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2022 Energy and Fertilizer Report Outlook & Forecast

Brought to you by: OFA Ontario Federation of Agriculture

Highlights

- In our last report dated 11-21-2021, we were forecasting that crude prices would rise to $100/barrel by the end of 2021, and we are well past that now due to a war in Ukraine. We were waiting for lower prices to book diesel fuel forward and we got that opportunity when the omicron virus variant of COVID-19 showed up in early December, and crude oil prices fell to $62/barrel. At that time, we recommended booking all of a framer's diesel fuels needs as far as possible (end of 2023) as well 100% of 2022 seed, chemicals and fertilizer needs.

- **The strategy remains the same- manage your diesel fuel needs before its too late! Book as far out as you can (100% through to the end of 2023) using the booking forward maximum contract where you can, add more on-farm tanks for storage, go long Chicago heating oil futures, or employ a combination of all 3 of the above methods.** If crude oil futures break lower to the long-term support at $90-$92 on ceasefire headlines its a buying opportunity!

- Look for a correction in natural gas and propane prices in the July/August period as a buying opportunity to book your 2022/23 fall winter drying and heating needs.

- **We are strongly recommending that farmers book forward 100% of your 2023 fertilizer needs if you can (the earlier the better) and plan to have 100% storage as you prepay and take delivery to take control of your inputs! Book your seed and chemicals for 2023 as well to avoid a supply shortage or lack of availability next year.**

The coming Global Supply Shock - WTI Crude Oil could test 2008 record highs above $150 and possibly $200+ in a worst-case scenario!

Crude oil prices could continue to trade much higher than expected due to a lack of supplies and surging demand. Since the pre pandemic period of 2020, a lack of investment in capital exploration is resulting in low physical oil supplies and a shortage of global supplies to meet demand. Investment spending peaked in 2014 and has remained low since then. With shale growth no longer exceeding global demand growth and the world reliant on long-cycle projects (that take four to six years to come online), the road ahead is very different from the one we have been on for the past decade

Demand is now estimated to have rebounded to about 101 million barrels per day, roughly where it was prior to the outbreak of COVID-19, despite a still weakish jet fuel market. The oil inventory glut of 220 million barrels at the beginning of 2021 has been cleared due to the effectiveness of OPEC's production curtailments, rebounding demand and a lack of meaningful U.S. shale growth. The situation now is of a 22-million-barrel deficit compared to the 2017-2019 average.

A Russian invasion of Ukraine has added even more fuel to the fire and helped push prices much higher. It's not just geopolitical tailwinds but also strong fundamentals that are driving prices higher. The market is inverted with front month future contracts at a premium vs. deferred months since demand outpaces supply. Russia is the third-largest oil producer behind the United States and Saudi Arabia. But Russia is the largest oil and products exporter in the world, and 2 to 3 million barrels a day of waterborne Russian oil has been frozen out of the market due to the war this year. There are no immediate buyers for their crude oil, although China and India are continuing to buy Russian crude.

