Dear Subscribers Plus, Full-Service Light, and Full-Service Subscribers:

Attached are our 2022/2023 Target Zone Charts & Summary Analysis Report – 11.30.2022

***** In 2022, we witnessed an ever-increasing number of factors dominating the agricultural arena which directly affected grain prices and input costs. We do not look for this trend to change in 2023, making it even more complex and difficult to project not only grain prices, but to get a handle on how the interconnectivity of these events will have on all things Agriculture.**

Due to the increasing complexity of these growing and ever-changing market factors, and to do justice in our efforts to keep you informed as to their effects on grain prices through the coming year, we will be sending updates periodically on the market factors detailed herein and occasionally, dedicated text messages.

The last 2-years, governments were running the show with Covid vaccinations and lockdowns, sending our markets through gyrations of devastating lows, followed by sharp turnarounds with prices screaming higher. In the aftermath of government's interventions into all-things normal, prices of most everything have settled in at much higher levels.

In 2023, many market factors will play into the Bull's hands for demanding higher prices. But in the same token, the Bears are not without some ammo of their own.

Major production limiting events lie ahead over the next 3-years and possibly longer. Based on all our research, with the number of major cycles coming together during the same time frame, the decade of the 2020's will be wrought with weather events stressing global crop production. There is significant evidence which warrants concern that the next 30-years will have cyclical climate events which will place major limitations on this world's ability to produce the food necessary to feed all its people.

We see weather as the #1 market influencer, which can reduce global grain stocks faster than any other single event, which in turn, can drive prices higher or lower, faster and farther, than any other

single, market moving event. Therefore, our central focus in our TZC Market Factor Analysis will be on Global Weather factors influencing grain prices over the next several years.

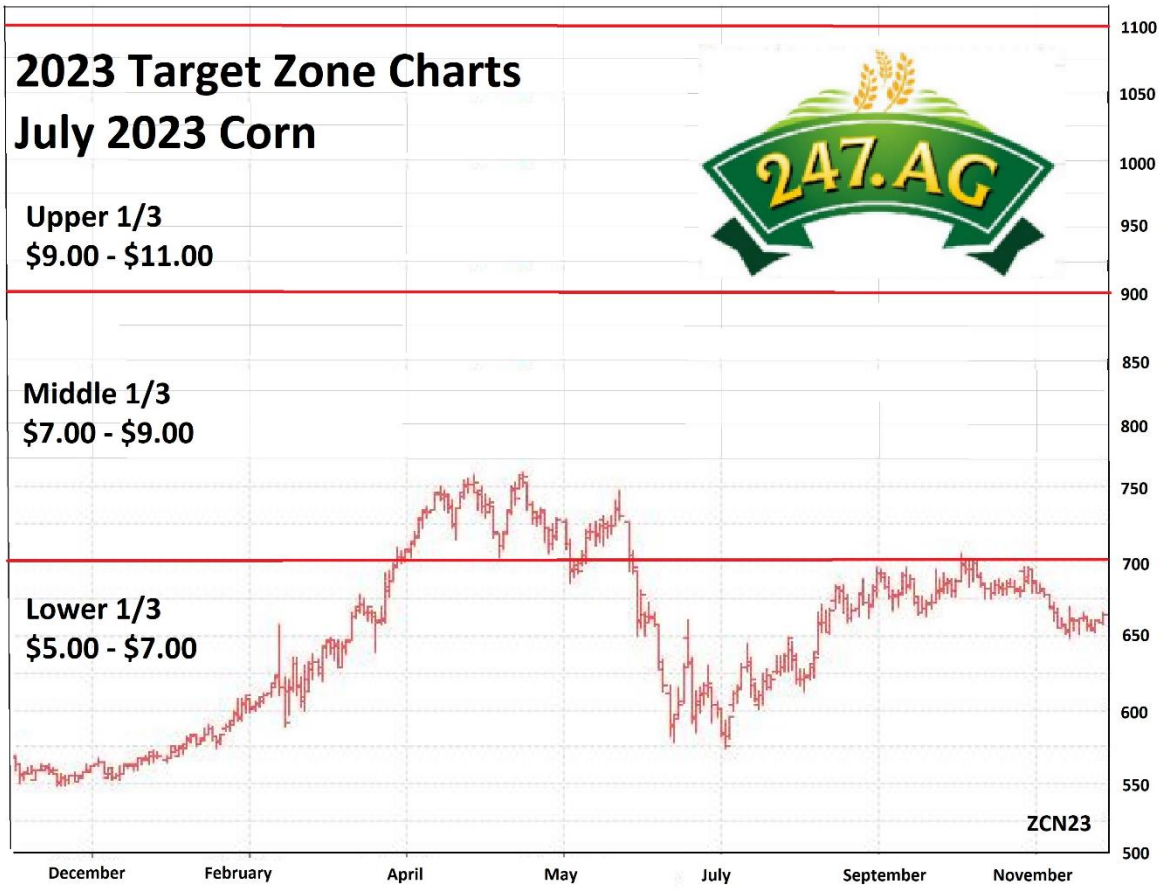
Target Zone Chart Summary

We do not finalize our price projections for 2023 until the necessary research is done. From the beginning, we realized with the ever-so-quickly changing landscape of market factors which the world has warped into these last 2-years, forecasting price probabilities would be extremely difficult. While we had a good handle on the surface issues affecting prices, we were shocked with what we discovered in our deep dive into those market factors which will be driving prices higher, and lower in 2023.

Global and century old weather trends will be the main drivers of price for the foreseeable future. When global production history was overlaid with global weather trends, the story told was shocking. If we were to accept these trends, grain prices will have little choice but to lift much higher in 2023, led by corn. When we add in man-made market disruptions which will be a contributing factor, it makes grains' story in 2023 and 2024 even more compelling.

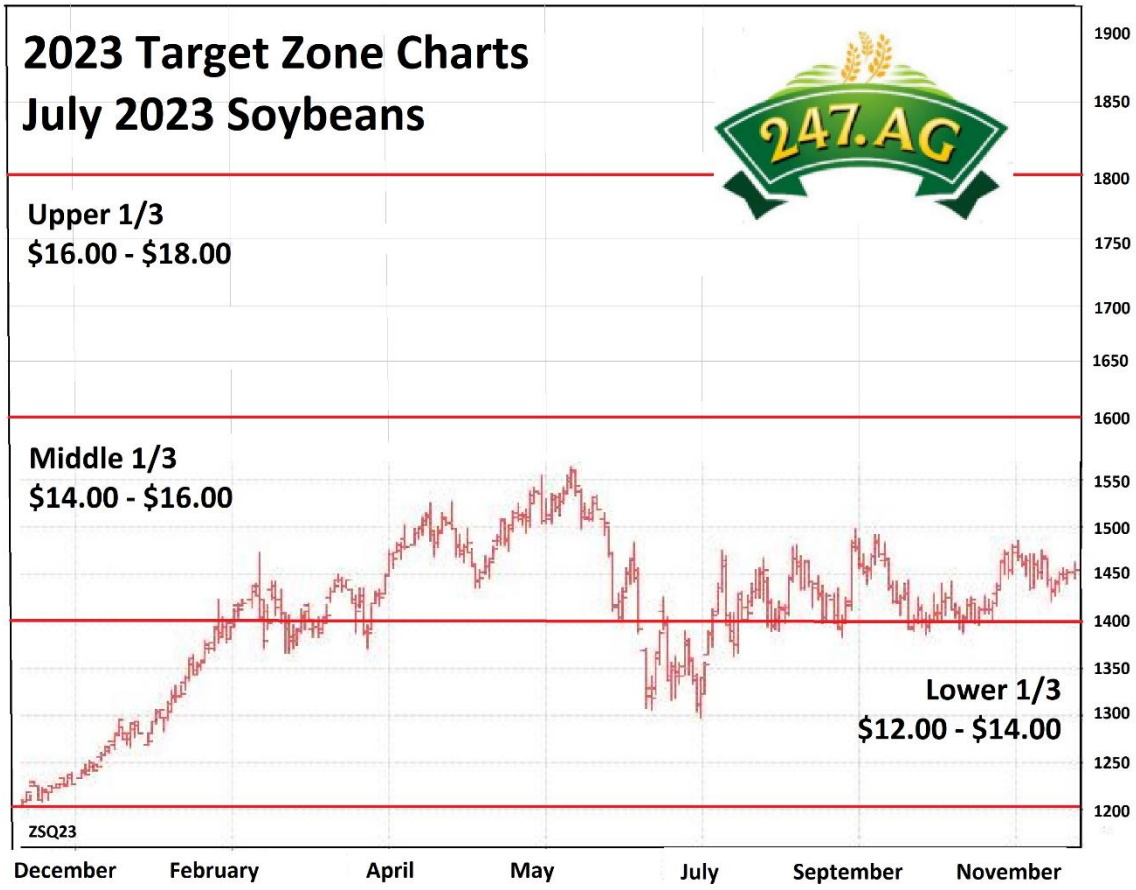
July 23 Corn: $5.00 - $7.00 / $7.00 - $9.00 / $9.00 - $11.00

What can disrupt our price projection for corn in 2023 is a good to great Safrinha crop in Brazil, followed by trendline yield from the U.S. While this would be somewhat negatively disruptive to price, Ukraine's situation will play in the corn, wheat, and vegetable oil markets in a big way. Taking their corn production down by 50% and possibly totally off-line in 2023 and/or 2024, places end users who must import their needs at serious risk. If the other Top corn exporting nations have any shortfall in production, prices will respond immediately. Our 2nd thought on our corn projection is what if we are right on our projections? Grains are interconnected on price. We were more conservative on our projections for soybeans and wheat. If/when corn reaches these Upper Third projections, soybeans and wheat will most likely exceed our projections for them. If corn fails to reach our Upper Third, soybeans and wheat could still easily reach theirs. If corn fails to reach our Upper Third projection this year, you will see corn at these levels soon thereafter. Technicals are set up for corn's next impulse wave to launch to new highs, which will reach near the Upper end of our Upper Third.



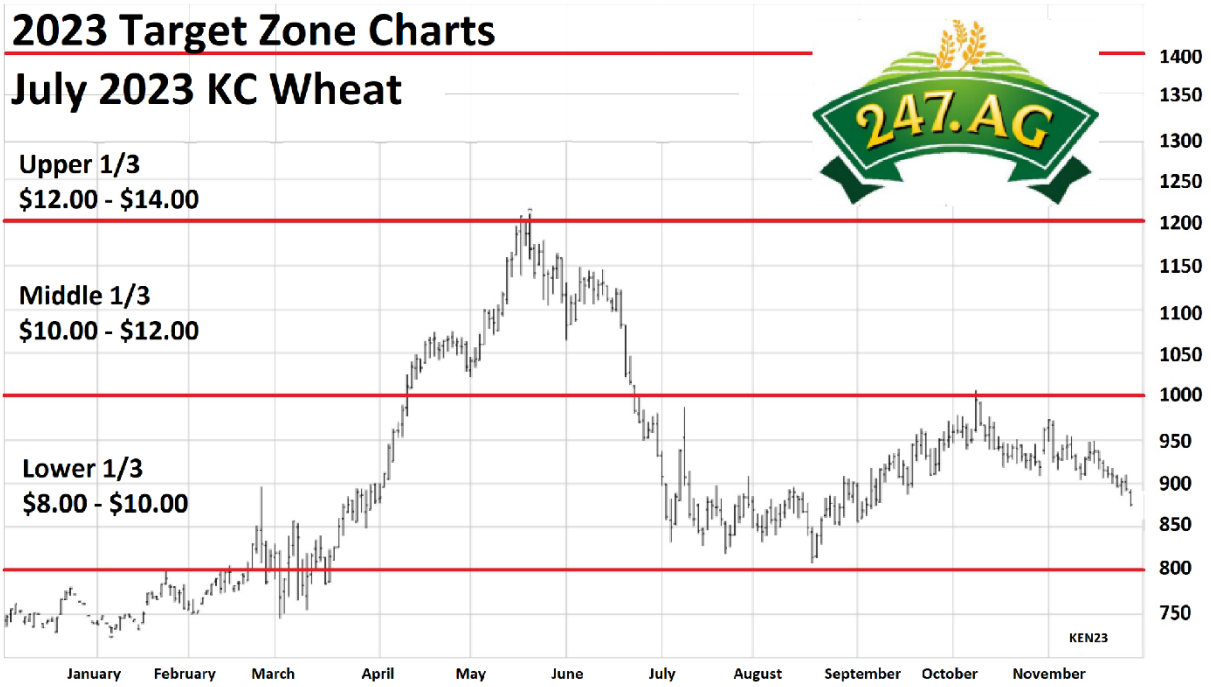
<u>July 21 Soybeans</u>: <u>$12.00 – $14.00</u> / <u>$14.00 - $16.00</u> / <u>$16.00 – 18.00</u>

Soybeans have a unique way of overachieving when they are counted out. Export sales and loadings have increased rapidly this month, supporting prices into what is expected to be another seasonal low time in December. The pending rail strike and a timing low in crude oil prices in 3-weeks, helps set the stage for a secondary low in grains. South American weather will decide the fate of corn and soybeans' winter/spring price highs, leaving the door open for U.S. weather to mold its future story. Rapidly increasing biodiesel demand will be with us for years to come. This is a new bullish factor moving forward and has taken the leadership away from soybean meal in the soybean complex. Traders may struggle in computing soybean valuations, with the constant meal/oil spreading which seems to take place on a daily basis. We know by the crush spread margins; crushers are making a killing. The immense profits could easily have them adding $2.00/bu to the producer's bottom line. Their other choice is to put those immense profits into new crush facilities to generate even more profits. Their choice is easy. The longer-term benefits come to the producer in a short-crop year, when all this new demand is chasing fewer bushels. That is the time they will share some of the crush spread margins they are pulling from soybeans.



