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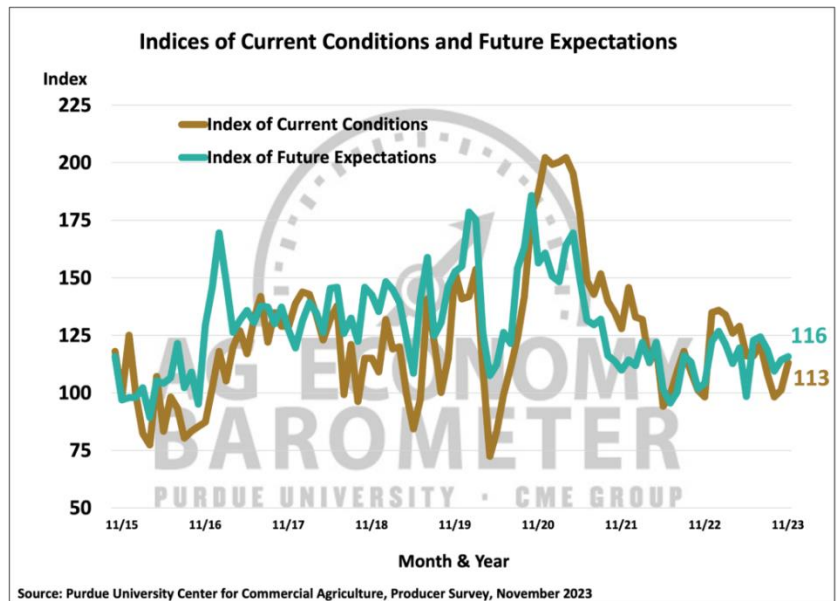
A weekly Cornbelt digest of marketing, economic, agronomic, and management information.

Commodity market price drivers—

- **Ho-Hum.** [The World Ag Supply and Demand Estimates](#) from USDA were a non-starter, with the grain markets about even, both before and after the release of the USDA supply and demand information. Jan beans traded in a span of 14¢ at the release of the information and closed with a loss of 7¾¢ on the day. Dec corn traded in a span of 6¼¢ on Friday and closed 2½¢ lower on the day. [Arlan Suderman of StoneX](#) said, "Corn up 1, soybeans up 2, wheat down 6. Market seems to be disappointed that USDA didn't bring any feed for the bulls."
- ✓ **Corn:** This month's 2023/24 U.S. corn outlook is for higher exports and lower ending stocks. Exports are raised 25 mil. bu. to 2.1 bil. reflecting the pace of sales and shipments to date. With no other use changes, corn ending stocks are reduced 25 mil. bu. to 2.1 bil. The season-average corn price received by producers is unchanged at \$4.85 per bu.
- ✓ **Soybeans:** Soybean supply and use projections for 2023/24 are unchanged from November. The U.S. season-average soybean price forecast is unchanged at \$12.90 per bu. The soybean meal price forecast is increased \$10.00 to \$390 per short ton. The soybean oil price is forecast at 57¢ per pound, down 4¢.
- ✓ **Wheat:** The outlook for 2023/24 U.S. wheat this month is for unchanged supplies and domestic use, higher exports, and reduced ending stocks. Exports are raised 25 mil. bu. to 725 mil. on several large recent export sales of Soft Red Winter (SRW) wheat to China. SRW exports are raised 30 mil. bu. to 175 mil., the largest SRW exports since 2013/14. Projected all wheat ending stocks are reduced by 25 mil. bu. to 659 mil., still up 13% from last year. The season-average farm price is raised 10¢ to \$7.30 on lower projected stocks.
- ✓ **Global estimates:** USDA made only minor adjustments to world numbers, which was positive because the stocks to use ratios were not increased for corn, soybeans or wheat. This was a concern going into the report especially with the predictions for a record corn and soybean crop out of South America, While USDA lowered Brazil soybean production by 73 mil. bu. to 5.9 bil. bu., they are still well above CONAB and private Brazilian firms.

Ag Economy—

- **For the second month in a row**, farmer sentiment improved as the [Purdue University Ag Barometer](#) climbed 5 points to reach an index value 12% higher than a year earlier. November's 12-point rise in the Current Conditions Index *was* primarily responsible for this month's sentiment improvement as the Index of Future Expectations only improved by 2 points. Both sub-indices exceeded their year-ago levels in November. The improved perception among U.S. farmers regarding their farms' financial condition and prospects contributed to this month's more positive sentiment reading.