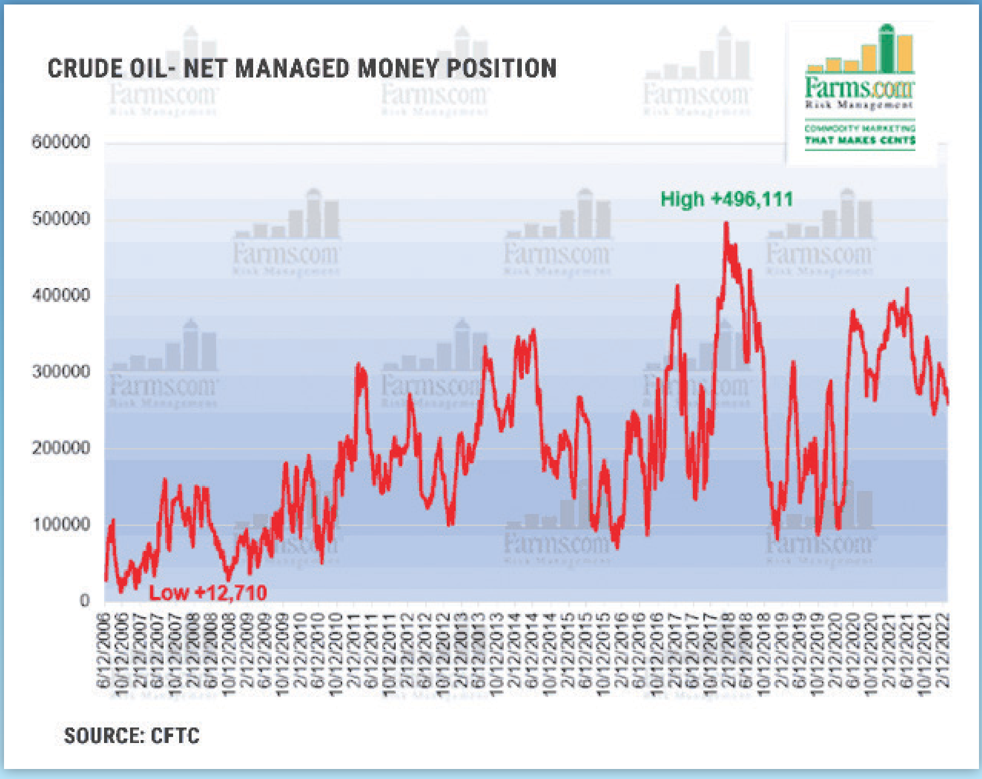
The shortfalls in supply exist both in terms of OPEC+ (the alliance of OPEC and several non-OPEC countries) production, as it pumps oil below the levels it promised to add to markets, and sector underinvestment in the U.S. and other countries in the wake of COVID-19 and governments' pushes to switch to renewables.

OPEC+ members with quotas were short of their production targets by 700,000 barrels per day in January, with co-leaders of the group -Saudi Arabia and Russia- pumping below their quotas, according to S&P Global Platts. This happens despite them pledging to gradually unwind record supply cuts.

After Russia invaded Ukraine, energy prices spiked. U.S. crude oil prices reached as high as $130 on March 6, the highest since July 2008. About a week later, U.S. gasoline prices hit a record high of $4.33 per gallon with some regions even seeing highs of $6.00!

WTI crude oil prices are up 53.5% thus far in 2022 with long-term support at $90-92/barrel. **A break above a short-term ceiling at $114.85, with a 1% rule taking the level to $115.95, on a weekly basis is bullish with the next target being the 2008 high at $147.27, which could happen in days/week (not months/years).** Technically, a break below $90 and a weekly close below this support would signal a failed long-term buy signal and a good 2022 summer high with a drop to $68.50 in 2-3 weeks, but we do not see this happening any time soon. Prices are headed higher due to widening spare capacity risk premium and the fact that the U.S. has sanctioned Russian crude oil and the EU, including Germany, maybe next to follow. **(Please see chart below)**

The speculative funds have decided to pile on to the long side of the market but remain below the record high from 2018. So, there is still lots of room to run higher! (Please see chart below)



The only 2 countries with spare capacity are Saudi Arabia and the United Arab Emirates (UAE)

The Energy Information Administration lowered its OPEC capacity estimates by 300,000 barrels per day in February, and the producer group hasn't shown any indication that it will deviate from its planned quota increases of 400,000 barrels per day in 2022, despite pleas from the U.S. and others to help lower oil prices.

Destruction of discretionary demand could result in a recession

The possibility of continued global recovery from the COVID-19-induced economic crash means that there is very little in the way to stop prices from moving higher, especially if the war in Ukraine drags on. History has shown us that if crude oil prices spiral higher and out of control, ($130 - $140/barrel) it can destroy discretionary demand and cause a recession. But the global consumer and economy are much healthier than past crude oil spikes, with no financial crisis on the horizon. So, higher inflation could be with us for much longer.

Historically, demand destruction has not occurred until crude oil's cost burden on the global economy approached five to six per cent of global GDP, and this would suggest that oil prices have to reach as high as US$130-US$140 per barrel before "high prices" become a problem.

Oil will remain expensive as the world deals with supply shortages and a GLOBAL SUPPLY SHOCK! The multi-year bull market in crude oil remains intact and could stay with us through the end of 2023 or 2024 unless we get a supply surge or demand destruction. Prices are headed higher! Growing demand in the next decade along with falling inventory means continued upward pressure on crude oil prices. The pent-up demand for leisure travel is enormous and is a key reason why the recovery in oil demand is likely to further surprise us with more movement to the upside this year.

