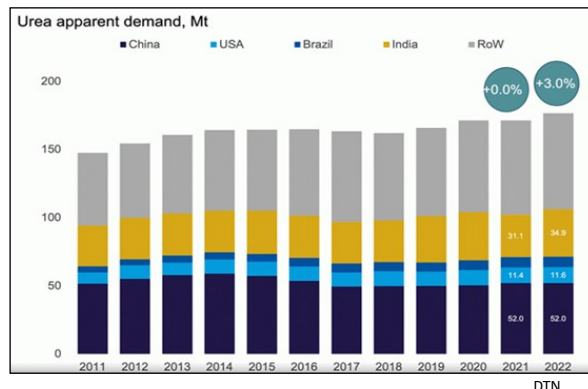


Global Fertilizer Prices Soar

Despite significantly higher fertilizer prices across the globe throughout 2021, global nitrogen fertilizer demand appears to be set to increase in 2022. According to fertilizer analysts, demand destruction does not appear to be on the horizon. Nitrogen supplies continue to be tight with various supply issues, but the price of nutrients could begin to fall in the second half of the year as supply returns. The number of corn acres in the United States in 2022 could affect nitrogen supplies.

World urea demand is forecast to increase about 3% in 2022 to around 170 million metric tons, according to London-based consulting firm CRU. Chris Lawson, head of fertilizers for CRU, told DTN that demand destruction from higher nitrogen prices has been overstated. The various supply issues globally are well established in 2021, from increasing demand to the supply-chain issues.



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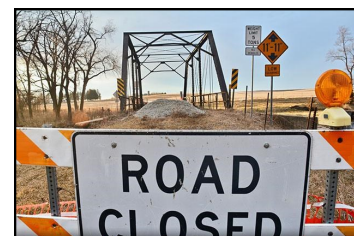
What's inside this issue?

Global fertilizer price outlook; 2021 year in review; rural economy outlook, highs and lows of policy; market situation; PLC payment projections; EPA incident report on dicamba; and more!

Top Ag News Stories of 2021: A Review

Beginning in 2020, when more people were off their corporate networks and remote business became the norm due to concerns over COVID-19, malware attacks spiked. It was almost daily news that this agricultural target or that supplier had been shut down due to malware attacks. Not only had U.S. agriculture become a high-value target for cyber attackers, but in many cases, the industry was uniquely open to such attacks, due to older systems, a lack of investment in IT security and a growing trend toward connectiveness within the industry as a whole. In 2022, more businesses in agriculture prioritize protecting their digital security profiles and building redundancies to secure the data of users and all those connected supply chains. Farmers and ranchers are increasingly sharing operation and personal data through a variety of online platforms today. What happens when an online supplier is hacked, and seed or inputs are suddenly inaccessible when they are most needed? What about markets? Transportation networks? Redundancies and optional suppliers and buyers seem to be one of the best protections available today. Analysts stress the importance of building redundancies into every segment of an operation. In many cases, however, that's easier said than done. Because while the desire may be there to protect, the capital to do so isn't always available.

With the backing of agricultural and business groups, Congress closed a deal in November on a \$1.2 trillion plan to upgrade the country's roads, bridges, ports and electric grid with the passage of the Infrastructure Investment and Jobs Act. The bill, with an injection of \$550 billion in new spending over 10 years, had been considered a necessity for the United States for more than a decade, but dilapidated bridges, jammed ports and Western drought finally prompted Congress to agree on a collection of needed projects. The funding will provide one of the largest increases in investment in roads, bridges, waterways and electric infrastructure in history, but the act is viewed by some through the partisan lens that darken political debate in the modern era. The new law will increase spending for roads by \$110 billion, including another \$40 billion for bridge projects. Another \$66 billion will go toward rail. Importantly for rural America, the bill also includes \$65 billion to build out broadband infrastructure nationally. With port congestion now a national priority, the bill also increases funds for ports and inland waters by \$17.3 billion. Those funds should help upgrade locks and dams along the Mississippi River, which is the main waterway for corn and soybean exports through the southern Louisiana ports. Among the road provisions, the bill includes the Rural Surface Transportation grant program, which authorizes \$2 billion over five years. A separate bridge restoration fund would spend \$3.26 billion over five years in rural areas as well. Certain rural areas will see federal government matches on community projects to as much as 90%.