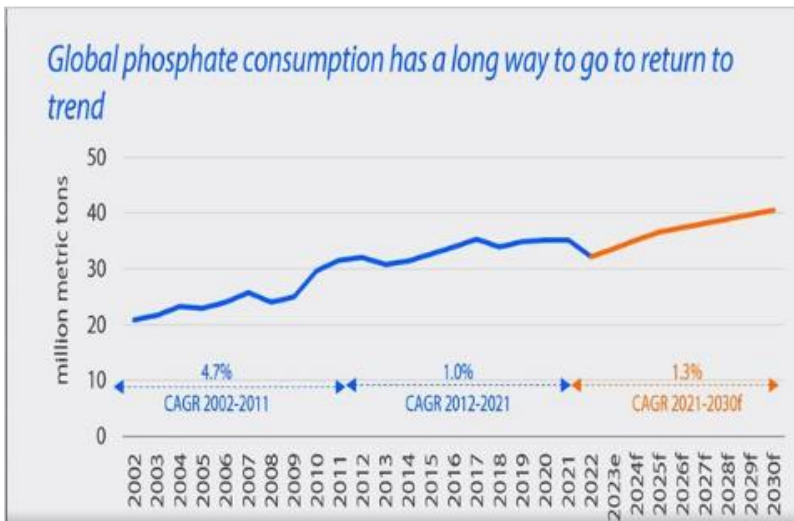
- ✓ The November reading of the Farm Financial Performance Index improved 3 points compared to a month earlier and is based upon producers' comparison of their farms' financial performance this year to last year. The biggest shift was movement toward expecting financial performance to be about the same as last year and away from expecting worse performance than a year ago.
- ✓ The Farm Capital Investment Index was up 7 points from October and has ranged from a high of 45 in July to a low of 35 reached in October. 16% of respondents in this month's survey said now is a good time to make large investments, nearly matching this year's high point of 17% which was reached in July. 40% of respondents think it's a good time for large investments because of "strong cash flows" which has been drifting lower since summer. The rise in the percentage of farmers pointing to higher dealer inventories could also be an indication that farm equipment price rises are starting to moderate.
- ✓ When asked what their biggest concerns are for the upcoming year, 32% of producers pointed to "higher input costs," followed 26% citing "rising interest rates."
- ✓ Producers' perspective on farmland values remained unchanged and has been in a range of 125-126 since June, while the long-term index has been in a range of 151-156 over that same time frame. Over 80% of respondents who expect farmland values to rise over the next 5 years due to non-farm investor demand and inflation.
- ✓ Regarding a farm program, just over two-thirds of them said they planned to sign up for the ARC farm program, with nearly one-third anticipating that they would enroll in the PLC program, assuming Congress extended the 2018 Farm Bill's provisions to 2024.

- **Federal Reserve Board Governors** meet Tuesday to confirm their next action to manage the US economy. [Their district economists](#) have provided data, including that on agriculture:
 - ✓ **Chicago Fed:** Projected farm income in the District was little changed over the reporting period as both expenses and expected revenues moved lower. Despite widespread drought, there were reports of record yields across multiple states and crop types, including corn, soybeans, tomatoes, and wheat. One contact mentioned that early and dry spring planting contributed to better-than-expected crop yields. Corn and soybean prices dropped to their lowest levels in over two years, while wheat prices were flat. Costs were lower for key crop inputs, including fuel and fertilizer. Egg prices edged up, milk prices were flat, and butter prices were down. Cattle and hog prices both declined.
 - ✓ **St. Louis Fed:** Agriculture conditions have improved slightly since our previous report. Yields for the District's primary commodity crops were at or moderately below 2022 levels. Despite this slight decline, total corn production in the District rose relative to last year. Rice production also rose, reaching levels over 33% higher than in 2022, while soybean production dipped slightly below 2021-22 levels. Commodity crop prices fell but remained at or above typical levels for the 2015-2020 period and stayed relatively stable throughout the reporting period. District contacts reported a mixed outlook but were generally less pessimistic than in previous reports. A Louisville contact attributed the moderate improvement in outlook to higher-than-expected yields and prices for crops such as corn and soybeans.
 - ✓ **Minneapolis Fed:** District agricultural conditions deteriorated slightly since the last report. Despite better-than-expected crop production, lenders responding to the Minneapolis Fed's third-quarter survey of agricultural credit conditions, conducted in October, reported lower farm incomes and capital spending over the period relative to a year earlier. Contacts expressed concern over the impact of rising interest costs as borrowing increases.
 - ✓ **Kansas City Fed:** The agricultural economy and farm credit conditions in the District softened last month alongside a moderate decrease in agricultural commodity prices. Agricultural bankers reported borrower liquidity deteriorated slightly from strong levels, and loan repayment rates were slightly lower than a year ago. Farm income declined faster in areas with more intense drought and more corn and wheat production. Agricultural real estate values remained firm. Cattle prices remained strong, supporting credit conditions in other portions of the District. Contacts cited elevated production expenses and high financing costs as ongoing concerns.
 - ✓ **Dallas Fed:** Recent rainfall improved soil moisture over the past 6 weeks, though much of the District remained in drought. Crop production was substantially higher this year across the board—wheat, cotton, corn, sorghum, and soybeans—largely due to drought conditions being less severe than last year, particularly in the Texas panhandle. Cattle prices declined over the reporting period but remained elevated, and contacts noted a continued tight supply of cattle and resilient demand for beef amid high prices.