<u>July 21 K.C. Wheat</u>: <u>$8.00 - $10.00</u> / <u>$10.00 - $12.00</u> / <u>$12.00 - $14.00</u>

Last year we ended on this note, ***"If the 1st "global" wheat crops that get harvested in 2022 come in short and/or are poor in quality, our price projections will be too low."*** Last year's weather trends were forecasting issues with world wheat production, which would raise prices much higher. The weather trends held, and higher prices did arrive. We have made some lofty projections for corn from our in-depth research. If the current trends hold, the upside projections for corn will be valid. The unknown variable which can throw this off is the Tongan volcanic eruption. Do the experts have this right? It is hard to say because there has been no eruption like this ever recorded by man. What is in our favor is that the so-called experts are usually wrong! If a drought aids in taking corn prices higher, the drought that affects corn usually affects other grains. Also, if corn prices rise as high as we project, grains are sufficiently intwined that our projected Upper Third targets for wheat and soybeans are too low.



**** We will be supplementing our 24 market factors listed below about every 2-months. We have not done this before, but due to world events, especially political decisions which affect our markets, as well as never-seen-before in our time weather developments, we see this as a necessity for 2023. As market conditions warrant, updates on projections will be provided. We will also be sending additional text message updates specifically to TZC subscribers, on an as needed basis.*

Lastly, we have had numerous discussions on whether our TZC should be based on July23 futures or December 23 futures. We would appreciate anyone's input, so as to best serve our TZC Subscribers.

Due to the seriousness of these future production-reducing events and what it means to your operation, we will spend a greater amount of time on these, which we deem our #1 Market Moving Factor in 2023 and beyond: Global Weather Trends.

But first, we wish to bring back what we see as the overlying thought process that one must consider to reset our thinking going into this new marketing year.

We began these last 2-years attempting to create a narrative we wanted all to follow. We began by telling you we were entering **A New Era.** Instead of asking you to go back and refresh your memory, we are going to recap the most important information one needs to understand and for how best to manage production and sales in the 1st half of this new decade.

*The **New Era** we are entering is the exact opposite of the last 8-years (2013-2020), when overproduction had prices falling hard, wallowing, and stuck in a much lower price range. This period of time, from 2020 through at least 2025, will be where you defer all grain sales for as long as you can to generate as much profit as possible. Of course, there will be subtle variations of this due to other external forces which arrive from time to time.*

*We wrote that within this **New Era**, which should run approximately 5-years, you will need to time your cash grain sales to potential highs for cash flow purposes.* ***One will need to weigh the risk of high prices versus the risk of a Black Swan event or short-term production increases, which can drop prices from lofty levels quickly****.*

During the year, one will see up to 3 sizable rallies. In most of these coming years, it is not necessarily a time to worry about the cost of storage, ***though eliminating storage costs through early, preharvest sales should be considered.***

*"**It is time you change your mindset!**" Mentally, we have been beaten down. After 8-years of low to even lower prices with little if any profits at times, one develops a marketing strategy to preserve assets and avoid risk at all costs.*

Having had 2-years which have offered great prices for our crops, 2021 and 2022, we hope one's past mindset has adapted. While high prices are great, managing them is much more difficult. ***Do you take the bird in the hand or bet on higher highs? Can you afford to do that? Are you better off taking at least some of the profit off the table? Each operation is different. Each manager has a different mindset.*** (This is the thought we presented to you this week with the recent sales recommendation.)

Market actions and world events tell you it is a new world, ***with many new risk factors awaiting the untrained and uniformed****.* ***If you have concerns that Black Swan is waiting for you to slip-up or you become fearful of the risk of higher highs versus lower lows, make sales. The Good News is you will have more chances in the future to sell at even better prices. Opportunities will be abundant in the years ahead. What may well be the greater risk factor is if you can produce a crop.***

*** We have attempted to list those market factors in order of which will have the most influence on grain prices in 2023. ***Weather is our #1.*** In fact, we see it dominating global food production for the next few years, as well as for many, many years thereafter.

The jury remains out for the weather trends in 2023. We are not in agreement with the so-called experts. We were right these last 2-years, and they were wrong concerning the development of an El Nino after Christmas. Data leans heavily in favor of more drought losses in 2023, but that forecast goes against what should be normal. We are looking beyond recent weather trend "normalities" to provide you what we see lies ahead and give full details as to why. It is our hope that we present our understanding and clearly and accurately, and that our order of importance is close to correct.

Market Factors Summary For 2023

1) Global Weather Trends
    a. Our Trifecta/La Nina/El Nino
    b. Grand Solar Minimums
    c. Gleissberg Cycle & Arctic Cold
    d. Triple Cycle Convergence
    e. Natural Climate Variability
2) Ukraine/Russia/Europe/U.S.
3) Global Production Shortfalls
    a. South America
    b. Europe
    c. China
    d. United States
4) USD
5) Energy/Fertilizer Shortages & Energy Prices Into 2023
6) Inflation
7) Terrorist Attacks on Gas/Fuel Pipelines & Cargo Vessels
8) Global Grain Carryover Stocks & Who Has What
9) China's Demand or Lack Thereof
10) U.S. Acreage & Projected Production
11) Biofuel Demand Equation
12) Excessive U.S. Spending/Macro Economic Factors
13) Railroad Strike
14) Avian Flu & PRRS
15) India's Conflict with China
16) China Taking Taiwan
17) Twitter

#1 – Global Weather Trends: Herein we will dissect recent global weather trends and forecast what is to come. Unfortunately, the jury is out due to an unexpected variable which popped up this year. Global weather trends are affected by many influences that many do not understand and

even fewer think about. What we look at are those **MAJOR** factors which drive weather over the entire globe, or the **Big Picture**. We will not just look at the U.S. and forecast what we see within our borders. We must include all factors which move this all-encompassing event that we call weather, including the moon, sun, planetary alignments, centuries of historical data, and weather phenomenons which history proves repeat. All these can be called natural climate variabilities, with some also distinguished as unnatural climate variabilities!

#1 A – Our Trifecta/La Nina/El Nino: We have been referencing this year's La Nina, calling it our Trifecta. That is because we are projecting the odds of this event repeating in 2023, making 3 consecutive years of a La Nina event. This is historic in nature, as it has only occurred 3-times in recorded history, 1954/1956, 1974/1976, and again in the early 2000's. We would bet odds that it also occurred in the 1930's during the Dustbowl Years.

Within earth's major weather cycles there are smaller cycles, no different than wave patterns in commodities. With price cycles, they are broken down into the major trend and within that trend, you have a minor 3-wave or a 5-wave count, counter to the trend. Within the 89-year weather cycle, you have an 11-year and 22-year La Nina cycle. We are at the end of the normal 22-year La Nina cycle, meaning 2023 ***should*** be an El Nino year. If that occurs, one needs to understand that in the U.S., there has ***never*** been a major drought during an El Nino event.

If an El Nino trend sets in later in 2023, any potential droughts will be lessened, as will crop losses. If the weather pattern goes neutral, either an El Nino or La Nina, the weather pattern could be drier than normal or wetter than normal. History shows coming out of a drier La Nina pattern and going neutral, odds favor a continuation of the drier trend.

The reasoning is quite scientific. Dry begets dry and wet begets wet. Simply, if a large land expanse is dry, it is difficult for the atmosphere to generate rain. Likewise, if a large land expanse is extremely wet after moving from an El Nino to neutral, rains are much more easily generated under humid conditions.

Our conclusion is if conditions go neutral this spring, odds favor a trend to slightly below trend yields, based on current subsoil moisture conditions and the resulting anticipated rainfall. If spring rains are above normal and raise subsoil moisture levels to near normal, yields will be above trend, with prices falling accordingly.

#1 B – Grand Solar Minimums: We have talked about the Grand Solar Minimums in past MNU's. Most are unaware the sun is about to shut down. This is known and understood due to the historic nature of the solar cycles. In fact, the upcoming Grand Solar Minimum could wipe out all the claimed global warming for decades to come. For several decades now, the maximum number of sunspots seen in a cycle has been declining.

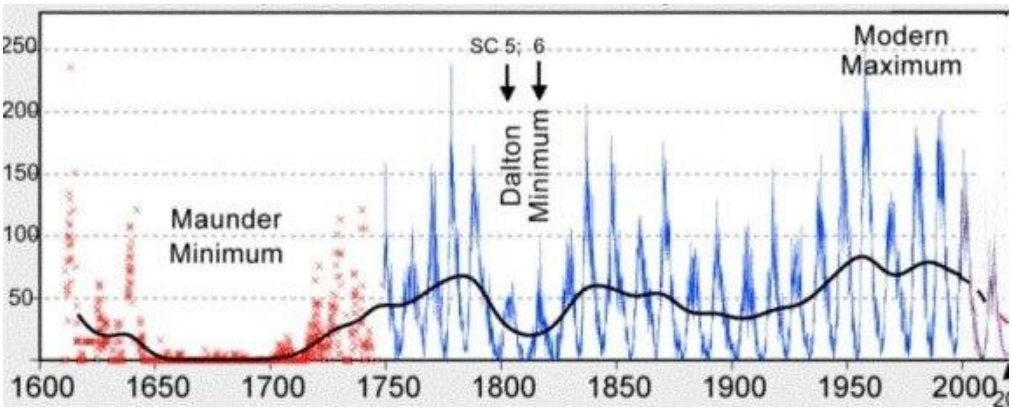
The last time sunspots disappeared altogether was during the so-called Maunder Minimum, a 70-year cool period in the 17th and 18th centuries, forming part of the Little Ice Age. The Maunder Minimum which ran from approximately 1645 to 1710, was the most recent occurrence of what are known as Grand Solar Minima, or periods of very low solar activity, that recur every 350 to 400 years. The time for another minimum is now due. This comes at the same time as our Trifecta and the Gleissberg Cycle. When several events culminate during the same time, the total of all the effects are generally enhanced.

The upcoming Grand Solar Minimum, part of the Grand Solar Cycle, is forecasted to run from ***2020 to 2053***, with global temperatures falling by up to 1.0 degrees Celsius or 1.8 degrees Fahrenheit by the late 2030's. That is as much as the world has warmed since preindustrial times and would put the mercury only 0.04 degrees Celsius or 0.7 degrees Fahrenheit above the frigid temperatures recorded in 1710 at the end of the Maunder Minimum.

During this time, alpine glaciers in Europe encroached on farmland, the Netherlands' canals froze every winter, and frost fairs on the UK's frozen Thames River became a common sight. Solar scientists have calculated that the sun's heat and light output during the Maunder Minimum was about 4-times its normal rise or fall of the normal 11-year cycle.

A more recent prediction, based on a longer 210-year solar cycle, is that of Russian astrophysicist Habibullo Abdussamatov. He projects a more extended period of global cooling than the other scientist Zharkova of Landscheidt, ***lasting as long as 65-years, with the coldest interval around 2043***.

There are a number of scientists forecasting different timing of these events. If the general consensus is correct, the conclusion is simple. Tough times lie ahead. A temperature fall of 1.8 degrees Fahrenheit would have drastic effects on agriculture, causing crop failures and widespread hunger. The need for extra heating in both hemispheres would come at the time when it is likely that much of our heating capacity, supplied largely by fossil fuels, will have been eliminated in the name of combating climate change.



#1 C – <u>Gleissberg Cycle & Arctic Cold</u>: From all indicators, the Gleissberg Cycle of solar activity shows up in records over the last 100,000 years, which repeats every 86.5 years. Separate investigations reveal a repeating pattern of 87 years. One researcher put it simply, normally this cycle is from 86 to 88 years, but apparently can vary upward or downward by a few years. Looking at our past, particularly at drought times on the Great Plains of America, they found an astonishing repetitiveness in serious drought times that were encountered every 87 years.

The Dust Bowl drought was from 1932 to 1939 and was one of the worst environmental disasters of the Twentieth Century anywhere in the world. The main problem was that America was the breadbasket of the entire world at that time, largely determining the price of wheat.

Exactly 87 years earlier (1934), or in 1847, the USA had a drought so bad that it was apparently linked as one of the causes of the decimation of the bison, which were massively plentiful back then.

Again 87 years earlier, there is evidence from records of a serious drought at that time, causing the government to take some actions on taxes to provide relief for farmers.