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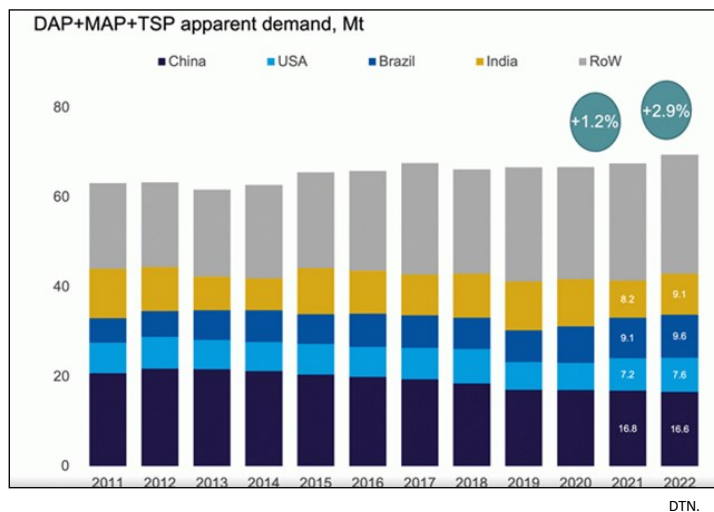
Global Fertilizer Prices (cont.)

One reason nitrogen prices climbed higher on the world market in 2021 is the situation with higher natural gas prices, specifically in Europe. Natural gas prices have risen globally as countries reopen their economies and lifted COVID-19 restrictions, and thus natural gas demand increased. Higher prices earlier this fall in Europe caused fertilizer manufacturers to curtail production with changing margins.

With production at full tilt, at some point, the supply will catch up with the demand and fertilizer prices will begin to level off by the second half of 2022.

According to a U.S. Geological Survey Mineral Commodities Summaries from January 2021 ([link](#)), the U.S. is one of the world's leading producers and consumers of ammonia. Approximately 88% of the domestic ammonia consumption was for fertilizer use. The U.S. produced an estimated 14 mmt of ammonia in 2020 with consumption at 16 mmt. Roughly 2 mmt of nitrogen imports were used that year, with Trinidad and Tobago providing 65% of the imports into the U.S. from 2016-19, with another 30% from Canada. Citing a farm input analyst from Rabobank, another major factor of the nitrogen outlook in 2022 will be the number of corn acres planted in the U.S. There are some major questions about whether farmers would be willing to shift acres to soybeans and away from corn because of higher fertilizer prices.

Various global supply-side issues in 2021 have limited the amount of phosphorus fertilizer and pushed nutrient prices considerably higher. Despite all of this, demand is expected to increase in 2022.



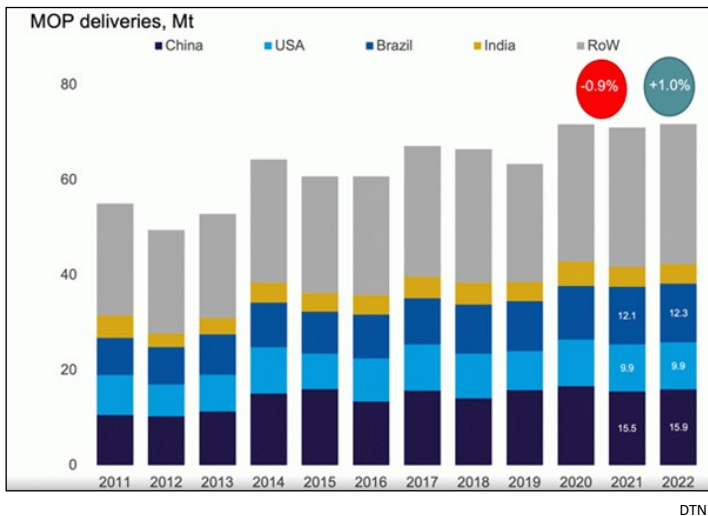
A worldwide pandemic, geopolitical rows and trade disputes dominated the news cycle for phosphorus (P) fertilizer in 2021. These various factors have limited nutrient supply somewhat, and with increasing fertilizer demand, this situation has raised fertilizer prices worldwide significantly. Whenever China returns to the phosphorus fertilizer export market will have a large effect on the outlook of the fertilizer in 2022. This lack of supply has forced some countries in need of P to find other sources, which affects global supply overall.