Seed, Fertilizer, Fuel, Chemical Inputs—

- **Farm inputs are costing more**, but there is no agreement on why. Sen. Charles Grassley, R-IA, contends “Bidenomics’ isn’t being very well received in the farm community, and some of that’s directly related to the interest rates, which wouldn’t be necessary, if we hadn’t had the inflation of last year, that was caused by all the appropriations that they did in 2021.” Some of that spending went to help producers—billions for conservation, renewable fuels and rural broadband. But USDA says higher interest costs by the Federal Reserve to stem inflation has now replaced fuel, fertilizer, pesticide and labor as the main driver of farm inflation. Grassley says some farmers will suffer, “If they’re stuck with that interest rate for the next 12 months, they’re significantly hurt. But I think interest rates are going to come down, so if they’re on a floating interest rate thing, they may benefit from that before the end of the year...if not, they’ll have to wait until 2025. When interest rates may come down again.” But the Fed is keeping new rate hikes on the table if inflation doesn’t cool more. And while prices for fuel and fertilizer have eased since the pandemic and the beginning of the war by Russia in Ukraine, they’ve not returned to earlier levels.
- **The cost and availability of propane** didn't take the spotlight this year with such a warm fall. This is making propane prices favorable, according to Michael Newland, of the Propane Education Research Council. He says inventories are at their highest levels in the last 5 years. We look at supply versus prior year versus 5-year average. So going into the heating season from the grain dryer season, we're in a great spot from a supply standpoint. Inventories are very high, probably the highest they've been in that 5-year window. So, from that respect. We're looking very good. That also leads right into probably a pricing conversation that you know supply and demand still applies in our industry and with those higher supplies comes very stable pricing. So, I think that's a great. Thing for folks. The traditional correlation between crude oil prices and propane markets has experienced a notable change in recent years driven by supply. So really, I think we're on a supply track that is driving the stability within our fuel. We export over 60% of what we could burn here in the US. And what that equates to in gallons is we burn just shy of 10 bil. gals. of propane here annually in the US. He adds that the industry is actively pursuing innovative avenues, such as propane for vehicles. It's an opportunity for us to explain how clean the fuel actually is. So, we look at the carbon intensity scores of every fuel out there. Propane is, in my opinion, the cleanest commercially available combustion fuel on the planet, you know. Somebody's going to say hydrogen is cleaner, and I said I would argue that. A driver can't roll up to a hydrogen station today and put it in a vehicle. But propane today it's available. It's been around for an awful long time. But propane is an incredibly clean fuel, and I think it's always going to have a place with our energy conversation. Looking ahead to 2024, Newland anticipates continued innovation, particularly in agricultural applications, with projects underway to introduce groundbreaking technology to control soil nematodes. In California we're going to use propane to produce steam that will be injected into the soil to control soil nematodes. So, I think that's a really cool technology replacing some really bad chemistry we continue to use over and over.