The implications of a potential loss of Russian oil exports to global markets cannot be understated, according to the EIA. The Saudi refusal to add supply, after a recent attack by Iranian-aligned Houthis, is only going to add to the global consumers' gas pump price pain!

On the supply side, the most obvious risk for crude oil price-easing is an agreement between the U.S. and Iran and the ending of oil-related export restrictions. This would likely result in about 700,000-800,000 barrels of "new" production hitting the market. This is an amount that can be easily absorbed by growing global demand, although it may likely present short-term headline risk (whenever it happens), which may last days or weeks and weigh on crude oil prices.

If the Ukraine conflict continues, Russian oil will be impaired (5 million barrels per day of export supplies from the Black Sea region are missing) and it will likely keep prices high. The European Union is expected to discuss banning Russian crude (embargo) and follow the U.S.'s lead, but Russia is Europe's largest supplier of crude and natural gas. This will only add to the geopolitical risk premium.

The previous crude oil price spikes have all lead to recessions (1972, 1979 1981, 1990 and 2008), but it normally has followed from a 1-2 punch of higher oil prices and higher interest rates. We are headed towards a global recession, but the global economy and consumer is more resilient than past crude oil price spikes and could take more time to happen. The situation seems to be different this time because the consumption of gas is down by more than 50% since the 1960's, according to CNBC. The economic and negative consequences could be different. (Please see chart on the right)

We are now forecasting that WTI crude oil prices could trade to a high of $150+ by the summer of 2022 (old target was $100), and we cannot rule out prices soaring to $200+ in a worst-case scenario. Any ceasefire headlines could weigh on crude oi prices but who is to say that Putin (unless removed from office) will not continue with a war months later. (Please see chart on the left)

2022 CRUDE OIL FUTURES PRICE TARGET & OUTLOOK AS OF 03-28-22

PRICE RANGE U.S. $/BARREL	
2022	$150.00 - $200.00

SOURCE: FARMS.COM RISK MANAGEMENT

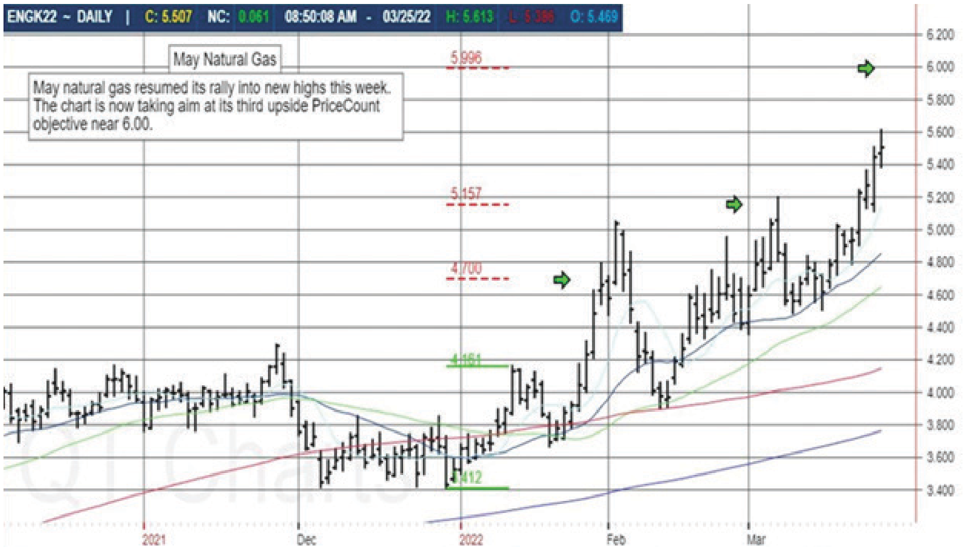
Manage 100% of your diesel fuel needs out till the end of 2023! Use the booking forward cap contracts with your local supplier, add another storage tank(s), go long Chicago heating oil futures, or employ a combination of all of the above methods!