In March, the U.S. International Trade Commission (USITC) determined that phosphate fertilizer imports from Morocco and Russia had affected the U.S. market. The ruling put countervailing tariffs ranging from 9% to 47% on some P imports. Then, in September, China said it would not export P until June of 2022 at the earliest. China accounts for roughly 30% of the world P trade.

The good news is phosphorus-producing countries such as Russia and Morocco have built up relatively strong capacity during the last

five years. While there are some supply issues right now, the world is certainly not going to run out of P.

Despite higher prices, the forecast for potash demand appears to be



slightly higher in 2022. The global potash (K) outlook features some major geopolitical issues. How quickly these matters can be solved, and if supply levels increase, will dictate if high fertilizer prices decline any in 2022.

Similar to the phosphorus outlook depending heavily on what happens in China, the K prospect in 2022 is very reliant on what happens with potash production in Belarus. In addition, the ongoing Russia and Ukraine dispute could affect this outlook.

Global Muriate of Potash (MOP) trade grew from 49 mmt in 2019 to more than 56 million metric tons in 2020. The growth in trade was led by improved demand in the United States, Brazil, India and China, according to the report.

The major issue that will affect potash production in 2022 will be the various questions surrounding potash-producing giant Belarus. In June 2021, the European Union (EU) imposed sanctions on the nation, specifically on oil, tobacco and potash. Belarus was the world's third-largest potash producer in 2019, totaling about 12 million metric tons of MOP. The U.S. also imposed its own sanctions against Belarus, both in August and December this year. The sanctions in December involve state-owned potash producer Belaruskali. The U.S. sanctions are in relation to the migration crisis on the Poland-Belarus border. Belarus also was the second-largest potash exporter in 2019 and put 10.3 million metric tons of MOP into the overseas markets.

In North America, the major K producer is Canada -- the largest K producer in the world, as it produced 20.9 mmt in 2019 and exported about 19.3 mmt in 2019. Floods severely damaged railways in Western Canada, which could affect K movement. This is a short-term issue, however, as Canadian railroads have been busy repairing and replacing tracks in British Columbia. Potash prices, much like nitrogen and phosphorus fertilizer prices, could finally begin to level off or maybe even decline if more production is put into the supply chain or if these supply issues are eliminated. Taylor believes any drop in retail fertilizer prices will likely not happen until the second half of 2022.

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Global Fertilizer Prices (cont.)

All major nutrients used in the production of primary row crops in the U.S., nitrogen (in the forms of anhydrous ammonia, urea, or liquid nitrogen), phosphorus (diammonium phosphate – DAP and monoammonium phosphate – MAP) and potassium (potash), have experienced varying degrees of upward price pressure. Compared to September 2020 prices, ammonia has increased over 210%, liquid nitrogen has increased over 159%, urea is up 155%, and MAP has increased 125%, while DAP is up over 100% and potash has risen above 134%.

Looking at the average price of each nutrient since September 2008, as collected in the Illinois cost of production dataset, anhydrous ammonia is up 118% above its average of \$656 per metric ton; urea is up 101% from its \$453 per metric ton average; liquid nitrogen is up 84% from its \$305 per metric ton average; DAP is up 50% from its \$550 per metric ton average; MAP is up 61% from its \$555 per metric ton average; and potash is up 61% from its \$485 per metric ton average.

Other trades disruptions have played a big role in fertilizer availability and cost. As mentioned earlier, these things build on each other. Sanctions from the European Union have been applied to Belarus and the U.S. has followed the same process to apply sanctions. As Belarus contributes about 20% of global potash exports, these sanctions have slowed and even stopped shipments of potash to the EU and the U.S.