As you think this through and follow the reasoning, you realize that we can expect major droughts and significant food shortages in this decade to come on the 40 to 50 latitudes. The question history teaches us is by the end of this decade, will people finally realize that the disasters caused by these drought times are not man made? Attempts have been made to explain 20th century global warming exclusively by the component if irradiance variation associated with the Gleissberg Cycle. These attempts fail because they require unacceptably greater solar forcing and are incompatible with the paleoclimatic records.

We began 2020 by telling all who would listen that we are entering a ***<u>New Era</u>*** of droughts, along with much higher grain prices and much greater price volatility. That long-term forecast was based on historical evidence of century old trends, which have been consistently and reliably repeated.

Using 1934 as a focal point, as it was the worst drought year from 1932 to 1939, and by adding 89 years, that strongly suggests that 2023 would most likely be a major drought year. If we use 1936, that will make 2025 the more likely probability. Other variables can throw this off, meaning there is no way that we can look at a specific year at this time. *<u>Current and growing global drought conditions are the classic warning of something developing</u>*.

#1 D – <u>Triple Cycle Convergence</u>: Remember us writing that when several events culminate during the same time, the effects of all are generally enhanced? Let us start with the Maunder Minimum, which ran from approximately 1645 to 1710, its most recent occurrence. It recurs, or cycles, about every 350 to 400 years. From 1645 to 2025 is 380 years. It is due to begin again in **<u>2025</u>**. What does it do again? It creates a Little Ice Age. The Maunder Minimum Cycle is at its beginning.

Then we have the Gleissberg Cycle, which recurs every 87 to 89-years. The Tongan Volcano may move the timing of the Gleissberg Cycle a bit, but the Gleissberg Cycle's peak influence ***(drought)*** centers in **2025**, *with drought conditions varying in different parts of the globe all through this decade*.

Our Trifecta is part of all these cycles, part of the Gleissberg Cycle and part of the 11-year and 22-year La Nina cycles ***(Little cycles within larger cycles, all within a much larger part of the Grander cycle.).***

And there is yet another cycle converging within this same timeframe. In 2025, we will be moving into a synchronous, cold Pacific, cold Atlantic, sea surface temperature cycle. The last time we experienced that cycle was from the end of the 1960's and into the 1970's. That created colder winters and shorter growing seasons during those times, which were very challenging. ***(Those years I remember oh so well! That was a very miserable cold time in the winter, with record lows being set. We watched the thermometer fall to -25F and remain under 0 degrees for days.)***

This is an extraordinary time when we can experience something no one living has experienced before, all these cycles converging at one time. The last time was nearly 400-year ago! And worth repeating, they enhance each other! We expect the worst of times and the nastiest of times, in the years and decades ahead.

What we fear most is the cold. The woke crowd will look like fools trying to explain Natural Climate Variability. Just pull out a copy of the front page of the Des Moines Register from May of 1973, when they were forecasting global freezing, with glaciers grinding south out of Canada and into the U.S. For those who remember, it really was that cold back then.

Our conclusion is simple. Crops grow better when there is more CO2, along with warmer and wetter growing conditions. If you want to achieve a **Global Food Crisis**, blame CO2 levels, find ways to remove it and reduce its level in the atmosphere, reduce fertilizer availability by raising NG prices so high NG/NH3 processing facilities will have to close, call commercial fertilizers an environmental hazard and ban their use if you can, then add in Natural Climate Variability and you have a Perfect Storm.

The net result is much higher grain prices where grain producers can get rich, as well as the Mega Companies which are supplying farm inputs. Those except the rich will suffer. *** *These forecasts are all based on long-term, weather trend analysis, with some human-related influences included.*

#1 E – Natural Climate Variability: We have stated variables can throw the timing off for which years will bring the worst droughts in the decade of the 20's. One variable which already occurred is the Tongan volcano eruption of January 15th, which was the largest ever recorded with modern equipment and shot water vapor into the stratosphere and mesosphere, instead of sulfur dioxide. **This event was totally unprecedented and will have an effect on weather patterns in**

2023. Again, there has ***never*** been an eruption like this one in at least 1000-years. Of all volcanic eruptions VEI 6 or larger, with this one a VEI 6, the Tongan eruption made it into the **mesosphere** with water vapor, as it occurred below the ocean's surface.

****** The Tongan eruption triggered a tsunami, and a sonic boom that twice-circled that globe, which was captured in satellite imagery that showed a huge ash cloud and steam thrust into the atmosphere. They discovered a near 1- cubic kilometers of seafloor displaced, the equivalent of 2.6 million Olympic-sized pools. The eruption from Tongan was like a shotgun blast, which reached record heights and was the 1st ever seen to break through to the mesosphere.***

A volcanic eruption that shoots sulfur dioxide into the stratosphere produces a cooling effect, which causes an El Nino effect within a 12-month period of time. It has been documented that when this occurs, the sulfur dioxide allows heat to be released into the atmosphere.

One needs to understand how upper air flow is generated. What happens is that land cools and warms faster than water, or the earth's oceans. The effect of sulfur dioxide getting blasted into the stratosphere is that it alters the high-pressure systems that cause westerly winds, which tends to create the El Nino effect.

Shooting water vapor into the stratosphere, or even into the mesosphere, would do the opposite. It would create a warming effect because water vapor traps heat in, not allowing it to escape into the atmosphere, opposite of what sulfur dioxide does. *This is all speculation, since this has never occurred before*. But because the effect of sulfur dioxide and water are exact opposites, their reasoning is sound.

This would mean the water vapor aerosols injected into the mesosphere last February, will hang up there for up to 3-years. January 2023 is the end of Year 1. So, we could see 2-years of cooling, or a La Nina event, going into 2025, just from the results of the Tongan volcano eruption. This should enhance drought conditions into 2023 and possibly into 2024. With the normal cycle for this El Nino to emerge in a few months, reversing the normal cooling in the atmosphere for a year or two would delay the onset of the expected El Nino, prolonging our Trifecta/La Nina event through 2023.

If this is what occurs, odds greatly increase that the La Nina induced drought effects will reduce crop production in the United States and South America. Depending on the strength of this event, you could see drought stress repeat in Europe, Africa, and China. This would cause grain prices to print new record highs in 2023, if we were to see even half the global grain losses we experienced this year.

Now if this Tongan volcano eruption has no effect on weather, the odds increase that we get a reprieve within this longer-term drought cycle and half-way decent crops in 2023, dropping prices 20% or more from current levels. That would be expected, because we have ***never*** experienced severe crop losses during an El Nino event. After the reprieve in 2023, drought would come back in 2024 and 2025.

What one needs to remember is that subsoil moisture in this year's drought areas is much less now than when it was last year at this time. The world will enter 2023 with a much greater risk of crop losses if there are extended periods of drought. The next 3-months will give us a much better understanding of what to expect in 2023, an El Nino or the continuation of this La Nina.

What we will be watching for is how frigid this winter becomes. How far south will the cold drop? How cold will it be in Europe? How dry will it be in Brazil/Argentina? That can give us an early indication of a strengthening La Nina from the Tongan Volcano. Already we are witnessing early and deep cold pushing far south into the U.S. The longer-term forecasts show more of this. We believe the drought in Argentina and Southern Brazil will be enhanced by this volcanic eruption. Again, from never experiencing this phenomena before, this is the best analysis by science.

Few realize how detrimental this volcanic eruption would have been to the world had it not gone off underwater. It was the largest eruption recorded by man. All the ash blown into the stratosphere would have blocked so much of the sun's heat, the earth would have been thrown into the deepfreeze. Thank the Lord for this blessing.

#2 – <u>Ukraine/Russia/Europe/U.S.</u>: The intertwining of these 4 is screwing up the entire world. All 4 are leading with stupid, greed, power, and maybe most of all, ignorance. These governments have shown no concern for the lives or the financial well-being of their citizens. We will give the U.S. government a pass concerning them caring about U.S. lives. They know after their botched exit out of Afghanistan, that the people cannot stomach another war with body bags coming home. So, the U.S. government starts another war and uses Ukraine citizens as their surrogates.

Ukraine is a cesspool of corruption, from money laundering for the party in power in the U.S., to child sex trafficking and gain-of-function research in secret U.S. labs. Ukraine runs the gambit for corruption, including bribing extremely high-ranking government officials in the U.S. The U.S. has its thumb on the pulse of Ukraine, funneling U.S. taxpayer money to feed their corruption, with billions feeding back into the political coffers in the U.S. The numbers suggest about 30% gets to the war in Ukraine, the rest no one knows or will say. Reports are coming out about high-ranking Ukrainian officials buying million-dollar properties in Switzerland. There is good reason why the U.S. government refuses to provide an accounting of the billions flowing to Ukraine. No corrupt U.S. official wants accountability.

The U.S. has been egging this war on for nearly a decade by bringing nations in under the NATO flag which border Russia. Knowing Russia was about ready to commit, the U.S. had to exit Afghanistan post-haste. If you check the timing, the U.S. made its 1st commitment to the war in Ukraine less than a week after the Afghanistan debacle.

Russia had many reasons for going after Ukraine. Besides what the U.S. was doing to provoke Russia *<u>into taking its 1st step to its demise</u>*, Russia's population has been falling, especially in the 20 to 40-year age range.

This war will be the last war for Russia. Reports have them capturing young Ukrainian men, as well as babies, and taking them back to Russia. Russia knows the odds of them ever coming back as a nation from this war, if they lose, are near zero. That makes Russia very dangerous, where tactical nukes will not be out of the question.

Since we believe this is a fight to the death for Russia, whether it ends later next year or sometime in 2024, Ukraine's food production will continue to fall precipitously for at least 1-year after the fighting ends. That takes Ukraine off-line through 2024. Forget they cannot import the inputs they need to grow crops. The issues they have for food production are too numerous to matter. This is a longer-term, Big Deal. Winter will slow this conflict. Weather improves and will reignite in late spring. By that time, Russia will have amassed a half million troops, looking to do what they have always done in their wars, overwhelm them with numbers. Crimea, and their ocean ports to the west, should be the focal point this spring, which would eliminate hope for importing much in agriculture inputs for their 2023 crops.

What about Europe? They are going along with the Woke Stupidity and the stupidity of what U.S. policy will do to them. High energy prices in Europe were a direct result of U.S. actions. That put the entire heavy industrial sector of Germany at risk of sustaining itself. It thrived off cheap NG from Russia. NG prices rose over 1000%, forcing closures of over 70% of their fertilizer facilities. Prices of NG gas have fallen recently, allowing some to restart. Others are restarting just because it is warmer than usual right now. Getting these plants up and running when it is cold is very difficult. So, it is better now than possibly not at all. This issue of re-starting is an issue with every heavy industrial manufacturer. The longer they remain closed, the higher the odds they will never re-open. This upsets the Global Supply Chain even more.

As an example, a high-end auto manufacturer in Germany went off-line because they would not get the wiring harness, which was manufactured in Belarus. The war took it off-line. Losing the manufacturing of critical components can easily take many other manufacturers off-line. This causes higher inflation rates, with steady demand chasing smaller supplies.

We will come back to the U.S., pointing at them for purposely raising the prices of energy. They do this because their fake climate change and green agenda directly and indirectly, feeds their financial coffers. Right now, next to their war in Ukraine, it is their best game going. But for those who live paycheck to paycheck, it is killing them.

If you want, you can give the U.S. government a big thank you, as they are directly responsible for jacking up grain prices. Many have told us they have made more money these last 2-years than they ever have. We would like to take credit for most of it, but we need to give credit where credit is due. Our government will need to take responsibility for much higher input costs, too.

This mess, created by these 4-nations, will keep expenses and crop prices high or higher for some time, until the war ends anyway. Prices will continue very volatile for years to come, offering good to great pricing opportunities. Weather will exasperate man-made crop reductions, adding

to volatility and pricing opportunities. Let us all be wise enough to recognize a good to great profit opportunity and not risk all one's bushels shooting for Sue Martin's projections.

#3 – <u>Global Production Shortfalls</u>: Has 2022 been the driest year ever experienced in recorded history? No, but the summer of 2022 was the hottest and driest in hundreds of years in some parts of the world. Some of those experiencing this were France, Nevada, Iraq, China, California, Netherlands, Switzerland, Morocco, Italy, and Germany.

In Europe, this summer's drought may be the worst the continent has experienced in 500-years. The period between June and August was the hottest on record. We have now had consecutive droughts for the last 5-years, and this year is the worst Europe-wide drought in hundreds of years. It is not just less rain, *<u>it's also that it's gotten much warmer, so the overall soil moisture has decreased</u>*.

China experienced an extended period of high temperatures that lasted more than two months, the longest since records began in the 1960's. Extreme heat and a severe lack of rainfall meant China's biggest river, the Yangtze, shrank. During August, there was 60% less rainfall in the river's drainage area than normal. Some parts of China were said to have had their worst drought in 500-years.

Large parts of South America are in the grip of a serious drought. Signs of this drought began to appear in southeastern Brazil in mid-2018, and had spread into parts of Paraguay, Bolivia, and northern Argentina by 2020. The drought worsened in Brazil in 2021 and 2022, spreading further south into Argentina in 2022. Drought on key river areas hamper shipping, forcing vessels to reduce the cargo. The drought in Argentina extends north into southern Brazil and into Paraguay, Peru, and Bolivia. Water shortages run rampant, no hay for livestock, and besides not being able to plant row crops and small grains due to the lack of moisture, vegetables like potatoes, broad beans, or yams are going unplanted.