Natural Gas / Propane

Higher U.S. inventories and lower temps (vs. normal) in North America will drive prices lower in the coming months

U.S. natural gas prices remain volatile and after a brief drop due to a warmer-than-normal winter, prices are higher by 62%. Historically, however when futures surge to $6.00 it usually tends to peak. According to the EIA, as temperatures start to rise during end-March/early-April and production increases, U.S. liquid natural gas (LNG) inventories will remain tight and about 10% below the 5-year average. The increase in U.S. natural gas consumption reflects rising demand in the industrial sector because of increased manufacturing activity. Production in 2022 is expected to exceed 2021 by 3.1%, and 2023 will be higher by 2.5%. By the end of 2022, liquid natural gas inventories will remain 4% below the 5-year average even though production will rise. **(Please see chart above)**

2022 May U.S. Natural Gas Futures Daily Chart

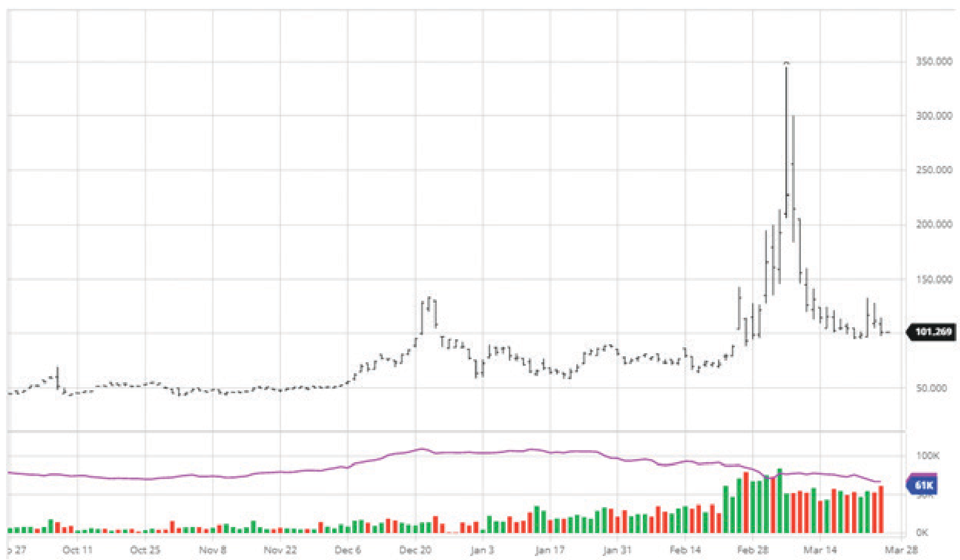


Source: QT Charts

European Natural prices soar by over 450%!

The fear over the war in Ukraine propelled Dutch TTF European natural gas prices to surge by over 450% in 2022 before collapsing by 71% from the peak set on March 7. The October 2021 high at U.S. $6.52 will be a long-term resistance high with long-term support at $3.00 - $3.50. In the past 11 years, any moves above $6.00 have been short-lived followed by 18 months of price declines. **(Please see chart below)**

2022 April Dutch TTF European Natural Gas Futures Daily Chart



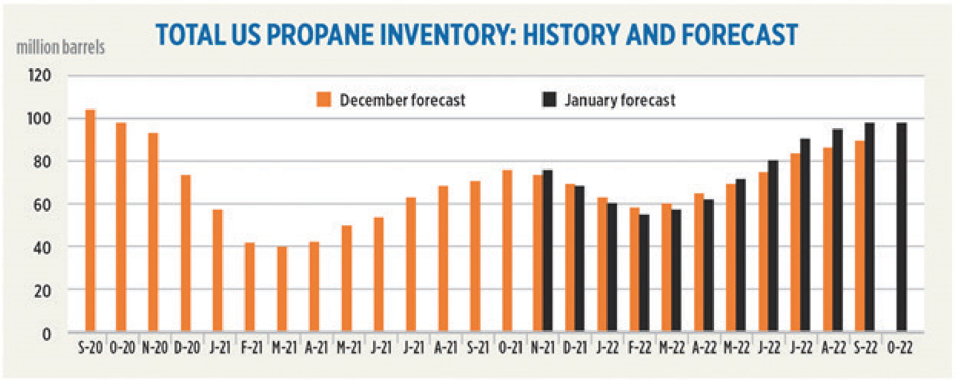
Source: Bar Charts

European inventories remain at a decade low (worse than in the U.S.) as 40% of the region's gas supplies come from Russia and run through Ukraine. Typically, inventories will run at 85% of capacity but are currently as low as 70%. LNG cargoes were delivered to Europe last month, where inventories are lower than the five-year average and potential supply disruptions related to the conflict in Ukraine are a concern. Although Europe's inventories are low, the additional LNG imports, as well as a mild winter, are helping bring inventories closer to the five-year average than they were at the beginning of the winter.