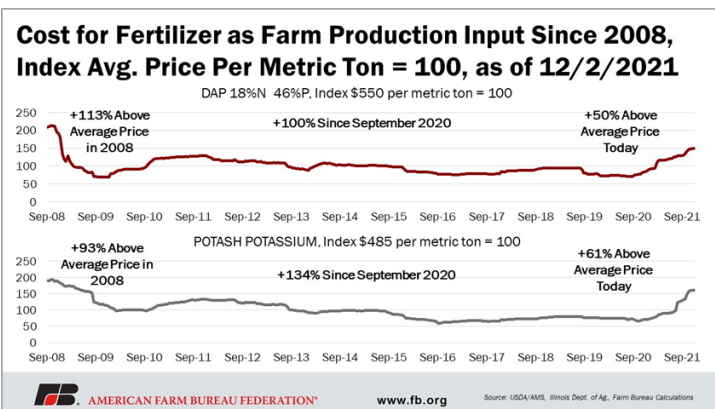
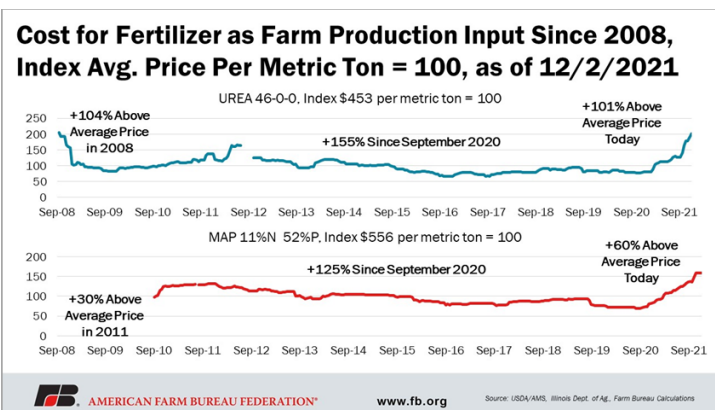
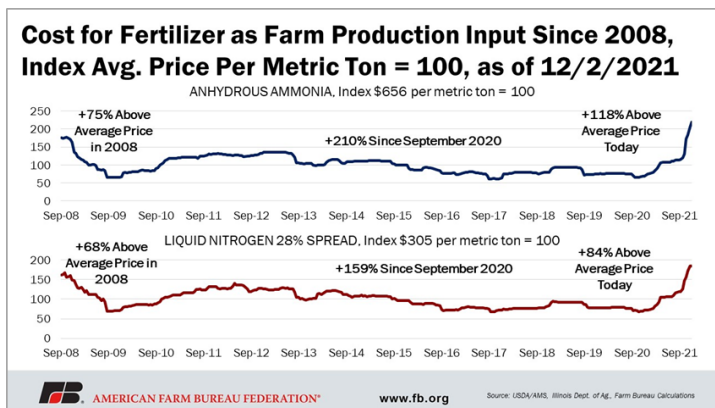
Given all these factors, fertilizer prices are expected to remain high through springtime, which may compel some farmers to shift planted acres away from corn to commodities that use fertilizer at a lower rate, like soybeans or wheat. With the price of ammonia about 85% correlated with the price of corn, farmers must consider whether the increased cost of fertilizer and other inputs can be recovered by cash receipts from crop revenues in order to break even.

When keeping financial records, business owners have two accounting methods to choose from – cash basis accounting or accrual accounting. The difference between the two methods lies in the timing of when farmers record sales and purchases. Under the cash basis, revenue is recorded when cash is received from customers, and expenses are recorded when cash is paid to suppliers and employees. Under the accrual basis, revenue is recorded when earned and expenses are recorded when consumed. The IRS allows farmers to use the cash method of accounting for their tax returns, and most choose this option. The fact that the cash method is utilized by most farmers is important in the discussion on fertilizer prices. Many farmers will purchase inputs needed for the next growing year, like fertilizer, in the waning months of the calendar year to reduce farm income and subsequently reduce their tax liability in the current year. This year, many farmers have been unable to purchase their fertilizer for 2022 and as a result, will likely face a higher tax bill in 2021.