- **Fertilizer markets** have generally remained quiet, says Josh Linville, fertilizer vice president for StoneX Group:
 - ✓ Urea markets have remained relatively quiet internationally as global demand has refused to step forward since the last India purchase tender. Today, price ideas are lower \$300's. Chinese government has stepped in to dictate what can/cannot be exported. The government is eyeing to only allow 4MMT from Jan '24 thru Mar '25. If production suffers/global supplies tight, they could lower it.
 - ✓ Ultimately, urea values are very attractive when compared against new crop values. No word on winter fill/spring prepay NH3 programs (likely to be out in next week or two. UAN relatively quiet. North American prices. dropped back \$20 but we expect to see it rebound in coming weeks.
 - ✓ Phosphate is too high priced...compared to historical values/grains/etc. Some fear that Chinese phosphate exports may be next to get the focus of the government. North America changes to the counter vailing duty rates actually hurt the S&D from our perspective. The one Russian company that had a sub 10% duty had its rate increased to 26.5%...we lost Russia. Morocco was shocking in their rate dropping from approximately 20% to 2.12%. Unfortunately, we continue to believe they will not play a big part in U.S. imports as they continue to fight for 0%.
- **Phosphate, where are you going?** Despite the positive outlook, especially compared to recent



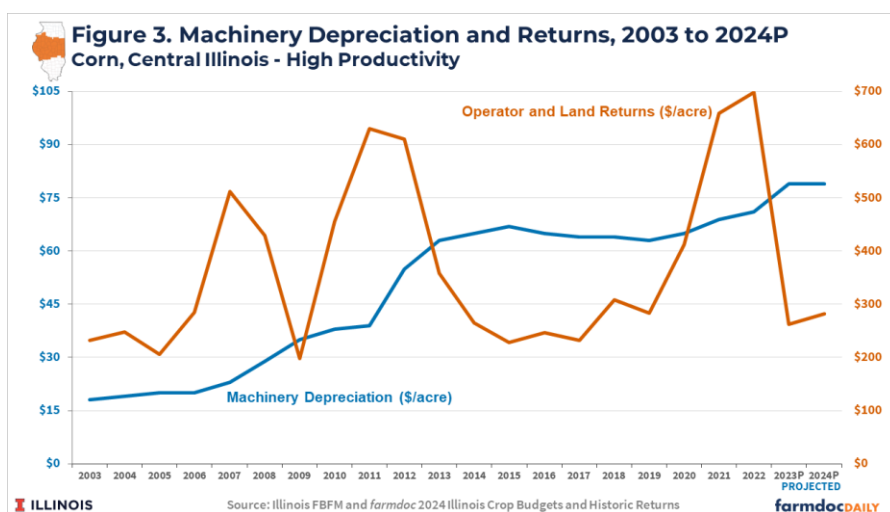
years, there are challenges to global phosphorus fertilizer markets. How much phosphorus fertilizer China decides to export will be an important factor globally while how the phosphorus fertilizer export tariffs situation shakes out in the United States will be important into 2024, says [fertilizer specialist Russ Quinn](#).

Worldwide phosphorus fertilizer consumption is predicted to increase by 5% in 2023 and be at 46 mmt. The International Fertilizer Association

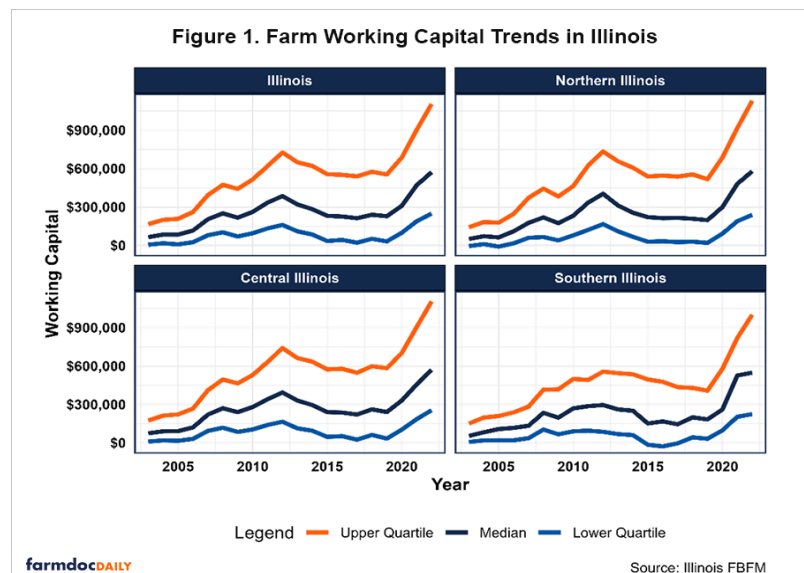
forecasts all 3 nutrients (nitrogen, phosphorous and potash -- N, P and K) are expected to return to or exceed their 2019 levels but remain below the record 2020 levels. Fertilizer consumption in recent years fell globally because of affordability issues with the high price of nutrients. Rabobank estimates 2023 was a much calmer year than 2022, with global fertilizer use at a 3% increase in 2023 after a 7% decline in 2022. The outlook for 2024 suggests an increase of close to 5% for total fertilizer consumption, according to Rabobank. With the fertilizer prices at lower price levels and affordability more positive, the world's farmers are expected to increase sales into 2024.