Drought conditions in the western U.S. have become the norm, with the region experiencing years of drier and hotter weather. The last two decades had seen the most extreme drought conditions in 1,200 years in the American west. Lake Powell, the 2nd largest reservoir in the U.S. which straddles Arizona and Utah, is at its lowest level since it was filled in the 1960's. Climate models predict that the region will continue to have far less rainfall than average in the coming decades.

Drought conditions in eastern Ethiopia, northern Kenya and Somalia have led the UN to warn that some 22 million people could be at risk of starvation. They are now in the 3rd year of very low rainfall, coupled with high temperatures in that part of the continent. In Somalia, the rainfall in the March to May season was the lowest in the last 6-decades. And large parts of DR Congo and Uganda have also experienced very dry conditions compared with the average.

In most of these drought areas, not far away you will find much higher than normal rainfall over a much shorter period of time, creating extreme flooding events. A World Bank report in 2021 noted

that overall "relative to 1970-1979, the numbers of droughts and floods were nearly threefold and tenfold respectively, by 2010-2019".

We have noted before that slower upper air flow creates warmer and drier conditions, as well as much higher rainfall events. Most just say more extreme weather events. We say these events are all tied to a centuries old weather phenomenon which is repeating. It does not happen like "BAM" it is on us. It builds over years. It is a trend. You can see how the dryness is setting in over the globe, as well as flooding events, stronger and more persistent winds, hotter summers, and colder winters. The worst will come when these trends hit their peaks. That remains years away.

#3 A – <u>South America</u>: Our weather analysis suggests better odds of reduced yields in South America again this year. Chatter continues for a bumper soybean crop from Brazil next year, while at the same time, not saying too much about the severe and on-going drought in Argentina and to a lesser extent, in Southern Brazil.

It is not just Southern Brazil and Argentina that has dryness concerns. Chile has been suffering from a relentless drought which began 13-years ago. This summer, Santiago, the Capital of Chile with a population of 6 million, announced water rationing for the 1st time in its history, preparing for not having enough water for everyone who lives there.

This drought is spreading. Central Brazil is getting the rains it needs to get its crops off to a great start but that is not true for all of Brazil or for many of its adjoining neighbors. Whereas we gave better than 50/50 odds of Brazil coming out with a decent crop this year, the Tongan eruption casts on that hope. As nothing like the Tongan explosion has ever occurred in recorded history, modeling off what we know indicates this will support strengthening the on-going La Nina, opposite of what all the experts have been predicting for the last 2-years. We will know much more about this new wrinkle from this potentially, weather altering phenomena in 2 to 3-months. Most importantly, this effect will not just be felt in South America. It should be felt globally.

If it does, Argentina's corn, soybean, and wheat crops will be taking a substantial production hit in 2023. This should also reduce crops in Southern Brazil, as well as Bolivia, Paraguay, Chile, and possibly Uruguay. This would off-set yield gains in Central Brazil.

Argentina's 2023 corn crop is already off to a poor start, with its G/E rating sitting at 12% versus last year at this time at 81%! The USDA has their corn production pegged at 55 mmt, but a number of analysts already place it closer to 50 mmt. Such early cuts in production are very abnormal, likely from soils being so dry, farmers are switching to other crops they can plant later, hoping to catch some rain to get the seeds to germinate.

Argentina's on-going drought is not helping. It is so dry; soybean plantings are far behind normal at 19% versus the 40% average. That is on top of scorching temperatures, reaching 104F over the weekend.

#3 B – Europe: While the war in Ukraine is the current story maker, we can still look at Europe's drought as a demand factor for corn that has not made headlines recently. Europe, usually a net exporter of grain, will become a significant corn importer this marketing year. Their 2022 corn production was just lowered again from 54.9 mmt last month to 53.3 mmt. That is now their lowest production since 2007.

Their issue is their need for feed/corn versus their desire for non-GMO corn. As they become a new player in the import market, available supplies of what they demand will not necessarily be available. If they do not bend, they will raise the price to get what non-GMO is out there, taking from those not willing or able to pay up for it. That is not a concern of the U.S., because demand is demand. If Germany takes that which was for others by paying the price others could not, that buyer is still a buyer of corn and could easily come to the U.S. to meet their needs.

The war in Ukraine is now a price maker for many. This year's production was lowered due to the war. Next year's production will be far less than half of what it would normally be.

By the numbers, Ukraine produced 42 mt of corn in 2021. In 2022, about 50% of their crop has been harvested, and estimated 12.3 mt. Due to current conditions, they expect the majority of what is left to harvest will remain in the fields this winter, which will create additional losses. Current numbers suggest half a corn crop for 2022.

For 2023 production, we suspect whatever amount of corn they can produce will be used to feed its people. That takes Ukraine out of the export market in 2023 and likely also in 2024. We are talking corn, wheat, sunflower seeds and sunflower seed oil. Ukraine is the 4th largest breadbasket in the world. In the 2019/2020 marketing year, Ukraine was the 2nd largest exporter of grain in the world, next to the U.S. Ukraine is one of the guarantors of global food security.

Taking Ukraine's food production off-line is a **Big Deal**, with serious consequences to the entire world, more so to the poorest of the poor.

#3 C – China: For things in Ag, what happens in China stays in China. Few are privy to real production numbers, which would include drought losses. We suspect the slow price rise in rice futures pertains to the lack of information for the size of the crop losses this year. Some have said they could have been as high at 50%.

Like their rice, corn and soybean numbers are closely guarded, unlike the U.S. who tells the world all and even makes up numbers to keep prices low and China happy.? The best most can do is use satellite imagery, guess on livestock numbers, watch grain purchases from whom, their internal prices, and state auctions of grain which is unusually done when the CCP is working to control internal prices.

China's drought took some bushels off their corn crop. But that was not the big issue for them and their corn needs. China was importing over half of Ukraine's exportable corn if we have the

numbers right. And a good amount that was left was headed south to Europe, the Middle East, and Africa.

Seeing the issue with Ukraine, China vigorously went to work to secure the right to import corn from Brazil. They got that deal done, with the 1st shipment loaded out last Wednesday on the vessel Star Iris from Santos.

With China now taking corn from Brazil which it would normally get from Ukraine, along with all those others now missing Ukrainian corn, those countries will need to be finding new sources of corn. That will be either Brazil or the U.S. Thus, demand **will** be picking up for U.S. corn. Did it just start, even with low water levels on the river? Last week's sales jumped Big Time, from 10.4 mb 3-weeks ago to 46 mb 2-weeks ago 72.8 mb for last week. In 2-weeks, that is an increase of about 700%! We will see if this keeps up.

What also caught our attention is what we believe was the 1st significant purchase of corn from the U.S. for the 2023/2024 marketing year of 24.7 mb. One must ask if nations are beginning to wake up to what we started talking about in 2021, of a looming **Global Food Crisis**?

Is China's actions by shifting their grain needs to other exporting nations waking other countries to understand that a broken supply chain is not as bad as having a **Global Food Crisis**. Just-in-time delivery is a bad thing but if there is nothing to deliver, forget it. As countries which must import food to survive, and China is the biggest one with the greatest needs who understands this the best, if you do not have a strategic grain reserve in times of insufficient global production, you are screwed. When other needy nations wake to this fact, that will constitute "new" demand. That does not work when supplies are insufficient to meet what was normal demand. As scarcity becomes more obvious, it will be like the run-on toilet paper when the retailer puts up a sign that reads, "Limit One".

Thus, production shortfalls were not the issue in China that is creating new demand. There are production shortfalls in Ukraine, which is causing a shift in demand globally, as those customers search for new suppliers.

On a side note about China, the day they decide to stop the lockdowns, anticipation of coming demand will be felt immediately, across the board. You may have noticed in grains, even when lockdowns hit energies and knock grains back, they have held up quite well. Grains holding support when other sectors fall on what appears to be negative news, shows the underlying strength in grains, as well as super strong basis levels which will keep rising into January. Harvest in the U.S. is done, and bin doors have been slammed shut for most producers. That is market friendly. Also, most producers are fine financially and can hold for higher prices, also market friendly.

We just got a note that said every single pharmacy in Lincoln, Nebraska is out of Augmentin, Cefdinir, and Amoxicillin. This is a city of about 300,000. Question? What is going on at Walgreens or CVS? Our 1st thought is these must be made in China. This risk of medical supplies or medicines/drugs, all being made and shipped from China, has been discussed at length on news

outlets for the last few years. With their Covid lookdowns, it makes sense it is a supply chain issue that could easily get worse if lockdowns continue in China.

#3 D – <u>United States</u>: The U.S. has several issues to deal with before planting arrives. Maybe the most interesting one will be the January 12th Quarterly Report. Based on current prices and basis, it is difficult to believe the USDA has been honest with carryover stocks over the last 3-years. Basis levels on corn have been tighter each year and held longer and later into summer. In fact, this year, few places saw corn basis backing off much at all and even rising higher above the board prices. We must remember that basis is a localized event, local to most of the western half of the Corn Belt! That is a pretty large area, though.

Higher energies are cutting fertilizer production on a global basis. Sanctions, like export and import restrictions, are also causing fertilizer supply issues. From the cards which we are told are <u>going to be played</u>, these issues will only grow. Except for the low river water levels in the U.S., we do not believe there will be any major fertilizer supply issues that will take yield down by much. Producer's choices of applying less will take the top out of some fields.

The on-going summer and fall drought could be a greater price maker for corn than fertilizer, if producers shift sufficient acres away from corn to less water intensive crops. That is already occurring, with corn acres being shifted to HRWW.

Discussions abound about what ifs. If it is this dry next spring, are you better off planting soybeans, sorghum, or sunflowers? Most tend to lean to soybeans. Some will do sorghum. The thought of sunflowers is already being planned by some, while others tell us sunflowers have a tap root that goes far down and really sucks the moisture out of the soil. If it is dry again in 2024, they fear they will have shot themselves in the foot by going to sunflowers.

If you look at the current drought maps, more of the U.S. is under some degree of drought than has been in decades for this time of year. That will not change much until March, at the earliest. If the Tongan eruption does what the experts believe, the U.S. will have another year of below trendline yields in corn, soybeans, and wheat, as well as other crops. If this occurs, prices will hold these levels and rise substantially in 2023.

If South America crops would come in below trend, as well as the U.S., how high prices would rise would be an interesting question. How end users decide to chase bushels would be a major factor as to how high prices could rise. We know with China, when it comes to making sure their people are fed, price is not a question. Most forget that players like China can pre-buy/hedge their future cash purchases on the board, long before they must purchase the physical commodity.

If you look at a chart of trendline yields for U.S. corn production like you would at any commodity chart, one could conclude "price", if yield was price, has topped and is readying to turn lower. From an abstract thought, if this is a century old, on-going, building drought cycle, this would seem to make sense. By the numbers, yields seem appear to be topping out, under 178 bpa. From

2015, yields were 168.4, 174.6, 176.6, 176.4, 167.5, 171.4, 176.7, and currently projected for 2022 at 172.3 bpa. This chart appears to set trendline yield for 2023 just under 180 bpa. Yet, we saw a projection somewhere for the trendline at 181.5 bpa.

We have stated that we should fear how high the U.S. national yield could rise if we ever had a good weather year for crops. It would be well north of 190 bpa, if not closer to 200 bpa. If we are right, yield suppression is here due to natural and normal climate variability. Genetics keep getting better. When the blanket comes off, yields will be scary.

#4 – <u>USD</u>: Understanding the value of the USD to your operation is important, just like it is important to understand what drives the valuation of the USD around the world. Let us 1st look at the drop in the USD from its high.

The USD has fallen nearly 10% from its October high. The reflective value to your grain should translate into a 20% increase, over time. Price gains in the U.S. from a falling dollar does not occur immediately.

First, most currencies relative to the USD will move opposite the USD. Thus, the direct benefit to the U.S. producer is double the price move of the USD. That is why the value of the USD is such a big thing.

Why it takes time to translate in value on the farm side is because it comes through demand. When currencies move to a point of making our products cheaper overseas versus from other suppliers, that demand will shift, again over time. The orders come in, which is the demand. The product will take time to load and get transported to ocean going vessels, which they will need to get in line to load. As this demand builds due to the change in currency valuations, the USDA will adjust their export demand projections. Before that, those sales will show up 1st in the export sales reports on Thursday and eventually, in Monday's Inspection Report.

Down the list at #12 are macro factors. These can upset the trend of the USD. Recently, the value of the USD ran too high. Price reversed lower, broke the uptrend line, and additional selling ensued. The technicals are screaming the top is in. Funds will now be sellers of rallies. It will take a big change overseas to change this trend. That is not to say it cannot be done, as some wave counts suggest higher highs lie ahead for the USD.

Why is the USD so high, historically speaking? It makes no sense if you look at the insane deficit spending over the last 2-years. Our debt to GDP ratio, over $30T in debt, is over 130%. Yet, believe it or not, there is a worldwide, dollar shortage. How could that be with the Fed printing over $9T during COVID? That is because there is over $1Q off the book's contracts, swaps, derivatives, options, etc.; $1 quadrillion being 1000 trillion dollars. To maintain this, they only need to put up 1% to 2% in collateral for margin.