Price increases, especially price increases that can be mitigated or avoided, such as the application of import duties, can have an impact on a farm's bottom line. Imports are an important part of the fertilizer supply to farmers. The application of the duties that are potentially in effect for five years, with the possibility of extension, will result in a continued constricted supply and an imposed higher price for users.

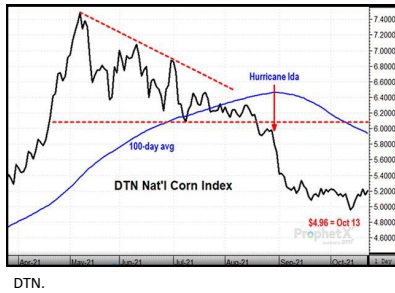
Fertilizer prices are the issue top of mind for farmers heading into 2022 since fertilizer costs account for approximately 15% of total cash costs in the U.S. All major crop production nutrients have experienced increased prices when compared to September 2020: ammonia has increased over 210%; liquid nitrogen has increased over 159%; urea is up 155%; MAP has increased 125%; DAP is up over 100%; and potash has risen above 134%.

While this information helps to understand the factors causing one of the farmers' biggest concerns, it does not alleviate the rising input costs that are out of their control. Many farmers feel these rising input prices are taking away all the momentum provided by the higher commodity prices that were going to help them break even or be just above the bottom line.



Year in Review (cont.)

DTN's national index of cash corn prices was holding up well most of the summer, started to slip in late August and broke lower after Hurricane Ida made landfall in Louisiana, damaging grain terminals and disrupting the shipment of grain for several weeks. Corn prices were having a good summer in 2021, fresh off record purchases from China in 2020-21. Even after reaching a peak of \$7.48 on May 7, DTN's National Corn Index of cash prices chopped only slowly downward the next three months, managing to stay above \$6 a bushel in the process, the highest cash corn prices seen in eight years. Soybean prices did not hold together as well as corn but did manage to stay above their January low of \$12.67 and maintained their highest level in seven years right up until Sept. 1. Both corn and soybeans experienced some bearish pressure at the end of August as rains appeared in the forecast for the drier areas of the northwestern Midwest. But it was Hurricane Ida that turned both of these weakened bull markets onto downward bearish paths.



ing as U.S. growers were in the process of harvesting 15.06 billion bushels (bb) of corn and 4.425 bb of soybeans. It was a discouraging start to the new 2021-22 season and corn and soybean prices slid lower. It took roughly six weeks for corn and soybean shipments to return to more normal levels. Favorable weather in October and November helped the effort, but repairs are still being carried out today. In addition to halting grain trade to the Gulf, Hurricane Ida also temporarily shut down oil and gas production in the Gulf, adding to the inflationary pressures that many are concerned about in 2021. The hurricane was also credited with interrupting the production of fertilizer, adding to this year's sharply higher prices.

Throughout 2021, cattle markets left producers in a wait-and-see mindset far longer than anyone expected. While 2021's live cattle market has had plenty of hurdles to overcome, by year's end, there will be plenty of noteworthy accomplishments to look back on, said the analyst. At the top of that list, she noted, will be the fact that this is the year when the industry saw an aggressive slaughter pace come into play. As we went to press, nearly 26.64 billion pounds of beef (up 2.4% from a year ago) had been processed, with an average chain speed of 638,591 head of cattle processed each week. While the cash cattle market struggled immensely over the past two years, as fourth-quarter 2021 dawned, we saw the market make a significant shift in leverage from packers to the feedlots sector. And, as a result, cash cattle prices shot higher, trading over \$130, and then \$140. For the first time this year in the North-Central region of the U.S., 600- to 700-pound steers averaged \$156.72, but in the second half of the year were at an average of \$161.82. In the South-Central region, while the first half of the year saw an average price of \$161.82, the second half has come in at \$166.01. And in the Southeast region, steer calves weighing 400 to 500 pounds in the first half of the year averaged \$158.55, with only a slight increase there for the second half of 2021 at \$158.83.