Farm Management and Finance—

- **Farmers like their tractors.** And tractors are thirsty, and frequently require the most TLC on the farm. But all of that can be expensive, and depending on the age and sophistication of the equipment, it may be more expensive than its value to the operation, suggest [IL Farmdoc ag economists](#). They say your tractors only make up a portion of “power” on the farm. “The power category includes costs associated with machinery (depreciation, repairs, hire, fuel, and oil), light vehicles, and utilities. Machinery costs historically make up most of total power costs.” So, total those up, compare them to a conventional yardstick, and find out whether you are operating too expensive, or at a reasonable level. They give you a yardstick to compare, “In relative terms, power costs have averaged 14% of crop revenues on central IL corn acres since 2000 and 16% for soybean acreage. As with trends in direct costs, power costs tend to exhibit a 1- to 2-year lag in tracking adjustments in revenue and return levels. Reductions typically come from 1) reductions in fuel costs from energy-price declines and 2) reductions in depreciation as farmers reduce capital purchases.” Are you acquiring more tractors at farm sales this winter? The Farmdoc economists say, “The relationship between power costs and returns is linked strongly to farms’ capital purchase activity. “The Farmdoc economists also provide a yardstick that compares power expenses to machinery depreciation. “Figure 3 plots the machinery depreciation component of total power costs with operator and land returns for corn acres in central IL since 2003. This highlights the increase in machinery depreciation observed during higher returns and the plateaus experienced during lower returns as farm operations reduce capital purchases and machinery investment to manage reduced cash flows.” As farmers prepare to operate in a lower revenue period in the next couple years than in the past couple, the recommendation of the ag economists say, “Cost reducing strategies may be key to ensuring profitable returns or minimizing losses in the coming crop years. Reducing power costs can be difficult, as recent capital purchases will tend to lead to persistent economic depreciation cost levels as well as ongoing maintenance and operating costs for the equipment.” To consider ways to make adjustments, the economists suggest, “Strategies should focus on ensuring appropriate sizing of the operation’s machinery complement given total acreage. This is particularly important for harvest and tillage operations, where achieving low per acre machinery costs through efficient combine and tractor choices, given the operation’s total acreage, can be a major differentiating factor for more highly profitable farms. Reducing or limiting tillage operations, to the extent possible, can be an effective way to lower power costs to address lower return prospects in individual years. “