What they take for collateral is T-bills, about the only thing acceptable now-a-days. To get these T-bills to collateralize or support their quadrillion dollar pyramid of liabilities, they must buy them with U.S. dollars.

Now if you look at the 3-month or the 1-year T-bill, you will see they are going down and they are higher than the 10-year treasury note. Who is going to take a lower yield for 10-years than they would take for 3-months. This is a **Big Red Flag** telling us something bad is going to happen. This is an inversion, which is your 1st warning sign of what is to come.

Then we look at the EuroDollar yield curve. The Fed told us that they are raising rates and the Euro Dollar shows that. But if you look at Dec23 Euro Dollar, that rate is less, also inverted, another **Big Red Flag**. Investors are telling us rates will be coming down. Why, because they see this recession coming. Why is Warren Buffet sitting on $130B in cash? Because he knows cash is King when things go to hell. Those with cash in the late 30's owned everything. Bargains can be bagged when everything crashes, but you need cash to take advantage.

One does not need to guess at this. Just look at the yield curves. They are just like they were in 2007. They are actually worse, which forecasts that we are in for a worse crisis.

What does this mean for grains? All this intertwines and raises the low-end value. In the recent past, values for corn ranged from $3.00 for a low to $4.50 for a high. With inflation so strong, if the world struggles with global production, the downside of corn would be no less than $4.50 when things fall apart.

Everything is relative to the value of money, the inflated value. If all your expenses have gone up 50% to 100% and end up staying at these new levels, grain prices need to maintain some parity in this relationship or the entire agricultural sector crumbles. Yes, it can be like the crash of the late 70's and early 80's, but we are not there yet.

#5 - Energy/Fertilizer Shortages & Energy Prices Into 2023: Fertilizer shortages are caused by energy prices being too high, export sanctions on energy exporting nations, and supply chain issues. In the case of the U.S., for this spring, the odds say for next spring we can add low water levels in the Missouri and Mississippi River Basins causing some delays in moving fuel, fertilizer, and other inputs.

We expect there to be a few surprises in the energy sector from now through most of 2023. With Biden dumping tens of millions of barrels from the Strategic Oil Reserves (SPR) for political gain, he depressed prices. Historically, this self-centered view will have created something which many call the bullwhip effect. By artificially manipulating prices lower, you create an environment in which when that intervening action stops, prices will rebound faster and higher than they would have had one not interfered with the normal S&D balance of a market.

What would be even more bullish is if the Biden administration would begin buying crude oil from the open market at the same time they stop pulling from it, to replenish what he removed. Their

buy zone has been stated to be $65/bl to $72/bl. Several questions arise when they float numbers like this and the underlying issues driving energy prices higher remain in place. In fact, current actions which have driven direct investment out of the oil patch are being enhanced. Their only hope of turning energy prices lower in 2023 is a globe recession, and even that might not be enough.

1) Pulling from the SPR does not address the issues which have caused higher energy prices, which is longer-term bullish.
2) Stating a buy target feeds the Bears to push prices into that buy zone.
3) If they begin buying at the same time they quit pulling, that flip is more than doubly bullish as the pull was bearish.
4) What occurs if prices cannot reach that buy zone and the trend in crude turns higher?
5) What if this administration keeps drawing from the SPR just to maintain crude price stability?
6) What happens if OPEC+, Saudi specifically, now being upset at this administration, decides to stick it to "The Man" to force this administration to empty this nations' SPR to keep energy prices in-line. Continued draws from the SPR would be necessary to control what would be run-away inflation if energy prices were to skyrocket.

Black Swan events could arise over the next year to catapult energies to higher highs extremely quickly. Economic pressure, military losses, the need for turning the tide and influencing others to lend a hand, or to persuade your citizens to support your cause, are all reasons for actions to move energy prices higher or lower. Mostly it is done to manipulate people or nations' governments. For OPEC+, it would be that or just for obscene profits.

Last week, Ukraine was suffering power outages in 15 regions, comprising roughly half of the country's infrastructure. Utilities are losing their ability to restore power. On Wednesday last week, 70 Russian cruise missiles were hired, hitting Kherson as well as other cities. If Russia can keep most of the lights off in Ukraine over the winter and continue energy issues into spring, the ability for the agricultural sector to operate would be nearly decimated. Food production could even fall well short of meeting the needs of its citizens.

Even with intermittent energy production in Ukraine, even survival becomes an issue during the winter. If more and more citizens flee for safety reasons, that will also impact food production for some years to come. Without a reliable supply of energy, a nation cannot sustain its society. It cannot produce or process the food necessary to sustain any kind of lifestyle for its people. The longer Russia maintains its attacks on their energy sector, we believe the lower their crop production will be in the years ahead. Assuming they will have any substantial amounts for export after this year's production is likely a pipedream.

We did not expect Biden making a super push to pull 15 million barrels out of the SPR weeks before the midterms. That move helped tank U.S. crude oil futures from $92.50 to nearly $75.00 in just 11-trading days. Price double bottomed at $75.00/bl the last week in September. That should be great support. With this administration's target set from $65 to $72, we are wondering

if $75 can hold. Last week saw Jan23 crude oil futures closing on a new low for the move at $76.28/bl.

Once the near-term technicals, seasonals, and the potential rail strike run their course, bullish fundamentals will take over. Traders and hedgers alike are looking for an opportunity to get long the market, but technicals and seasonal indicators have not turned bullish. As mentioned earlier, the price closed at a new low for the move last Friday. New low closes are not bullish. Noncommercials have been exiting their short positions. Once the market sets its timing and seasonal lows, its rally will extend into early summer. If everything falls into place as we suspect with the Ukraine, sanctions, and production and export restrictions, the energy market should extend gains into a seasonal, late summer peak.

After the market works through this short-term weakness, fundamentals, or S&D, will take over. Going back to this administration, they have high hopes that recent high prices will encourage production, discourage exports, and suppress consumption. We will have to see how this plays out. The seasonal pattern suggests a low in December. All the while, fundamentals remain bullish, meaning money flow can flip and come in at any time.

What we have been betting on is the sanctions that are to go in place. The market, contrary to what it is called, is ignoring future sanctions which would be quite bullish to price. This flush takes out all weak longs, and in our mind, sets the market up for a hard run up during the winter months.

In June this year, the European Council adopted the bloc's 6th package of sanctions, banning the purchase, import, or transfer of crude oil and certain petroleum products from Russia to the EU. The ban on crude oil goes into effect on December 5th, while the ban on other petroleum products, most interestingly Russian diesel, goes into effect in February 2023.

U.S. lawmakers stepped up calls Monday to ban the import of Russian oil, cutting off Putin from a key source of revenue in retaliation for the invasion of Ukraine. Northern Europe has already slashed seaborne Russian oil imports by over 90%. The major Dutch trading port was Russia's only crude-oil delivery destination in Northern Europe for the 9th consecutive week. This is significant because the Northern European nations of German, Netherlands, and Poland were the top European importers of Russian oil in 2021. This ban should take 1.1 mbs/day off Russia's books, after the EU's import ban kicks in.

When you see how much energy prices have fallen in the last 2-months versus how well grain prices held up, one must be bullish on the outlook for grains in the months ahead. Seasonals turn up for all. Be mindful of what our government does, as their actions will have a great impact on energy prices, which in turn will carry over into grains.

When is this administration going to stop pulling from the SPR and begin filling? Here are some key points on how the market analyzes crude oil stocks. Cushing inventories have always been the best measure of supply risk to U.S. oil. Cushing stocks are currently lower than when the SPR

releases began. Neither is Midland Texas Oil, which feeds Cushing, based on export data and basis spreads. When SPR stops releasing there may not be much, if any, Midland oil available for Cushing refilling. If Cushing does not get topped off as SPR draws stop, further political machinations aside, the risk on both spreads and flat price could be what JPM had called a "Super-Backwardation" event.

The question the market is asking is where is all this oil going out of the SPR if not going to Cushing? It is getting refined locally or getting exported. It is getting consumed, not stored commercially. These draws to meet demand kills any desire to increase drilling or new exploration for new oil, making continued draws from the SPR bullish to prices longer term. With draws being used to suppress prices, it encourages OPEC+ to make further cuts in oil production.

#6 – <u>Inflation/Deflation</u>: Inflation is tied to government spending, supply chains, and a good part to energy prices. We have witnessed the breakdown of the global supply chain and massive government spending. We have seen the government force energy prices higher, adding to inflation. From then until now, where to from here?

We need to first look at inelastic demand. Those are things you need to buy and are going to buy no matter what. Like filling your gas tank to get to work. That is not going to change. And you still need to drive your kids to school or go and get groceries or other things.

If you are paying twice as much for fuel, that money for many consumers will need to come out of other things. That means skipping an evening out, a movie, a trip, less expensive cuts of meat, or moving to rice or potatoes. It might mean no new shoes, new clothes, or no vacation this year. Something will be taken from somewhere, or cut out, as an offset. ***This is demand destruction*** that will eventually drive the economy into a recession.

After this inflationary event, deflation is most likely. Until we get there, we have demand-pull inflation. That is where you go buy something today you do not need today, but you know prices will be higher later, so you buy it now. That drives inflation higher. This occurred in the 70's, which is inflation feeding on itself. It began from the supply side, with the global supply chain breaking down and pent-up demand being releases when COVID waned.

The Fed is attempting to kill this demand-pull inflation by raising interest rates. Supply side inflation is different. It will extinguish itself, or come down very quickly, because of the coming recession, and the coming global financial crisis, because people have less money and because the Fed is raising rates.

When the recession hits and the inflationary trend turns, you will see deflation. Deflation is where prices begin to fall due to over supplies and/or decreasing demand. While many will see this as a good thing, no homeowner wants to see the value of their home fall.

Deflation comes with its own issues, which also feeds on itself. Just like people pull purchases during inflation, buying future needs of goods or services today because the thinking is those prices will be higher later, the reverse is true with deflation, they "push" purchases back.

When the country is in a recession, the economy is in a downturn. The financial sector will also be in a downtrend. Under these conditions, consumers understand prices are falling, so they begin pushing purchases, or deferring buying things because they anticipate prices will be lower later. Opposite of inflation, consumers push prices lower by reducing demand for goods and services in the near term, increasing supplies.

The government hates deflation as once it becomes ingrained, it is near impossible to stop. Also, if they are not inflating, money paid into the government through taxation is also falling. They absolutely hate that! Inflation at 2% is a silent theft taking from the nation's citizens, like putting a frog on a pot of water then turning up the heat. You do not notice you are getting cooked until it is too late. Like inflation, if prices rise too fast, you see it and get very upset. The government never wants you to notice how they are sticking it to you from every angle. It is always very slow and very methodical, so you will not see the truth.

The Fed is searching for the terminal rate, the high point that interest rates will kill inflation. There will be no soft landing. Everything works on a curve. They cannot see they have reached the terminal rate until they have gone past it.

Inflation is already falling, while the Fed still has plans of raising rates to 7%. That will be above the kill zone. The terminal rate does not have to be higher than inflation. It just needs to be high enough for inflation to turn and come down on its own. Unfortunately, when they reach what they think is the terminal rate, the Fed will just hold it there. That is their pause, which could last a year.

How high will the Fed go? No one really knows. Though their upside target is 7%, they might find that 5% is the terminal rate which is enough to do the job, or it may be 5.5%. Jay Powell has said he does not know.

Every time the Fed raises rates less than the market expected financials rally. That is not necessarily a good thing. Many are talking about the Fed Pivot, which means lowering rates. We have heard that from many. Our trusted sources say that is nonsense. What they may do is make smaller rate hikes but make more of them.

Because deflation will kick-in before the Fed stops raising rates, history shows a hard recession is inevitable. In fact, a recession may already be occurring or will be here very soon.

A recession and a global financial crisis are two entirely different things. In 1990, we had a recession but there was no financial crisis. In 1998, we had a global financial crisis but no recession. In 2008, we had both a global financial crisis and a recession. Year 2023, 15-years later, it will bring us both again for all the reasons already mentioned.

What does this mean to the grain producer? Look back at 2008 when all things went to hell and match it to 2023. Can 2023 be a close match to 2008, giving us a game plan? Here is the history.

Banking froze on March 6, 2008. Beans had just moved over $15.71. Soybeans fell over $4.00/bu, to $11.06, over several weeks. Crude oil was trading at $90.00/bl.

That year was a drought, with corn peaking on June 27th at $7.99. A perfect technical top formed over the next week, signaling to sell corn on July 3rd. Corn began falling limit-down for several days after the July 4th weekend.

Yet, crude oil was going crazy, rising to $147.27/bl on July 13th, dragging soybeans to new highs of $16.63 on the same day, before they and the energy markets began crashing, and so went all grains. Corn reached $4.50 the 1st week in October and found support for a few days. We called for a Black Monday for stocks, issuing a sell recommendations for any grain producers who had not sold to get priced if $4.50 gave way on our forecasted day for Black Monday. Both occurred on that fateful day and price reached $2.90/bu around December 6th, which was the date **most markets bottomed *all about the same time***.

