Overview

- Macro Economic Conditions
- Factors Affecting Fertilizer Prices
- Poultry Litter and Alternative Nutrient Sources
- Reducing Costs and 2023 Price Outlook
MACRO ECONOMIC CONDITIONS

- Inflation
- Interest Rates
- GDP Growth
- Government Spending
- Labor Force
- Exchange Rates
Monthly Inflation Rate 2020-2022

Source: https://www.statista.com/statistics

Real. Life. Solutions.
Bank Prime Loan Rate

Current Bank Prime Rate 7.5%
Up 4.25% in 2022
0.25-0.75% potential increase in Q1 2023
Possible reductions 4th quarter 2023 or 2024

Source: https://fred.stlouisfed.org/series/DPRIME
U.S. GDP Growth by Quarter, 2012-2022

Source: https://www.statista.com/statistics

Real. Life. Solutions.
Government Receipts, Outlays, and Deficit, 2000-2027e

Source:
https://www.whitehouse.gov/omb/budget/historical-tables/

Real. Life. Solutions.
Labor force participation rate was 58-60% until the late 1960s, peaked at 67.3 in 2000 and has declined since.

Unemployment rate Dec 2022, 3.5%. 

\[ y = -0.0007x + 92.952 \]
\[ R^2 = 0.9162 \]

Source: https:// fred.stlouisfed.org/series/CIVPART

Real. Life. Solutions.
U.S. dollar-euro exchange rate

Source: Bloomberg; RSM US
Macro Economic Takeaways

• Recession in 2023 or 2024?

• Impact of higher interest rates on operating expenses and capital purchases.

• USD direction and attendant impact on export and import purchasing power.

• Government spending on ad hoc versus Farm Bill.
FACTORS AFFECTING FERTILIZER AVAILABILITY AND COST

Commodity Prices
Natural Gas and Energy Prices
Russia-Ukraine
Shipping Rates
Factors Affecting Fertilizer Prices

• Natural gas prices are down from the peak.
  – Natural gas accounts for 70-90% of variable production costs for nitrogen fertilizer.
  – Texas A&M estimated an increased value in natural gas only accounted for about 15% of the increase in nitrogen fertilizer cost.

• Other factors are influencing fertilizer prices.
  – Domestic production (hurricanes and other disruptions).
  – Constrained foreign production (China/COVID-19 shutdowns).
  – Tariffs (Morocco and Russia).
  – Supply chain logistical issues.
  – Increased global demand.
  – Russia-Ukraine and geopolitical stability.

• Lower natural gas prices should help with lowering nitrogen costs but there are a lot of other of other moving parts in fertilizer prices.
Share of World Crop (2020/21) and Fertilizer Products (2020) Traded

604 MMT Crop Exports
Average = 22%

176 MMT Fertilizer Exports
Average = 44%

Source: U.S. Department of Agriculture and International Fertilizer Industry Association. Averages computed as total exports (crop or fertilizer materials) divided by total production.
China Curbs Exports

Producers Face Fertilizer Price Squeeze
China Phosphate Fertilizer Export Freeze Adds to Global Supply Challenges

China customs to inspect fertilizer exports from 15 Oct

Published date: 13 October 2021
China's General Administration of Customs will start inspections on fertilizer exports from 15 October, according to an official notice published today.

Chinese urea futures slide from record highs on new export measures

Published by: Emily Zhou – Reuters

Global Phosphate Exports
- China: 25%
- Rest of the World: 75%

Global Urea Exports
- China: 10%
- Rest of the World: 90%
Russia Restricts Exports