In desperation, the EU has struck a gas deal with the U.S. as it seeks to cut its dependence on Russia and Germany has decided to shut down Nord stream 2 pipeline from Russia. The U.S. will provide at least 15 billion cubic meters more of liquified natural gas to Europe this year, seeking to end the bloc's dependence on Russian energy exports following the Kremlin's invasion of Ukraine. These additional volumes of LNG are expected to increase going forward. The agreement is designed to create economic security, energy security and national security.

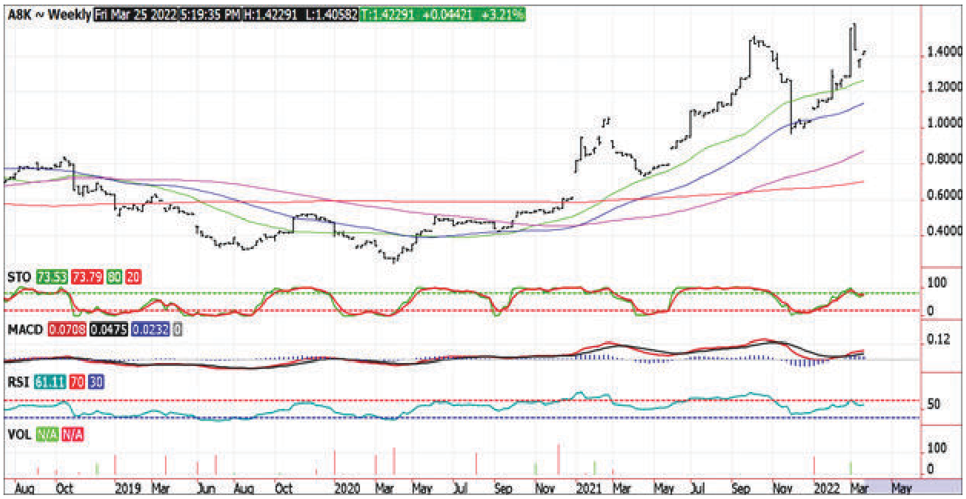
Propane prices surge by 541%!

According to IHS Markit, a blast of cold temperatures and dropping inventories led to much higher propane prices. Peak demand extended well into February. Though the U.S. propane inventory situation has improved, market tightness will remain an issue this year and could begin to improve in 2023. **(Please see chart below)**



After falling to new lows in March of 2020 (pre-COVID), U.S. propane prices skyrocketed by 541% in just a little over 2 years! **(Please see chart below)**

2022 U.S. Propane Long-term Futures Chart



Source: QT Charts

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BOTTOM-LINE

Russia's war with Ukraine has coincided with sharp rises in the prices of coal, oil and gas as countries scramble to replace Russian energy sources. A global economic recovery, cold weather, and supply disruptions also contributed to the rebound in natural gas and propane prices in 2022. As inventories get topped up, look for prices seasonally to drop and provide a better buying opportunity with price consolidation during the July/August period for any gas purchases for 2022 fall/winter drying and heating needs.

A lot of new U.S. natural gas supply will not be available until 2025 and propane inventories will start to rebuild, so prices will remain elevated over time. But a correction is overdue for both, so look for a trade back to U.S.$ 3.50 - $4.00 by Q3, with $3.00 - $3.50 being a major long-term support for LNG. For propane, U.S. $0.80 is a long-term support with possible downside to $0.75.

Fertilizer

A tight global balance sheet will remain a tailwind for fertilizer prices through 2023

Fertilizer prices that include ammonia, nitrogen, nitrates, phosphates, potash, and sulphates are all up 30% since the turn of the year. Supply shortages fueled by the Ukraine-Russia conflict, along with a host of pre-existing factors, have driven fertilizer prices to record highs above the food and energy crisis in 2008.