Think about how this played out. Every commodity had its own story for different reasons for when it set its high. ***One could not pull one specific date to market all commodities***. **But one could pick a specific date of when to buy or to re-own everything!!**

Think about stocks. Sell now, or when you feel a top has been reached on this rally, and wait for a massive collapse, a complete flush, an oversold condition on everything. For those who make cash king, selling all old crop and all new crop in 2023, if 2023 repeats like 2008.? The year 2023 might be a living hell for many, but for those who manage it right, they could do better than ever.

Remember farmland values? All we can remember is that they began to rise in 2009, accelerating through 2013. When grain prices collapsed after 2013 and flatlined pretty much through 2020, land prices held steady, if not rising in some areas.

History could be repeating. If you can learn from it, you will do well. We will do our best to guide you through these turbulent times and hopefully we will do as well as we did for those with us in 2008. The most important thing to remember is that when this crash ends, cash is king. Begin building your cash position, knowing the value of your cash increases with deflation and historic bargains will be on the table for all who have cash. Things do not repeat exactly. With weather cycles coming as they are, we should probably research the 30's to see what occurred. One difference is they did not have a war going on.

#7 – Terrorist Attacks on Gas/Fuel Pipelines & Cargo Vessels: Once the Nord Stream 2 pipeline was blown with multiple explosive devices, it set the stage for future terrorist attacks, not only on other vital gas, fuel, and oil pipelines, but also cargo vessels.

Blowing Nord Stream could be the beginning of much greater sanctions and embargoes, depending on Who Done It. One story is that it was the UK, with the blessings of the U.S. Such an act would be like the U.S. declaring war on Germany, which the U.S has done before.

The most recent story comes from the Swiss. They have been on-site for weeks gathering evidence of the explosives used. They are not releasing any evidence collected but it is said to point to Russia. That would be an issue, as that would be an attack on Germany.

Members of NATO are required to sanction and not to trade with a nation which attacks any other NATO nations. If the Swiss were to release such evidence, the sanctions imposed would prohibit Germany, or any other NATO nation, including the U.S., from importing any products, or energy, from Russia. If NATO nations would honor this requirement, the energy sector would immediately become more bullish if this was in fact the case. We would argue that certain unnamed sources would be pressuring the Swiss not to make such data public.

Successful terrorist acts spawn copycat events. In this case, what could one do to accomplish what goal? Another such act could be capturing or even sinking a Russian oil tanker. If this would occur, no insurance company would take the risk of insuring Russian ships carrying crude or fuel products. That would drive energy prices through the roof.

We look for the war to cool down during the winter months, then warm up into Ukraine's spring and summer. During this timeframe, depending on how the war is going, it might be advantageous for Russia, or even Ukraine, to take out some of the many pipelines which crisscross Ukraine. Any attack on any pipeline would pop energy prices.

#8 – <u>Global Grain Carryover Stocks & Who Has What</u>: This is definitely an interesting category. For the U.S. and global stocks, wheat is historically tight heading into the winter months.

December wheat contracts are approaching 1st notice day on November 30. Dec22 MN wheat futures closed at a 7.75-cent premium to the March contract on Friday last week, with Dec22 KC wheat closing at a 10-cent premium to its March contract. That is a bullish sign of demand heading into the winter months.

These premiums are caused by U.S. ending wheat stocks sitting at 15-year lows, which are expected to tighten further in 2023/2024, depending on U.S. weather.

When looking at global wheat stocks, one must exclude China because they do not export wheat. In order, Russia is the #1 wheat exporter. This year they had a bumper crop that needs to get out to the world market. Due to the war and the sanctions placed on Russia, that has become a struggle. The agreement which allows Ukraine to get some of its grain onto the global stage, also benefits Russia in getting some of its wheat moved.

The U.S. is #2 but has struggled with drought these last 2-years, reducing its production and carryover stocks to 15-year lows. The USDA has lowered its forecast for exports, due to our short supply. Another short crop year for the U.S. would cause supply issues. Of course, that gets solved by higher prices. One could even see the U.S. importing wheat if prices outpaced those in other wheat exporting nations. Exactly how would that work with sanctions on Russia?

Australia comes in at #3. They had their largest crop ever this year, which would surprise most for how high wheat prices are in the world. Excess rains gave them great production but then the rains never stopped, crashing the quality of their wheat, turning up to 25% of it into feed grade wheat. Final data is not yet available as to how much good or how much high-quality wheat they will have available for export.

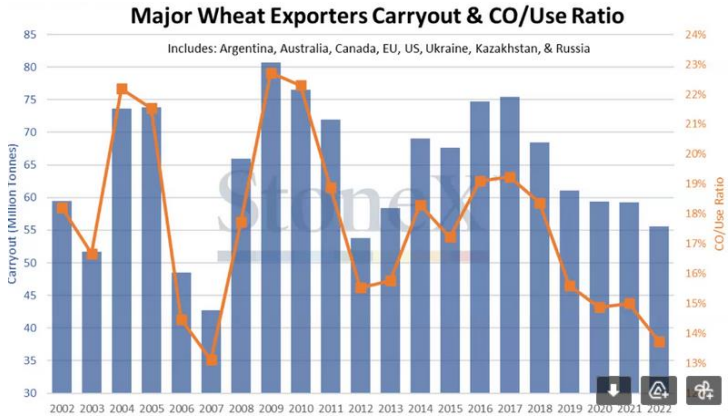
At #4 is Canada, who had a flop-crop last year, but saw it rebound well this year, as growing conditions returned to more normal temperature and precipitation. Their final crop came in at 34.7 mts, an increase of 55% from last year's disaster. And this production came in as one of their best for quality. Over 90% of the CWRS ***(Canada Western Red Spring***) crop has graded No. 1 and No. 2, with protein content higher than average. 80% of CWAD ***(Canada Western Amber Durum***) has graded No. 1 and No. 2, with protein content higher than average. Over 90% of CPSR ***(Canada Prairie Spring Red)*** has graded No. 1 and No. 2, with good protein content. 99% of CESRW ***(Canada Eastern Soft Red Winter)*** graded No. 2 or above with consistent high falling numbers and excellent quality. In the next few weeks, the 2022 New Wheat Crop Report will be shared in-person when a delegation representing the cereals value chain travels to over 15 countries in Asia, Latin America, Europe, Africa, and the Middle East.

Coming in at #5 is Ukraine, which has been front and center this year's grain trade, as Ukraine is the 4th largest Food Basket in the world and one of the top exporters of many grains and seed oils. While the world's focus seems to be on wheat, corn is the #1 grain leaving Ukraine's ports these last few months. The forecast for Ukraine's 2022 wheat production is 19.8 mt, with exports from 14 to 16 mmt. This is unusually high, due to unprecedentedly high ending stocks from last year. Their winter barley situation is the same. This year's production is lower, mostly due to ***(drought)*** 50% of normal rainfall in Center and East of Ukraine, with western regions from 50% to 80% of normal.

France registers at #6. They have been in the news this year from severe heat and drought devastating their crops. Still, their 2022 soft wheat production is forecasted to net them 32.895 mt, only down 7.2% from last year.

Rounding out the Top 7 is Argentina, who's 2022 crop began suffering from drought conditions even before it even got planted. Total acres continue to be revised downward, this time from 6.7 mh ***(million hectares)*** to 6.5 mh. It was as high as 7.5 mh. Estimated production, if memory serves, was 19.5 mmt. Some have lowered to 12.5 mmt. The G/E rating is the worst ever, coming in under 10%.

Globally, wheat stocks sit at 276.3 mmt. That seems very large, but that includes what they estimate China has and they are not an exporter of wheat, but they do import, which they have been doing recently. Major wheat exporters are charted as to availability of exportable supplies, with those numbers broken down into carryout and ESU ***(estimated stocks-to-use).*** In the last 20-years, 2009's total carryout was the highest for this group at 80 mt. The lowest was in 2007 at 43 mt. Total carryout has been falling every year since topping in 2017 at 75 mt. ***(Think about the weather trend when comparing it to the trend of global wheat production. Any relationship?)*** It is now placed at 56 mt. More importantly, the ESU has fallen from 19.6% to the 2nd lowest level in the last 20-years to 13.6%. **Our thoughts go to the centuries old drought cycle which is growing closer to its date of arrival. As it nears, global weather conditions worsen, which lessens global food production, which feeds into the coming Global Food Crisis**. Multiple trends lead us to this conclusion, as a possibility or the reality of what is coming. Then, world governments add to the food shortage, apparently on purpose, making matters worse.



We broke down the wheat market much more than we will do for corn or soybeans, because it is the world's food staple. As wheat goes, nations go. Wars are more likely to break out if wheat prices rise too high or if there are insufficient supplies of wheat to feed the world's hungry.

Global corn stocks were placed at 302 mt last year, now currently set at 301 mt. Risk must be considered higher, as corn's price was $1.00 lower last year at this time at $5.60 versus where it is today at $6.68.

In May of 2022, the UN warned of a Russia-driven food shortage of cereal and corn, which will begin running out in 2023. Why would there be a corn shortage when Russia is #10 in total corn exports at 1.4% and they harvested a record wheat crop? It still comes down to the **Big Picture**.

What happens to the corn market starts in the U.S., as the U.S. is the #1 exporter of corn in the world, netting 37.2% of all corn exported in 2021. The Top 4 nations total 74.3% of the world's exportable corn supplies. Our focus needs to be there: 1) U.S. 37.2% 2) Argentina 17.6% 3) Ukraine 11.4% 4) Brazil 8.1%.

Looking at those numbers, our first thoughts go to China, missing out on #3, Ukraine's corn, and moving to #4 Brazil for what it needs, while ignoring #1. And with removing Ukraine's 11.4% of the world's exported corn from the global marketplace, supplies of exportable corn becomes a **Big Deal**.

*** *Remove 11.4% and that is immediately a problem. Global corn stocks were steady over the last year. They will now start falling. The world needs above trendline yields. The 100-year weather trend cycle projected yields will continue trending lower. Which of the Top 4 corn exporting nations does not have weather/production issues, the U.S., Argentina, Ukraine, or Brazil? Between the Top 3, which produce 66.2% of the world's exportable corn supplies, the U.S. is under the worst drought conditions in ages going into 2023. Argentina is already losing 30% of its 2023's wheat production and their corn acres are already falling due to drought conditions. Ukraine could possibly see their 2023 exportable supplies be cut by half, or even fall to zero, due to prevailing warring conditions. As for #4 Brazil, it could be argued they do not have a problem, yet. Southern Brazil does and our best analysis tells us their corn crop could easily be reduced by prevailing weather trends.*

When you look at the numbers, the average person would have to conclude the **Global Food Crisis** *is not a joke, it is just a matter of time. Our analysis says that the global, reoccurring weather trends would push us to the edge of a* **Global Food Crisis**. *It will be the cravings of greed and power which push the world over the edge.*

For soybeans, global stocks were 105 mmt last year versus 102 mmt this year. Prices were $12.50 last year versus $14.35 today. We could repeat from earlier and say higher values today are due to added risk to production, but now we are thinking inflation and the USD. Between those 2, one could argue a 20% increase in value from inflation and the USD for soybeans and corn, with no added risk to production. At least, no added risk to production yet.

Brazil is the #1 exporter of soybeans by volume at 49.5% of the world's total supply. The U.S. stands at #2, exporting 35.3% of total volume. The other exporting nations really do not matter, with #3 Paraguay at 3.8% and #4 Argentina at 3.4%.

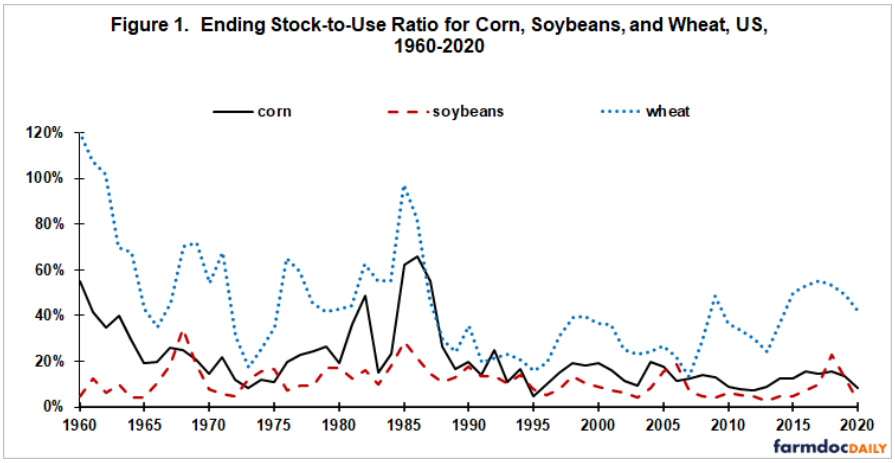
Argentina's currency push to soybean producers was offered again. Their 1st offer moved approximately $3B out of producer's hand, which was quickly scooped up by China, reducing demand for U.S. soybeans. The first push to get their producers to sell moved a lion's share. What gets moved in December, most should remain in Argentina for their crush plants. It will be interesting to see if China gets a hold of any more soybeans from Argentina. If not, that bodes well for U.S. prices.