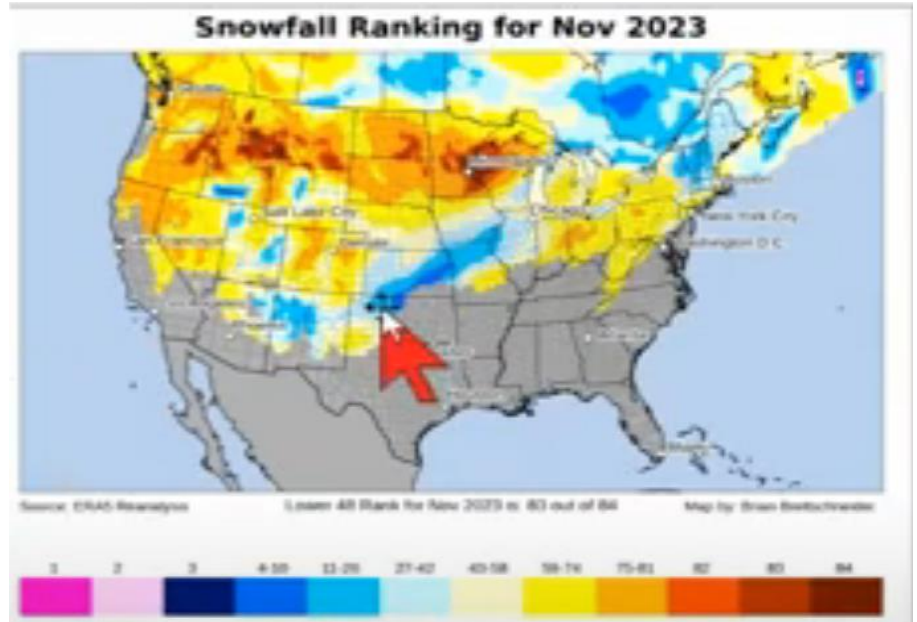
- Working capital?** Yes, it is something that is important that you need, says [Brad Zwilling of Farm Business Farm Management](#), and colleague Gerald Mashange, IL ag economist. They say, "Working capital is a measure of financial liquidity and is defined as the difference between current assets and current liabilities." Subtract liabilities from assets, and the remainder is working capital which is the cash you farm with. That amount of money may have declined, compared to the past couple of years when commodity prices were outpacing operating costs. Zwilling and Mashange say, "If you divide farms into 4 financial groups, IL farms substantially increased their working capital from 2003 to 2022, as shown in Figure 1. Statewide, the lower quartile farms raised their working capital from \$4,826 in 2003 to \$248,473 by 2022, an over 50-fold increase. This indicates that the bottom 25th percentile of farms significantly improved their liquidity over the 20-year period. The median IL farm experienced a 9-fold increase in working capital from \$64,131 to \$571,220 during this period, while the upper quartile rose from \$165,562 to over \$1.1 mil."
- ✓ In Central IL, farms maintained the highest working capital of any region in most years. This region, primarily comprised of grain farms, also has had the highest income over this time. The lower quartile increased from \$9,891 in 2003 to \$254,902 in 2022. Over the same period, the median rose from \$74,587 to \$570,469, while the upper quartile increased from \$174,806 to \$1,104,286.
- ✓ In Northern IL, the lower quartile increased from -\$5,647 in 2003 to \$238,574 in 2022. The median increased from \$49,794 in 2003 to \$578,936 in 2022, while the upper quartile working capital increased from \$141,379 to a value of \$1,129,314 in this period, the highest amongst all regions. Northern IL on average plants a larger percentage of their acres to corn and there are more livestock farms in this region as well.
- ✓ Southern IL had lower working capital levels compared to Northern and Central IL in most years. The lower quartile rose from \$7,024 in 2003 to \$224,518 in 2022. The median working capital increased from \$54,165 to \$548,296 over the same period, while the upper quartile working capital increased from \$150,331 to \$1,000,725. Southern IL has lower and more variable soil types that lead to larger swings in net incomes. In addition, their average crop rotation differs from that of the rest of the state with more wheat followed by double crop soybeans. This leads to less corn as a percentage of all crops than the other regions.



Weather—

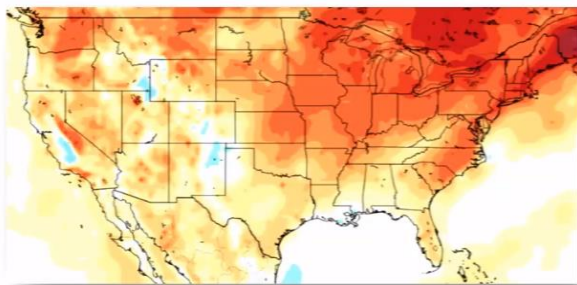
- **Snow? (bite your tongue!)**

Where is it? It is certainly not dominating the Cornbelt, says [Blue Water Outlook](#). There is not much in the northern tier of states which should be covered by this time of the year, but WI, MN, and the Dakotas are in a snow deficit. However, there is a snow surplus with record amounts on the ground across KS, northern MO and southern IA compared to this time of year.

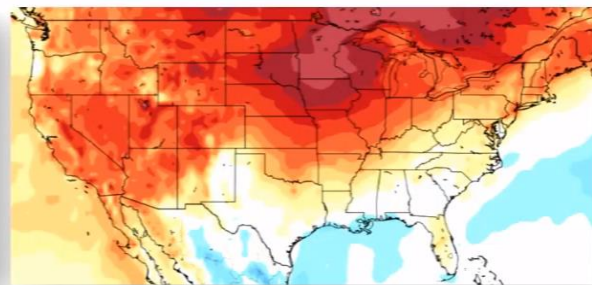


- **For the next two weeks**, most of the Midwest will have temperatures of 15-20°F above normal. These are not hot, sweltering temperatures, but more warm air than could usually be expected at this time of year, says [Blue Water Outlook](#). It may mean that grain bin temperatures should be closely monitored to ensure that nothing adverse develops.