In 2021, Russia was the world's top exporter of nitrogen fertilizers and the second-largest supplier of both potassic and phosphorous fertilizers, according to the U.N. Food and Agriculture Organization. The war has severely disrupted trade as importers and vessel charterers steer clear of the country in light of the invasion of Ukraine. Russia, which accounts for around 14% of global fertilizer exports, has suspended outgoing trade, which is expected to have a strong ripple effect across global food, fertilizer and commodity markets.

Natural gas is a key input for fertilizer production. High gas prices have resulted in a curtailing of production in regions such as Europe, further constricting an already tight market.

Sanctions on Russian and ally Belarus have substantial implications for the potash market, with Russia and Belarus contributing a combined 40% of annual traded volumes. Since the beginning of 2020, nitrogen fertilizer prices have increased four-fold, while phosphate and potash prices over threefold! DAP had an average price of U.S. $970/ton, Urea was $954/ton, an all-time high, while MAP had an average price of $1,001/ton. The last time MAP was above the $1,000/ton level was the third week of November 2008 when the price was $1,039/ton.

The all-time high price for MAP was U.S. $1,079/ton.10-34-0 is now $876/ton, potash had an average price of $843/ton, anhydrous $1,520/ton (all-time high price), UAN28 $610/ton (all-time high price) and UAN32 $706/ton (all-time high price). **(Please see chart below)**

U.S. WHOLESALE FERTILIZER PRICES (IN U.S. $ PER TON)

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NUTRIENT / FUEL	27-Jan-22	24-Mar-22	CHANGE IN LAST 2 MONTHS	CHANGE VS. JAN. 1, 2021	CHANGE VS. SEPT. 2020
Anhydrous	$1,497.22	$1,515.75	1.24%	207%	251%
DAP	$858.57	$862.78	0.49%	73%	108%
MAP	$906.67	$895.00	-1.29%	76%	123%
Potash	$810.56	$817.69	0.88%	128%	146%
Liquid Nitrogen	$574.72	$583.00	1.44%	163%	166%
Urea	$895.67	$891.67	-0.45%	143%	148%
Farm Diesel	$3.13	$4.40	40.58%	117%	167%

SOURCE: USDA

Prior to the threat of reduced fertilizer supplies from Russia and Belarus, fertilizer prices had already been facing upward pressure from global supply chain disruptions, and a Chinese export ban.

Global farmers have benefitted from high agricultural commodity prices, helping to partly offset high input prices, but demand destruction is increasingly likely due to high prices and supply shortfalls.

Historically global high inflation, driven largely by soaring food and energy prices, will only get worse with a prolonged period of fertilizer shortage, which will affect longer-term farming yields and result in even higher commodity prices.

Ontario 2022 Spring Fertilizer Challenges

We have been booking farmer fertilizer needs since February of 2021, when prices started spiking higher, and aggressively advised booking 100% of 2022 needs in the 2021 November report.

According to the Ontario Agri Business Association, "The challenge our sector currently faces is that a significant amount of nitrogen and phosphate fertilizer used by farmers in Ontario to grow their crops is sourced from Russia. The current supply chain in Ontario has the capacity to store ~2/3 of the total fertilizer Ontario farmers crops need domestically with the remainder imported and distributed throughout growing regions of the province during the spring planting period."

They go on to say "The impact of the tariff and additional supply chain restrictions on imported fertilizer shipments from the region will have significant impacts on Ontario fertilizer distributors, ag-retailers and ultimately farmers. Specifically, farmers ability to access fertilizer during the spring planting season to grow their crops, as well as, facing additional steep price increases due to the tariff being passed through the supply chain." A 35% tariff (tax) will be applied to any sourced Russian fertilizer supplies shipped after the war (March 3rd).

There were 3 to 4 Russian cargoes on the water before March 2nd, of which one was reported to be MAP and the rest being nitrogen fertilizer. There is usually another MAP cargo required for ECAN, which would have been Russian but got cancelled due to an April loading window. This was replaced by North American tonnage. Potash will be covered by Canadian producers with CP rail back to work. Prices are much higher than the Russian cargoes buyers have walked away from.