U.S. soybean exports have been booming these last 4-weeks in November, something that was much needed. Domestic demand has been hotter than hot, with no slowing in sight. With numerous crush plants coming on-line over the next few years, that demand will only be increasing. We suspect China's demand will continue to grow. Increased production from Brazil will be needed, so if Brazil's production falls much below trend, prices will respond quickly.

If Brazil's production raises to expectations, drought losses in Argentina may not matter as much as they had in the past. As is usual, Brazil increased acres again this year, somewhat offsetting potential losses. Yet, the world keeps demanding greater global production on all fronts, as the world just surpassed 8 billion people this month! Our 100-year global weather trend points to lower crop production, with corn and wheat taking the greatest hits. Soybeans have much greater drought tolerance than either corn or wheat. It would seem most prudent to track the world's ESU to determine price probabilities on reduced global production. We cannot lose sight of the total number of bushels needing crushed for the increasing demand for vegetable oils and biofuels.

Stocks/use ratio forecasts the number of years or days that, under current demand pattern, the remaining stocks will be sufficient for. When the ratio goes down, the price rises. Projected global ESU for soybeans for 01.01.2023 is 19%. Its low water mark over the last 10-years was about 13% from 2018 through 2020. Today's forecasted ESU for global stocks rests in the upper third of their 40-year trading band. The ESU for U.S. soybean stocks has ranged from 2.6% to 13.7% over the last 20-years. This spring, the soybean supply had a carryover from last year of 285 mb, a current ratio of 6.4%. The soybean market starts getting interesting when its ESU rolls under 7%. The ESU table from USDA's last estimation of carryover stocks ESU at 5.0% for 2022/2023, with estimated ending stocks at 220 mb. With projected acres at 87m and yield 51.3 bpa for 2023, estimated carryover for 2023/2024 would jump to 370 mb, with an ESU at 8.4%. We disagree with that projection but agree with it if Brazil ends with trendline yields.

Figure 1. Ending Stock-to-Use Ratio for Corn, Soybeans, and Wheat, US, 1960-2020



From these numbers, corn has the best chance of blowing up. With global wheat production seeing 5-consecutive years of declining stocks, wheat is 2nd in line of seeing higher prices due to decreasing production. Soybeans have what we see are the most favorable production possibilities, but they are still not without risk. Soybeans have a risk of higher acres due to drought risk to corn, seeing their acres switched to soybeans or other crops. But soybeans come with ever increasing demand. We have found one should never overlook the soybean market. Who saw U.S. soybean stocks falling from 1 bb to under 300 mb in less than 2-years?

#9 – <u>China's Demand or Lack Thereof</u>: In the lush growing regions of the Yangtze River Basin in China, areas there suffered their worst drought in 500 years. This region has some of their best producing soils. The crop most affected was their rice. Many have commented how they are surprised that rice prices have not responded accordingly.

Rice prices put in a spike high of $23.56 in June of 2020, falling to a 2-year low in less than 60-days of $11.21. Rice prices traded sideways until November of 2021, when prices broke above $14.00. Price rose steadily until peaking in May of 2022 at $18.15, though price was not able to hold above $18.00. Price fell back to test support last month at $16.00, then bolted higher, taking out resistance at $18.00 last week, closing the week at $18.12. Technicals have prices moving higher, catching up with its supply fundamentals, inflation, and demand.

China's corn crop came in below anticipated production, as did their wheat crop. With Ukraine having been one of China's largest suppliers of corn, China is in a pinch. Knowing this, China went hard after Brazil to get exports of corn approved. They finally got that done this month, and their 1st cargo of corn was bought last week.

China going to Brazil for corn is getting into another country's corn patch, taking another buyer's supplies. That is because of the war in Ukraine drastically reducing their exportable production. This tells us there is not enough corn to go around and buyers who are getting crowded out at the trough in Brazil will be headed north to get their supplies. It is also a sign of a global shortage of corn, resulting in higher prices.

Some argue that the Covid lockdowns in China are really China's attempt to internally manage food shortages. That is a provocative assumption. Pent-up demand in the U.S. from Covid is said to be part of the reason for surging inflation and the hemorrhaging of the supply chain. We understand that the world is waiting for pent-up demand to burst forth from China when they come out from under Covid. That would be a bellringer for the world's economies and light-up the financial sector with improving GDP's. We are still waiting. Not until spring?

Whether that demand will come forth is not guaranteed. China's failure to let Covid run its course is the cause of the continued lockdowns. Our best forecast is that Covid will worsen during the winter months as all viruses do, then lessen as temperatures warm and people get outside again. That would translate into more lockdowns and less demand until the CCP changes their policies or until people can get back outdoors.

China pulls grain from their strategic reserves to manage internal grain prices. As long as they keep doing this, their reserves are falling. China has shown its hand by lining up more grain purchases from Brazil. Plus, when Argentina got their producers to dump more soybeans, China was there to snatch them up. Their actions showcase their needs. Plus, their internal prices for corn and soybeans are near 5-month highs. For meal, its price is nearing record highs.

Something that caught our attention Friday was the export sales numbers for corn. They were great last week at 72.8 mb, or 1.85 mt. ***<u>What many may have missed is that 24.7 mb, or 628k mt</u>***

of corn, was sold for 2023/2024! Is someone worried about next year's availability and/or prices already? Dec23 corn futures are $6.10/bu. Historically, that would be a very high price to begin locking in your physical needs. We will wait.

#10 – U.S. Acreage & Projected Production: Total corn and soybean acres will attempt to reach the levels they were working towards last year but failed to achieve, due to several circumventing issues. We are looking for 91 ma of corn and 91 ma of soybeans. StoneX has them at 92 mb for corn and 88 ma for soybeans. Hard Red Winter Wheat (HRWW) acres were 46.7 m this year and forecasted at 45.7 for 2023. HRWW acres will be lower south due to drought, but higher north, both due to drought! Many are planting HRWW further north this fall, due to conditions being so dry, possibly limiting yield potential for corn. Higher acres will be part of an insurance gamble for some, figuring their plantings will fail. With insurance levels on wheat so high, a failed crop will come in handy to pay many bills.

Due to current projected demand for 2023 grains, we do not see the number of acres being a negative for prices, unless acres end up being somewhat higher than these current guesses. There appears to be sufficient global production losses already in play for 2023 to keep prices strong in the U.S. It would take above trend yields in South America to get U.S. grain prices to break more than 10% from current levels. That break could start on January 12th, if the USDA felt it was necessary to cut demand for 2022/2023 carryover stocks, increasing those stocks.

#11 – Biofuel Demand Equation: The #1 biofuel we are talking about here is soybean oil. It has taken center stage, stepping into the limelight the 1st days of 2021. Taking off from what was a very low price of $0.2840 a pound back in May of 2020, it launched into history breaking out above $0.35/lb. in January of 2020. This year's high trade has been $0.9140.

Demand stems from high diesel prices, where adding a 10% or greater blend of soyoil not only extends available gallonage, but it also lowers the cost, and it lowers emissions, a triple win. That is why for well over a year, soyoil has replaced soybean meal as the price leader in the soybean complex.

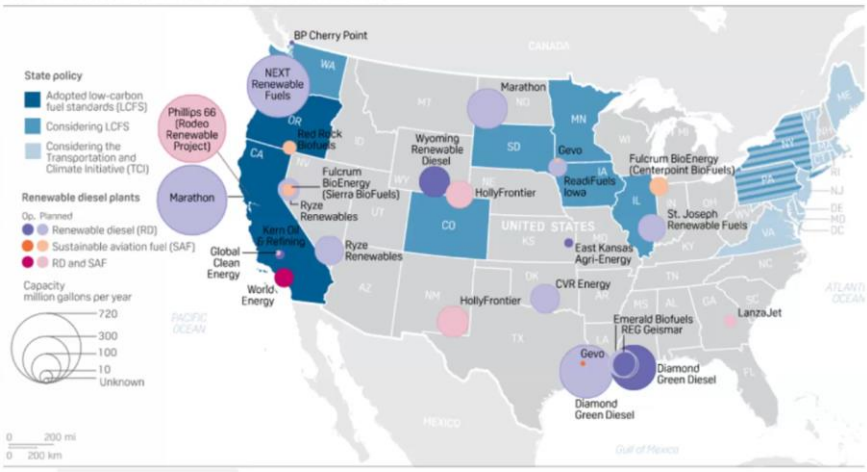
The last chart projects soybean crush capacity to increase 30% from 2022 through 2028. Projected increased demand for soybeans is 300 mb. That would call for an increase in U.S. soybean acres of 6 m. If 91 ma, or even 88 ma is now going to 6 ma, that would be 6 ma away from corn, wheat, sorghum, or other crops. Is that possible, especially if Ukraine is off-line for how long? You can see why soybean expansion is a necessity in Brazil and any crop failures anywhere would not be good.

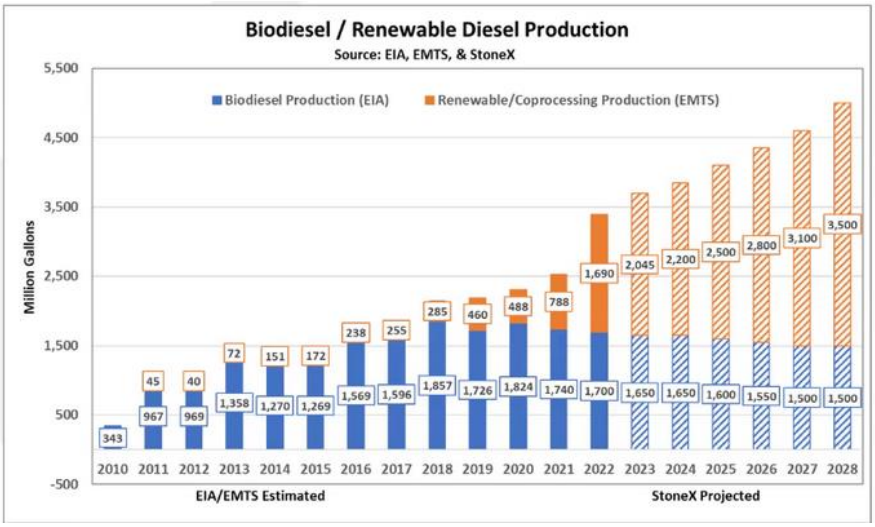
We cannot rule out upside possibilities in soybean with biodiesel becoming an integral component in the energy sector. Global upheavals from war and droughts will rock both biofuel grains in 2023.

Last Modified on January 24, 2022
*Capacity noted in MMgy

Name	State	City	Capacity
Bakersfield Renewable Fuels (GCEH) *Renewable Diesel	CA	Bakersfield	230.00
BP - Cherry Point Refinery *Renewable Diesel / Expansion	WA	Blaine	55.00
CVR Energy Inc. - Wynnewood *Renewable Diesel	OK	Wynnewood	100.00
Diamond Green Diesel - Norco *Renewable Diesel / Expansion	LA	Norco	290.00
Diamond Green Diesel - Port Arthur *Renewable Diesel	TX	Port Arthur	470.00
Heartwell Renewables (Love's/Cargill) *Renewable Diesel	NE	Hastings	80.00
HollyFronteir Corp. - Cheyenne *Renewable Diesel	WY	Cheyenne	90.00
HollyFrontier Corp. - Artesia *Renewable Diesel	NM	Artesia	110.00
Marathon Petroleum - Martinez Refinery *Renewable Diesel	CA	Martinez	260.00
Montana Renewables (Calumet) *Renewable Diesel	MT	Great Falls	150.00
Phillips 66 - Rodeo *Renewable Diesel / Expansion	CA	Rodeo	120.00
REG Geismar, LLC *Renewable Diesel / Expansion	LA	Geismar	90.00
Seaboard Energy *Renewable Diesel	KS	Hugoton	85.00
World Energy - Paramount *Renewable Diesel/ Expansion	CA	Paramount	50.00
Total Plants: 14		**Total Capacity(MMgy):**	**2,180.00**

US REFINERS JUMP ON THE RENEWABLE FUEL BANDWAGON





#12 – <u>Excessive U.S. Spending/Macro Economic Factors</u>: We had 1st hand experience this summer with what negative macros can do to a good grain rally. Timing is everything when Funds decide to exit commodities for whatever reasons.

So whereto with the U.S. and global financial sectors? Based on all the issues they have created for themselves, referring to the Feds and the major global, non-elected banking managers, we are set up for an acute global financial crisis ahead, worse than 2008, with the risk increased from the FTX debacle which will take 6-months or more to work through. People think that the worst is over by looking at the recent rally in stocks. This is most likely a bear market rally in the midst of a major storm.

With adding $9T in debt, inflation grabbed a good foothold. This debt loading was not just in the U.S., but in many other nations around the world. The war in Ukraine has the U.S. government shoveling billions out the door nearly every month, with other Western Aligned nations doing the same. From the $9T in funding bill by Congress since the beginning of Covid, from $1T to $2T remains unspent. Eventually, that work its way through the economy, supporting continued inflation.