By the end of November, beef cow slaughter was up 10%, and dairy cow slaughter was up 2%. In large part, Rabobank's analysts attributed this depopulation of the cow herd to continued drought liquidation. Next year, it is that drop in the cow herd that will logically lead to fewer calves on the ground. Beef production in the U.S. is projected by the group to drop 2.5% next year. That number could go higher as limited hay supplies and higher feed prices prompt some producers to hold fewer head than they'd like moving into the spring. The beef cow herd, which has been declining since 2019, could continue to see numbers drop into 2023. But strong demand for beef will fuel a cyclical expansion to regrow herds sooner rather than later.

In mid-April, corn and soybean prices broke to new high ground and embarked on remarkable ascents, reaching their ultimate price peaks in early May—heights that no one guessed. Seven months later, a bit of the shock may have worn off as we have gotten used to the fact that DTN's National Corn Index actually hit \$7.48 on May 7, 2021, and DTN's National Soybean Index followed five days later with a high of \$16.47. Prices like that don't come along every day. In fact, DTN's national index of corn prices hadn't been that high since November 2012. For soybeans, it had been two months longer. At the time, we already knew China had surprised U.S. markets with the largest U.S. corn purchases on record. USDA export sales data showed 2.62 billion bushels of sales on the books, 917 million bushels of which was marked for China. July corn futures had traded sideways since February with resistance hovering at the February high of \$5.56, corn's highest prices in over six years. The day before USDA's April report, July corn futures were already hinting at higher prices and closed up 16 cents, posting a new high close of \$5.62. When the April WASDE numbers were released, USDA reduced its estimate of U.S. ending corn stocks for 2020-21 from 1.502 billion bushels to 1.352 billion bushels, the lowest in seven years.

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Farm Management Planning Tools Available for the 2022 Crop Year

In December 2022, Dr. Mike Deliberto and Mr. Brian Hilbun of the LSU Department of Agricultural Economics and Agribusiness began work on constructing a suite of farm management planning tool for the upcoming crop year. These tools include enterprise budgets, projected costs and returns, cash flow models, net return comparisons of competing crops, and ARC/PLC farm program payment projections. These documents are available for download in PDF format and/or in Microsoft® Excel spreadsheets for selected corn, cotton, rice, sorghum, soybean, sugarcane, and wheat crops produced in Louisiana. These tools can be accessed at the LSU AgCenter's website (www.lsuagcenter.com) under the "crops-budgets-economics headings".



Appreciation is extended to the Louisiana Rice Research Board, the Louisiana Soybean and Feed Grain Research and Promotion Board, Louisiana State Support Committee of Cotton Incorporated, and the American Sugar Cane League for their support.

Year in Review (cont.)

A few demand estimates were adjusted higher, the largest being a 75 million-bushel increase in the export estimate to 2.675 billion bushels. USDA's new ending stocks-to-use ratio of 9% historically corresponded to cash corn prices around \$4.90, indexed for inflation, but DTN's index of cash corn prices was already at \$5.70. It was difficult to know if corn had any more bullish fuel in the tank.

On April 9th, soybeans were in a similar situation. July soybeans had been trading sideways in March and early April with resistance at the March high of \$14.44 a bushel. China's record purchases had been well known for at least a couple months. USDA's weekly reports showed 2.23 billion bushels of export sales on the books with China accounting for 1.32 billion bushels of the total. The export cards had largely been played. USDA's April 9 WASDE report kept the estimate of U.S. ending soybean stocks unchanged at 120 mb, a slim 2.6% of annual use and the tightest stocks-to-use ratio for an April report in at least two decades. The history of cash soybean prices suggested a target near \$13 a bushel, and DTN's index was already at \$13.76, among its highest prices in six years. Markets that tight also have a history of volatile prices.

For both corn and soybeans, it was difficult to say, based on USDA's fundamental assessments, that either price deserved to trade much higher. But as I often say, markets are people and there was still a strong contingent of people willing and needing to buy corn. Based on the strong basis levels and bullish futures spreads at the time, I suspect much of the final rally was fueled by end users late to the party. In hindsight, speculators probably also played a part, as it's difficult for traders to resist markets that went almost straightup from mid-April to early May.

A cold plunge in February, drought across the West and Northern Plains that led to poor conditions for spring wheat, and rare severe weather in December highlight some of the major weather events that occurred in 2021. La Niña was the key phrase going into the 2021 crop year. However, that changed briefly in February when a particularly severe mass of arctic air descended through the Plains and points eastward. La Niña quickly weakened in the early spring and lost its chance to produce significant drought across the Central and Southern Plains.