The P and K fertilizer supplies in Ontario for the 2022 spring planting season will be available but the last 33% of the nitrogen supplies needed for the May/June side dress season, according to Mosaic are sourced. The 5-8 needed nitrogen cargos that are usually sourced by Russia will be available and sourced from Algeria, Nigeria, Egypt and Trinidad (Middle East). **AVOID PAYING THE 35% TARIFF ON ANY RUSSIAN SOURCED SUPPLIES!**

Do not let the sticker shock prevent you from planting corn, put pencil to paper

Even though fertilizer prices are much higher than most expected, corn is still more profitable than soybeans with 2022 new crop futures at $6.60 corn vs. $15.00 soybeans. Put pencil to paper and understand your own cost of production before saying that you are switching acres.

In fact, **a 2022 Farms.com Risk Management Ontario Planting Survey** is suggesting that corn acres could be record strong at 2.9 million, most likely influenced by record yields from 2021 and higher corn prices. Local seed companies are reporting higher corn seed sales. But will Mother Nature permit and will farmers shy away from record high fertilizer prices? If so, actual planted soybean acres could be record strong instead!

Less fertilizer, less acres and lower yields!

There are already unconfirmed shortages of fertilizer availability in both South and North America. Brazil, the world's biggest soybean exporter, relies heavily on imported fertilizers such as potash, which accounted for 38% of the crop nutrients it used last year. Russia and Belarus were the source of half of those shipments. Sky-high fertilizer prices have farmers worldwide scaling back its use and reducing the amount of land they are planting, and the fallout from the Ukraine-Russia conflict has some agricultural industry veterans warning of a global food shortage. Fertilizer is key to keeping corn, soy, rice and wheat yields high.

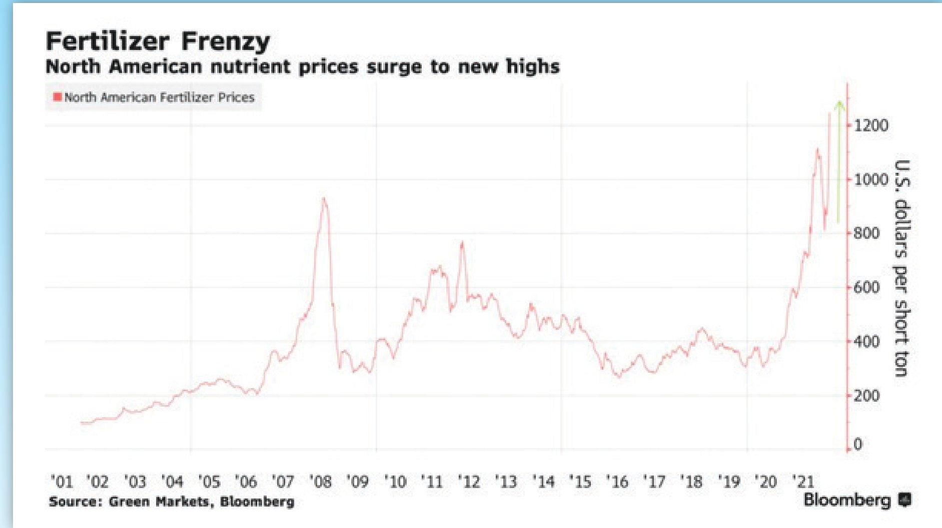
According to Ken Ferrie, renowned agronomist from Farm Journal in central Illinois, if you are thinking about cutting starter fertilizer this year because of surging input costs, **Ken Ferrie has three words of advice: Don't do it.** Corn emergence and early growth benefit from starter because of the horsepower it provides the plants without it corn yields could drop by as much as 5%. "Five gallons of 10-34-0 will give your corn a bigger kick than 300 lb. of broadcast DAP, due to placement and timing," he says. For your best ROI, Ferrie says to think about situations where starter can provide the biggest response, such as on low fertility fields, fields with phosphate tie-up, reduced tillage fields and cover crop fields.

2022 will be a very challenging year to grow a very large U.S. corn crop! If the war with Ukraine continues through mid-April, the likelihood of planting a corn crop is near 0 for 2022 and the U.S. will not be able to fill the gap! The U.S. will be the only game in town for corn exports especially if the 2nd Safrinha corn crop production falls as a 2nd consecutive year of a La Nina shuts off the moisture early in the growing season.