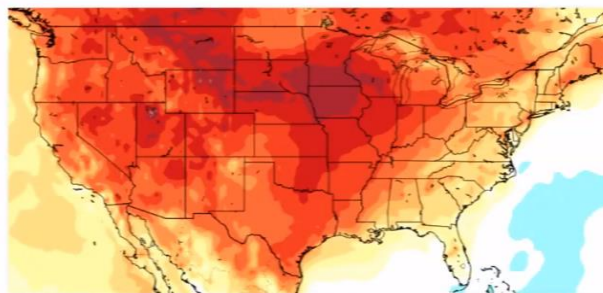
Temperature



Dec 9 - 14

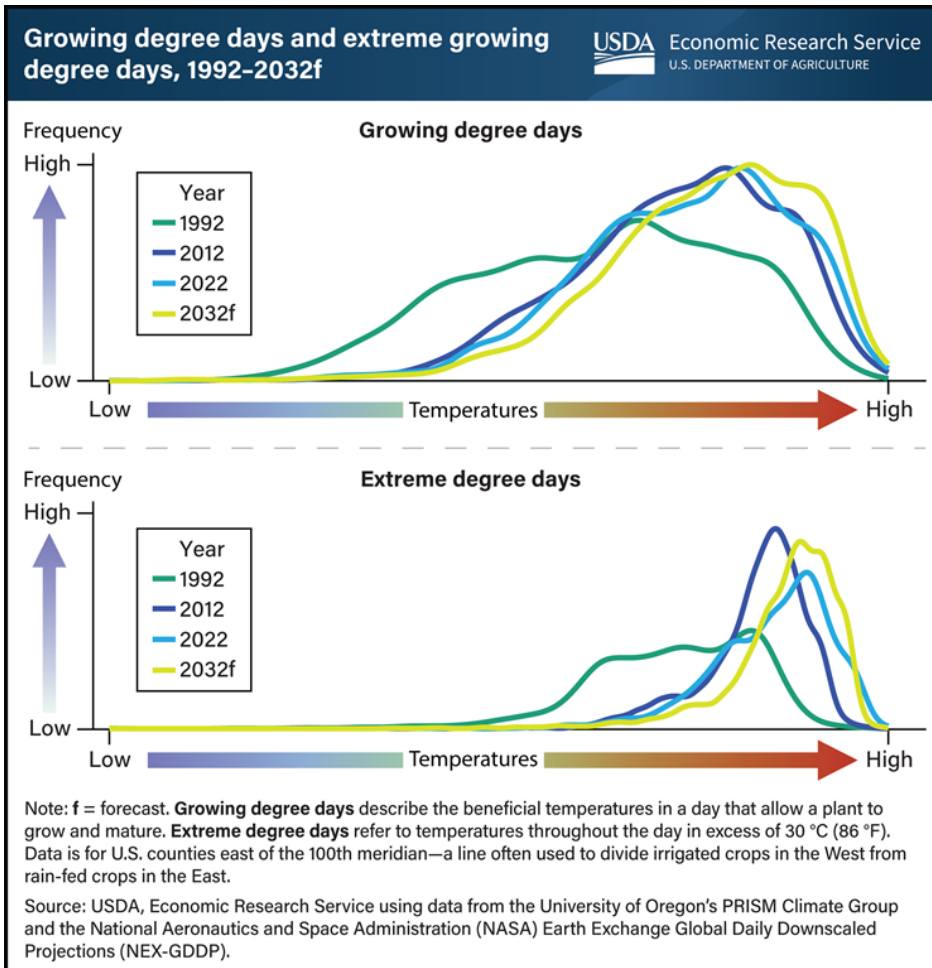


Dec 14 - 19



Oct 19 - 24

- **Warm air in December?** Nutrien’s Eric Snodgrass says, “Yes! It will be very difficult of find cold air across North America through the end of 2023. December likely finishes mild while deep troughs of cold air stay over Alaska. Very dry air continues to reside over the Mid-South/Midwest/Northern Plains. El Niño IS At Its Peak. El Niño has likely plateaued and will maintain this strength for the next 3-6 weeks before it slowly fades through winter. This El Niño failed to reach the "super" strength predicted by the models due to the colder waters in the North Pacific. December's pattern is aligning very well with typical El Niño temperature patterns, but I don't expect this to last. The best guidance I can offer is that winter 2023-24 will be "back-half weighted" meaning January through march will be much different than December.
- **According to weather data** from [National Aeronautics and Space Administration \(NASA\)](#),