After the midterms, the government is now divided. That is normally a good thing, not giving any party control of all 3-branches. This will halt runaway spending, due to gridlock. That alone will help lower inflation.

As our markets begin to stabilize, what will influence the macro environment the most will be global issues affecting most nations. Specifically, that will be the war in Ukraine, all elements pertaining to it, including the ramifications thereof, which cause it to continue through 2023.

#13 - <u>Avian Flu & PRRS</u>: While animal diseases are not normally seen as a Black Swan event, we have seen how African Swine Fever ***(ASF)*** decimated China's hog numbers a few years ago. Killing nearly 25% of the world's hogs is a Black Swan Event.

We have written about this year's outbreak of **<u>Avian Flu</u>**, known as highly pathogenic avian influenza ***(HPAI)***, in the U.S. and overseas. The worry has been of the timing of these outbreaks. Summer and into early fall should be the time when these outbreaks are decreasing, not increasing. So, the fear is that these outbreaks will worsen as it gets colder and birds live in more confined spaces.

HPAI is found in wild birds, including ducks, mallards, and hawks, and carry this disease in their feces, feathers, or by direct contact with poultry. This flu then hits our chickens, turkeys, and other bird species and spreads quickly, which severely impacts and impairs bird farmers. This can send poultry and egg prices significantly higher.

Sure enough, since this outbreak began in February, it has found its way to 46 states. 85% of this year's cases were traced directly to wild bird origins.

To date, 50.54 million U.S. birds have died from what is now the worst Avian flu outbreak in U.S. history. **<u>It also marks the worst animal-health disaster in U.S. history</u>**.

This is not only occurring in the U.S. This is spreading globally through bird migration. Birds in Wales will have to be kept indoors or separated from wild birds from December 2nd, in an effort to tackle the rise in HAPI cases. The UK and Northern Ireland are announcing similar measures. Last month the UK and EU culled some 48 million birds, after recording their largest outbreak of HAPI ever.

February 2022 saw **<u>PRRS</u>** ***(porcine respiratory reproductive syndrome)*** outbreaks in Minnesota and Iowa. PRRS is developing several different strains, which seem to persist longer than normal and are becoming more difficult to overcome. This year's infections seem to be similar to those of 2020/2021. Like with HAPI, this is a disease which does most harm to hogs/sows when winter months see animals stuck in confinement systems due to colder weather.

This year, Iowa and Minnesota have the 1-4-4 variant, which is a different variant than what is being found in Indiana, Illinois, and Ohio. The 1-4-1 variant is one of the most dramatic as far as the number of aborts and the number of sow mortalities. When it hits, the industry has seen anywhere from 4 to 5-weeks of production essentially aborted out and sow mortality is anywhere from 10% to 20% of the sows dying off very rapidly within a 2 to 3-week period of time. Pig mortality is extremely high, too, with numbers as high as 80%. If your units get the 1-4-4 and the 1-7-4, they can be very serious and cause severe breakouts on individual farms. The Domestic Disease Monitoring Report showed increased activity at a regional level in Missouri, Nebraska, Illinois, and Indiana last winter and spring.

We are bringing these disease issues up because it is projected these diseases will become much worse this winter than what they have been in the past.

Death losses in the tens of millions of birds and raising to possibly tens of thousands or a million in hogs represents a major blow to those industries, higher food prices, and a significant demand loss to corn and soybeans.

#14 – <u>Railroad Strike</u>: This is down here at #14 because we believe that the government will step in and end it, in the worst-case scenario. One of the most likely scenarios is that President Biden will let the strike run for a few days and then swoop in and end it, helping himself look like a hero.

There is a law on the books we believe was created during the Regan administration that gives the power over situations which could create a national emergency. A rail strike would absolutely fit into that category. Congress would only need to step up with a bill to prohibit the rail strike.

With river levels running near empty, limiting freight movement, rail becomes even more critical.

Transportation of goods is like a 3-legged stool. You have U.S. waterways, rail, trucks, and we can throw in pipelines just because. Trucks are involved in the supply chain and are at the top in 10 commodities by tonnage and value. In comparison, rail and water modes primarily move bulk products, while air (including truck-air-transport) moves high-value items, such as electronics and pharmaceuticals. However, trucks moved more high-value, time-sensitive commodities than any other mode.

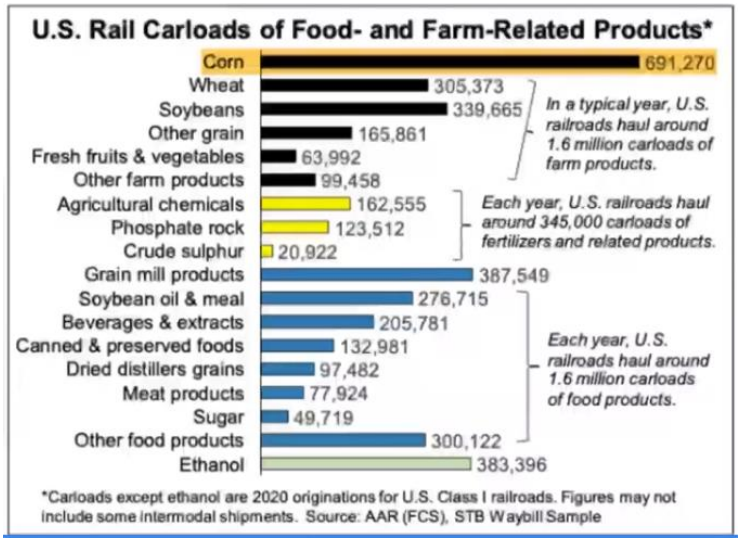
The top 10 commodities by weight accounted for 66.8 percent of total tonnage, while the top 10 commodities by value accounted for 59.3 percent of total value of goods moved in 2019. The leading commodities moved by rail by weight are bulk goods, including fossil fuel products; gravel and crushed stone; gasoline, kerosene, and ethanol; cereal grains; and crude petroleum.

These are listed in order, with "other" fossil fuels #1, gasoline, kerosene, and ethanol #3, with grains coming in at #4.

By volume, the #1 industry hit by a rail strike would be the energy sector and industrial manufacturing. Over 4 million carloads of coal are moved per year, with each rail car carrying enough coal to power 21-homes for an entire year.

Next is 2.2 million carloads of chemicals, followed by 2 million carloads of construction-related materials such as lumber, steel, stone, sand, and gravel. Motor vehicles and parts arrive next at 1.3 million carloads, with 1.6 million carloads of food products.

Grain and other farm products finally show up, also at 1.6 million carloads. Here is the break-down of Ag related products that are railed.



If trains stop rolling, electrical production for facilities which are not fully stocked, will begin having production issues in 30-days, which would force rolling brownouts.

Ethanol plants generally have 2-weeks of available storage capacity and near the same with rail cars if they have them. That would mean in 2-weeks, some ethanol plants would need to slow their grind rate. In less than 4-weeks, many would look at shuttering. Watching the grind rate these next 2-weeks will tell us if they are worried because they can reduce their grind rate a few weeks before a possible rail strike to manage possible future storage issues.

A rail strike would immediately affect grain shipments to the Gulf, to Mexico, and to major end users who acquire their needs by rail. Some of these could use trucks to secure their needs, but only for a very short period, due to volume needs.

The U.S. economy would take a $2B hit per day if a strike were to occur. We are also thinking of just-in-time movement of auto and truck parts used for assembly. Following the blockade on the bridge to Detroit from Canada, a 5-day strike would have caused Detroit auto manufactures to have to close.

For those west of I-35 in Iowa and south of I-90 in South Dakota, we look for basis levels to keep firming and your cash prices to keep rising, at least up till the January 12th report. Those opposite our lines of demarcation will see less price appreciation from basis. In fact, basis levels and cash prices would take a steep decline with a rail strike, as they already have the negative issue of low waters on the river, which would be amplified by a rail strike. If fact, barge freight rates are at the highest levels in years.

Low water levels have pushed grain movement to the railroad, with grain volumes increasing in October as producers seek alternatives to the Pacific Northwest and the Gulf coast. Mexico is also one of the U.S.'s key export markets. While rail service has improved over the course of this year,

it is still not the effective lifeline that we really need it to be right now. There is more grain going out to the PNW by rail than otherwise would be the case because grain companies must get grain to the foreign markets no matter what. At times the market demands it, so they are willing to go ahead and pay a bit more in freight costs to go ahead and get it there but still not offsetting what is being lost on the river.

**** What may likely be a bigger issue in the near future is the Longshoremen's dock strike, which is just around the corner. We are somewhat surprised few have that in their headlights*.

If a strike were to occur and last just 2 or 3-days, depending on where grain prices were before the strike would begin, the price break should be from $0.20 to $0.50 for corn and $0.50 to $1.00 for soybeans. This price break would be short-term in duration and prices would rebound immediately on news the strike was settled, a great re-ownership option.

#15 – <u>India Conflict with China</u>: While all eyes are on Ukraine and Russia, with glances at China and Taiwan, few notice what is developing with India and China. They had a clash last year where China killed 20 Indian troops in Ladakh fighting. India has a score to settle with China and they are setting the table in a very calculated, stealth like manner to do so. They are planning to choke and destroy the Chinese economy, which can bring China to its knees in 30-days, just like the U.S. could do if it wanted.

India plans on militarizing the Nicobar Islands, the Andaman Island, and the Malacca Strait, much like China is militarizing an island chain which many other nations claim are theirs. This way India will be ready to choke the life out of China's economy, should China make any aggressive moves toward India.

These islands represent gaps in the main channel, <u>which approximately 80% of all trade flows to China</u>. India is setting up naval bases and airfields on these islands, right at the choke points. Additional parts of the plan are to set up additional warships, missiles, drones, aircrafts, and soldiers.

Due to the lack of capital to grow their naval forces, India moved to strategic thinking, looking to build an anti-China coalition with its international partners. India is also looking to strengthen its fringes on the Indian Ocean, as well as venturing into the South China Sea to project its influence, which is China's backyard!

About 120,000 ships sail through the Indian Ocean annually. Some 70,000 of these passes through the Malacca Strait. For China, <u>about 80% of its fossil-based fuels are carried through this route</u>. India militarizing this trade route will undermine Chinese activity.

At the same time of this build-out, India looks to construct a sound surveillance network of sensors. This will be stretched along the seabed from north to the archipelago to the south. This undersea construction will allow India to not only monitor but to stop any Chinese submarines from any

kind of intervention to India's economic zone. China has 70 submarines in its fleet, which spends most of its time in the South China Sea and the Indian Ocean. India's surveillance network would deprive China of its most expensive military division.

The Japanese, Americans, and Australians have shown great interest in collaborating with India to militarize and develop the Andaman and Nicobar Islands, in a NATO like, Asian Alliance. These allies believe that the Indian archipelago can offer replenishments and repairing facilities for their navies. And as would be expected, this is one of the reasons China has been escalating tensions in the Himalaya regions, as a reaction to the changing behavior of New Delhi.

Once India has completed its goals with its fledgling partners and has these islands and straits fully militarized, which gives them leverage over China's economy.

No nation, least of all China, would want to be forced into bowing to the whim of another. China sees what is going on. They just ignore this and like most politicians, criticize and demonize others for doing the same. The only question is when will China take actions to stop what is occurring. This has the possibilities of becoming another war in the future, a war between the 2-most populous nations on this planet.

Will the U.S. be a participant or a by-stander in this one? No matter what happens, it will disrupt the world's most trafficked ocean route, which will be extremely price negative to the U.S. soybean producer, with slightly lesser, negative effects to corn and soybeans. On second thought, this would/could disrupt the flow of all commodities coming from South America and all commodities that need to travel through this region, making anything coming off the U.S. west coast nearly the only safe route.

#16 – China Taking Taiwan: After much research, this comes down to a very simple fact. China cannot take Taiwan without months of advanced preparation. If you recall, it took several months for Russia to mass troops and the supporting equipment on the border of Ukraine before it began its invasion. This was a necessary 1st step. It will be no different for China.

Also important, China does not want to destroy Taiwan's infrastructure, so they will need to go in with a massive ocean assault, with upwards of a million troops. China's troop losses will be equally massive.

Better on a global basis than China, the U.S. has eyes in the sky everywhere. China's troop buildup will be seen immediately. From the marketing of grain perspective, we will have months to prepare to price grain to protect against what will be the unknown consequences, possible retaliation, or involvement of the U.S.

#17 – Twitter: As you can tell by the length of this analysis, there is way too much going on in the world for a producer to gather and the fully comprehend, much less analyze all the data to gain

a good perspective on how and when to price one's grain production, when you already have what most would call a 24-7 job already!

Most tell us they are too tired at the end of the day to sit down and research marketing information, let alone take time to read our MNUs, which only come weekly! That is why we suggest you do a quick check on our twitter feed. Most of our posts come with photos, so you can do a quick and efficient analysis of the information we are presenting. A quick glance can quickly tell you if you find it relevant to your marketing needs.

Our twitter information is in addition to what we provide in our MNUs. Due to the volume of data we review, what we post on twitter might not find it into our weekly updates.