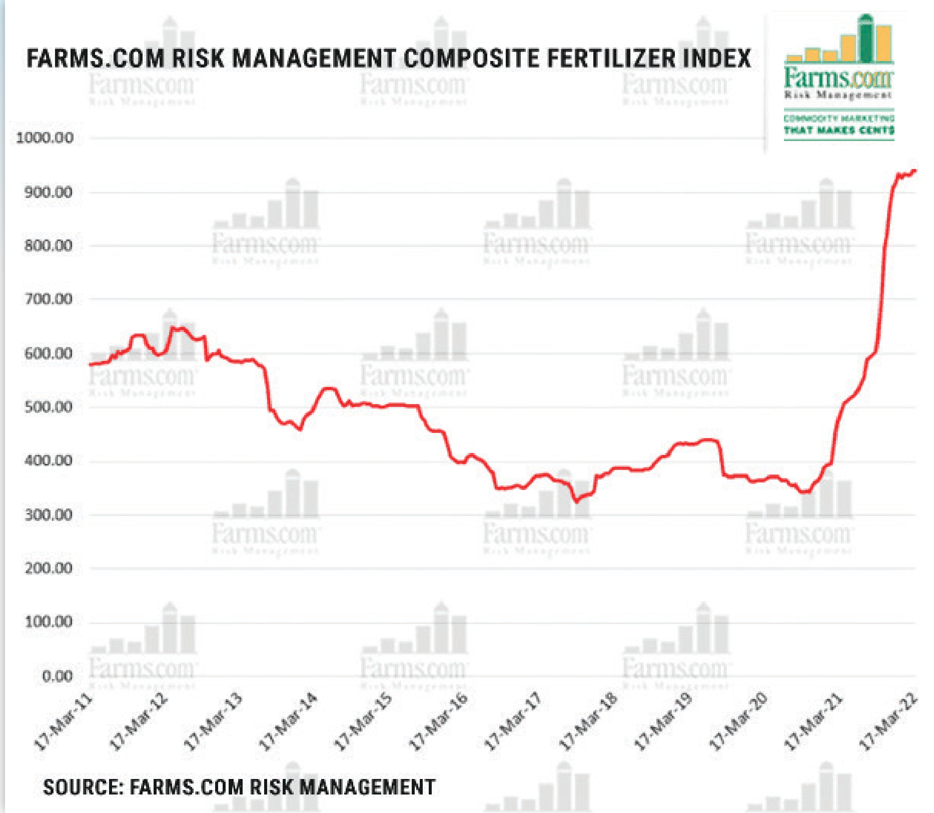
Fertilizer prices will keep setting new record highs in 2022 and 2023! Russia's invasion of Ukraine puts a massive portion of the world's fertilizer supply at risk and only adds to the tightness in the global fertilizer balance sheet. Punitive Russian and Western economic sanctions will inevitably reduce supplies of energy, grain and fertilizer and continue to disrupt global trade and supply chains. Given the weight of Russian fertilizer supplies, other countries will only be able to "partially" fill global supply gaps. The U.S. will not be able to feed the world!

China last year-imposed fertilizer export curbs to protect its own farmers as global prices soared due to strong demand and high energy prices. Beijing was expected to ease those restrictions this year, potentially boosting world supply, but in a worse-case scenario it is less likely now with the global market in chaos. The 2021/22 global fertilizer frenzy will continue as long as the price of corn futures can bear it. (Please see charts below)

We have been talking about the 89-year-drought-cycle for the past 3 years and warning about the threat of triple digit temperatures. This 6-year cycle expected to peak in 2025 with a 70% probability and "Mother Nature" will not allow the globe to overproduce thus resulting in elevated and much higher corn and input prices in the coming years. The short crop will last for multiple years and the long tail will not happen until 2026!



We are strongly recommending again to stockpile fertilizer for the 2023 season if you can in anticipation of even higher prices ahead. Stop using cheap working capital to finance your local fertilizer supplier prepay and take delivery where you can. For the 2023 season start planning for 100% fertilizer storage to take control of your 23 input needs!



Manage your fertilizer inputs before you book any 2022 or 2023 bushels forward or higher input prices will squeeze every profit margin you make! Book your seed and chemicals earlier than normal to avoid a supply shortage or lack of availability as well.

2022

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