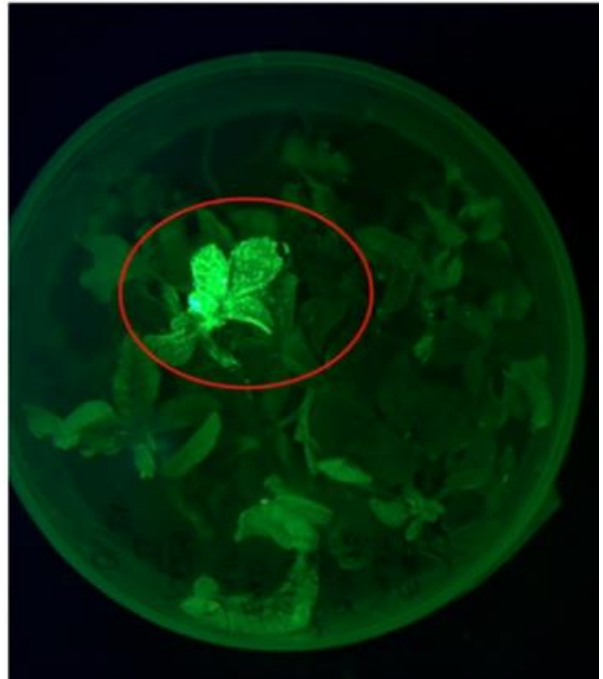


temperatures in the Corn Belt, a region spanning across IL, IN, IA, MI, MN, MO, OH, and WI, have trended higher in recent years and are projected to continue to rise through the end of this century. Two measures can be used to capture how rising temperatures affect crops' growth—growing degree days and extreme degree days. Growing degree days describe the beneficial temperatures in a day that allow a plant to grow and mature. With rising temperatures, the growing degree days for corn and soybeans increase. A crop's exposure to added growing degree days is not necessarily harmful; after all, crops need

heat and precipitation to grow. However, extreme degree days, which refer to temperatures throughout the day in excess of 86°F, cause heat stress that is harmful for a plant. Each decade since 1992, both growing degree days and extreme degree days have steadily increased with rising temperatures in the Cornbelt, where about 80% of all U.S. corn and soybeans are grown. In the decade leading to 2032, both measures are projected to continue to increase.

Agronomy—

- **If you need a magic bullet** to eradicate soybean cyst nematode from destroying your soybean yield, it may not be far away. And you won't have to get a state gun permit to buy the ammunition. [MO and GA soybean researchers](#) report a breakthrough that means there will finally be options to develop new soybean varieties with enhanced SCN resistance. The team of researchers used CRISPR genome editing technology to detect resistance to SCN in edited plants. "What's exciting is that our discovery has not only identified a new resistance gene but a gene editing-amenable resistance gene, opening the door for CRISPR technology that may make it easier and potentially faster for breeders to develop soybean cultivars with enhanced resistance to SCN."
- **No magic bullet, but how about a warning light?** That is what some farmers will be looking for if their soybean crop is stressed by a fungus. InnerPlant has developed the technology and [GROWMARK](#) will be testing the biotech seed in a 3-year pilot program. InnerSoy is genetically engineered to omit signals when stressed, which are detectable from as far away as space. The company says its products can show stress signals two weeks before current detection methods. Growmark says this pilot layers with other related technology it is gaining experience with such as spore cams, remote sensing, and manual in-field scouting. "Farmers face a tremendous amount of risk from the weather, geopolitical events, and pathogens," said Growmark CEO Mark Orr. "This pilot gives our farmer-customers first access to cutting-edge technology that taps directly into plant physiology to give them critical data they need to mitigate some of that risk and better protect their crops."



Understanding the rapidly changing agricultural industry can be a daunting task. At Heartland Bank, our team of ag specialists will work with you to meet the goals of your farming operation. With over 160 combined years of agricultural service experience, we are focused on providing outstanding service and results throughout Central and Northern Illinois. Whether it's farmland real estate, operating and equipment loans, or farm management expertise, we have the professionals who you can trust to improve your farmland's productivity and asset value. Contact one of our knowledgeable experts today at 309-661-3276 or toll free at 1-833-797-FARM (3276).

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