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MARKET SNAPSHOT

CROP INPUTS

March 31, 2022

Executive Summary

Drivers for the crop input industry include disrupted fertilizer production, volatile energy markets and rising dry bulk shipping rates.

- The conflict in Ukraine is exacerbating an already stressed fertilizer supply base.
- Energy markets are extremely volatile with immense upside risk for prices.
- Rising costs and supply shortages continue for machinery products and labor.
- Dry bulk shipping rates jumped significantly, and logistical shipping challenges may increase as west coast ports renegotiate contracts.

Fertilizer and Pesticides

Agriculture inputs (fertilizer and pesticides) and long-haul trucking are up 47% and 28% year over year. Compared to pre-pandemic levels, ag input prices are up 60% and trucking costs are up 38%.

Fertilizer has mounting supply challenges that are now being exacerbated by the conflict in Ukraine. Logistical challenges from the pandemic, fertilizer production facility shutdowns in the U.S. due to inclement weather in 2021 and limited trucking capacity created an environment of rising fertilizer prices and availability uncertainties.

In response to the invasion of Ukraine on Feb. 24, 2022, global fertilizer prices increased rapidly and remain highly volatile. Russia is the largest global fertilizer exporter, shipping all three major fertilizer nutrients (NPK). Nitrogen and potassium are at most risk of global supply shortages as Russia placed bans on fertilizer exports.

Distribution issues from technical failures and fires are interrupting U.S. fertilizer production. A Nutrien plant in Sunnyside, WA, caught on fire on Feb. 28, 2022, straining regional distribution and supplies. Shortages in pre-emergent pesticides remain. Fertilizer prices are likely to remain elevated through 2022 as geopolitical tensions and mounting supply chain disruptions continue.

Nitrogen and Ammonia

Russia, Belarus and Ukraine are major exporters of nitrogen and ammonia fertilizer products (17% and 19% of total global exports by value).

Nitrogen and Ammonia Exports by Country, 2020

Country / Trade Value (1,000 USD)	Ammonia $4,649,159	Nitrogen $17,836,256	Urea* $8,945,736
Russia, Belarus and Ukraine	19%	17%	21%
Saudi Arabia	42%	6%	13%
China	0%	15%	16%
Qatar	3%	7%	0%
Netherlands	2%	6%	3%
Other (European)	8%	23%	13%
Other (non European)	26%	26%	33%

Percentages represent the portion of each country relative to global trade value

Higher rates of 'other' categories indicate a more diversified supply base

Source: Comtrade, 2021. *Urea is nitrogen-based product.

The conflict in Ukraine puts nearly all its supply in jeopardy and risks changing global production capacity and trade dynamics. If Europe shifts its energy consumption away from reliance on Russia, natural gas may be cost prohibitive in the production of nitrogen. Production capacity may need to increase in other regions, including the U.S., as supply chains adapt to shifting dynamics.

Potash

The impact of the Ukraine war may be felt most acutely in potash fertilizers. Aside from Canada, exports are concentrated out of Belarus (19% of global export value) and Russia (14%). Multiple factors including Russia's ban on fertilizer exports, EU's sanctions on Belarus, and regional port and shipping lane closures could effectively take 33% of global exports offline. Top importers, including Brazil, China and India, will compete fiercely in price and may face food production shortages.

Phosphate

The U.S. is balanced in terms of production and consumption of phosphate rock, with a small amount imported from Peru. In contrast, Diammonium phosphate (DAP) and monoammonium phosphate (MAP), phosphate derived fertilizer products, are heavily traded with imports primarily coming from Saudi Arabia, Jordan, Australia, Mexico and Morocco. Russia accounts for 12% of global DAP, MAP and phosphate rock exports. The current Russian ban on fertilizers will impact global supplies.

U.S. Trade of DAP and MAP, 2021

Trade Flow	DAP	MAP	Primary Trade Partners
Export	$241,203,468	$1,111,822,832	Canada and Brazil
Import	$815,297,584	$683,206,690	Saudi Arabia, Jordan, Australia, Mexico and Morocco

Source: U.S. Census Bureau, 2022.

Pesticides

Tight pesticide supplies will carry over into 2022 as production shutdowns in China and the U.S. continue to reverberate. In addition, Bayer reported in February that a key supplier for an ingredient used in glyphosate products experienced a mechanical failure and will be offline for several months. Shortages are likely to be most acute in post-emergent products, including glyphosate, glufosinate, 2-4D and atrazine. Price pressures will occur in pre-emergent products as producers seek out substitutes.

Energy

Oil prices are experiencing extreme volatility. At the start of the year, West Texas Intermediate crude was $75 per barrel, peaking on March 8 at $124 and falling back down to $95 per barrel the following week. The conflict in Ukraine has led to interrupted flows to Europe and an outright ban in the U.S. of Russian oil. Further, negotiations with Venezuela and Iran have not materialized into increased global supply, Saudi Arabia is not likely to increase production and U.S. inventories remain 12% below their five-year average. Drops in oil prices have been largely attributed to COVID-19-related lockdowns in China and signs of a peace agreement between Ukraine and Russia.

There's immense uncertainty going forward in energy markets. Europe will attempt to redesign its energy strategy with less dependence on Russia. Interest in U.S. oil and gas exploration and investment may remain tepid as environmental concerns and regulations increasingly factor into financial and corporate decisions. China is in conversations with Saudi Arabia about buying oil in Chinese Yuan, potentially indicating they are preparing for U.S. sanctions, while its stock markets and economy face turbulence (which may impact global energy demand). India, the third largest oil importer, is in talks with Russia to increase oil imports. How these factors interact and evolve is still unknown; however, they all point to higher prices.

Machinery

Limited supplies of machinery and equipment parts will remain a persistent issue until supply chain channels are fixed. Shortages of parts and farm equipment will keep prices elevated for both. Used and new equipment prices are affected. Producers who built inventories of common parts will reduce future machinery repair delays.

Logistics

Time charter rates for dry bulk shipping (this includes agriculture commodities along with iron ore and coal) surged nearly 40% month over month by mid-March. Prices normally recover in April after dropping in the winter, but the Ukrainian conflict is increasing risk premiums (in 2021, the Black Sea was the second largest grain exporting region) and shifting market dynamics. Container shipping is less exposed to this conflict and rates are holding steady at 12% below their peak reached in September 2021.

Contract negotiations between the Northwest Seaport Alliance, who operates 29 West Coast ports, and longshoremen will take place this year. Current contracts expire July 1, 2022. Previous contract negotiations have created significant port slowdowns that lasted over seven months. Delays in negotiations are a risk and could amplify current shipping issues creating headwinds for U.S. exports.

Transpacific eastbound shipping (China to U.S.) times are holding near their peak at 111 days (average number of days to move goods through departure port to arrival port). Prior to the pandemic it took on average less than 50 days to transport goods.

According to Bureau of Labor Statistics data, trucking costs in February are up 2.4% month over month, 28% year over year and 38% from pre-pandemic levels. Rising fuel costs and recent regulatory changes, including additional coursework for CDL licensing and vaccine requirements for inbound commercial truck drivers, are limiting capacity and driving up rates.

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