Global Ammonia Exports
- Russia: 23%
- Rest of the World: 77%

Global Urea Exports
- Russia: 14%
- Rest of the World: 86%

Global Phosphate Exports
- Russia: 10%
- Rest of the World: 90%

Global Potash Exports
- Russia: 21%
- Rest of the World: 79%

Russia to impose export quotas on nitrogen, complex fertilizers

Russia to Impose Nitrogen, Complex Export Quotas

Russia halts nitrogen, phosphate fertilizer exports to support local farmers

Russia sets 6 month quotas for fertilizer exports from Dec. 1

3 Nov 2021 | Masha Belkova
A. Russia and Ukraine’s share of commodity exports

- Percent of global exports
  - Russian Fed.
  - Ukraine
  - Belarus

- Energy: Natural gas, Coal, Crude oil, Pig iron, Palladium, Fertilizers, Platinum, Aluminum, Wheat, Barley, Corn, Edible oils

B. Commodity price forecasts

- Percent
- 2022, 2023

Sources: Bloomberg; BP Statistical Review; Energy Information Administration; International Energy Agency; UN Comtrade; U.S. Department of Agriculture; World Bank.
Global container freight rate index from July 2019 to Nov. 2022 (in U.S. dollars)

76% since peak (Sept. 2021)

Source(s): Freightos [ID 1250636 (downloaded from statista.com)]
Baltic Dry Index: January 2001 – January 2023

Source: https://tradingeconomics.com/commodity/baltic
Factors Affecting Fertilizer Prices

• Commodity prices continue to buoy global fertilizer prices.

• Natural gas prices have come down, which should assist in lower N prices.

• Shipping rates are down substantially from post pandemic highs.

• Many factors are moving toward supporting lower prices.

• Global events will continue to affect fertilizer supply and demand in 2023.
POULTRY LITTER AND ALTERNATIVE NUTRIENT SOURCES

- Poultry Litter
- Manure
- Compost
- Bio solids
Poultry Litter

- Poultry litter
  - Availability
  - Clean out and Transportation costs
- Nutrient variability (N-P-K)
  - Necessitates testing
- Nutrient availability to the crop
- Other nutrients can be beneficial
- Implications for organic matter and long-term soil health
Value of Poultry Litter

- Poultry litter pounds per ton
  - N-50 lbs (1/2 available), P-45 lbs, K-47lbs (University of Kentucky Study)
- At average commercial fertilizer prices January 2023
  - UREA $712/ton ($0.77/lb) = $19.25/ton
  - DAP $859/ton ($0.63/lb) = $28.35/ton
  - Potash $721/ton ($0.60/lb) = $28.20/ton
  - $75.80 in available nutrient value (not price)
REDUCING COSTS AND 2023 PRICE OUTLOOK
Pay attention to interest rate / financing charges

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<tr>
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</tbody>
</table>

Assumptions: 50 head.
Reducing Costs

- Not an easy task and will require creativity. “right rate, right source, right placement, and right timing to maximize returns.”
  - Soil testing – know what you have.
  - Alternative nutrient sources – poultry litter, manure, other.
  - Lime / PH adjustment?
  - Timing and application rate.
  - Eliminate / reduce products that are not contributing to sufficient yield gains relative to cost.
  - Species composition.
  - Maximum Return to Nitrogen (MRTN).
  - Manage profit margin not production.
What can you do?

• Timing
  – Pre purchases
  – Buy and store
  – Spring versus fall application

• Bulk discounts
  – Pooling purchases with neighbors or extended family

• Purchase source
  – Shop around vs value of a relationship
  – Online or alternative source purchases

Most of these strategies will not result in dramatic reductions in cost in the current environment.
Take Home Message

• Fertilizer prices are down from peaks but are likely to remain elevated in 2023. Come down in 2024?
  – Prices will continue to be influenced by energy and commodity prices.

• Need to be thinking about profit maximizing decisions not yield or price maximizing.

• Price nitrogen fertilizers multiple times during the year. Pricing nitrogen at multiple points will reduce the risk of pricing all nitrogen at its highest point and will result in an average price for the farm nearer the average for the season.

• Beware of financing charges.

• More aggressive on planning and seeking alternative sources of nutrients.

• Continued volatile prices should be expected.
February 4, 2023
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THANK YOU