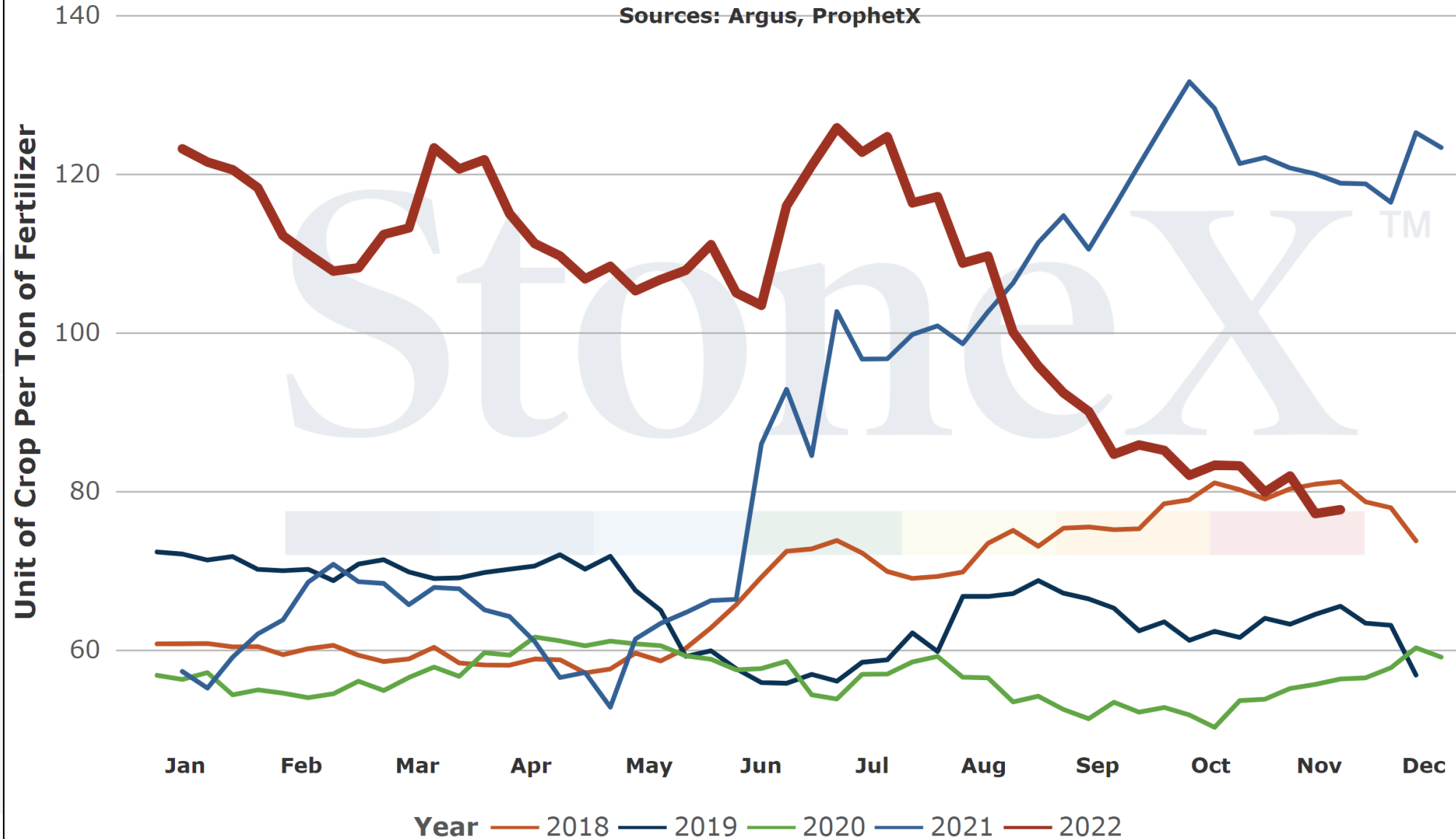


| | <u>000 Tonnes</u> | <u>% of Total</u> |
|---------|-------------------|-------------------|
| Canada | 36,650 | 36% |
| Russia | 19,000 | 19% |
| Belarus | 15,410 | 15% |
| China | 8,995 | 9% |
| Row | 20,385 | 20% |
| Total | 100,440 | 100% |

Demand for FY '23?

NOLA Potash / New Crop Corn Ratio

Sources: Argus, ProphetX





Long-Term Outlook

Bullish factors

- **Belarus exports remain low**
- **Demand returns with improving ratios to grain**

Bearish factors

- **Lower application rate/fall appliers delaying until spring**
- **Lithuania allows shipments to assist European demand**
- **New Canadian/Russian capacity ramping up/expected**

Last thoughts

All farmer inputs are going up...

Emotions are going to run high. Be prepared.

DO NOT BE AFRAID TO SECURE A PROFIT



Thank you