That concern was alleviated as a couple of large late-spring storm systems eliminated drought that had built up during the winter and early spring months, setting up winter wheat in really good shape. Those storm systems also brought good precipitation to the Delta and Eastern Corn Belt. Planting for corn, soybeans and spring wheat got a good head start based on favorable warm weather. But late frosts in April and May caused some to replant corn and soybeans across the northern tier of the country or withstand some damage. A ridge of high pressure built up over western North America and anchored itself there through mid-August with very little disruption in it. The heat and dryness that it brought led to flash-drought developing for the western U.S., the Canadian Prairies, and northwestern Corn Belt. Through mid-August, extreme drought had expanded greatly from Washington and Oregon eastward through the Dakotas and most of Minnesota and northwest Iowa. Drought decimated prospects for spring wheat, although corn and soybeans got some late rains from mid-August to mid-September to stave off the greatest damage. August also saw high winds hit parts of the Upper Midwest.

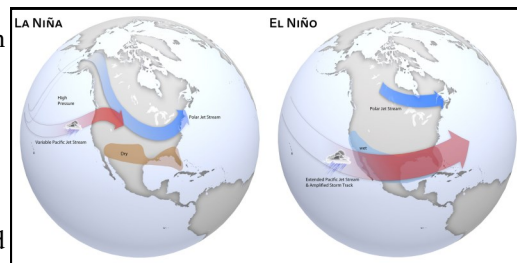
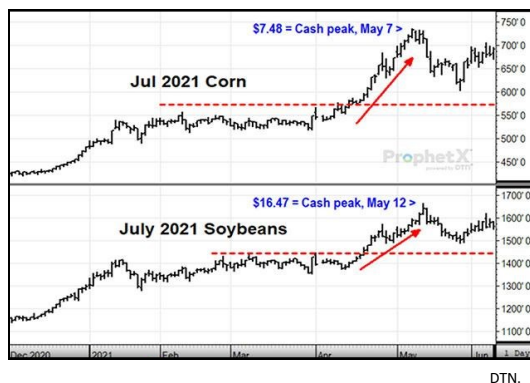
Rural America was hit hard by COVID-19 in 2020- health care was taxed, supply chains were disrupted and agriculture events were canceled or forced into the virtual world. Though the virus continued to remain part of rural life in 2021, rural Americans adapted in a way that only could be characterized as the Great Resignation. In 2021, the global influence of COVID-19 still was tied to many of issues this year, ranging from labor shortages to supply chain disruptions. The virus marched on as a factor in the background of rural life. The arrival of the delta variant and the omicron later in the year has kept rural Americans on alert.



Modern Healthcare.

The year 2021 was notable for several events, but for many involved in agriculture it will be remembered as when retail fertilizer prices skyrocketed historically higher. Many factors came together in 2021 to cause increased fertilizer demand and less nutrient supply. As a fertilizer analyst said in an interview in November, just about everything bad that could happen to the fertilizer market in 2021 happened. Retail fertilizer prices began to rise at the end of 2020 and by the beginning of 2021 prices had increased just slightly. With higher commodity prices as incentive, farmers applied more fertilizer in spring. The increased applications of nutrients drained most of the supply channels and the refill fertilizer prices were higher. With a rise in commodity prices, a rise in fertilizer prices should be expected. Looking forward to 2022, fertilizer analysts believe these higher prices could be present for most of the New Year. With more production coming back into the market, fertilizer prices could see a decline in the second half of 2022.

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NEE.

Year in Review (cont.)

The switch from one presidential administration to another in 2021 brought about a major recalibration in rules and regulations -- and a shift in agenda and personalities as well. Everything changed in terms of trade, pesticide regulations, Waters of the United States, the Renewable Fuels Standard, aid programs to farmers and focus on climate action. Those are just some of the major actions. Trade talks and tariff wars had been a driving mission of former President Donald Trump and his administration as they pushed for the phase one trade agreement with China, the retooling of North American trade with the United States-Mexico-Canada Agreement (USMCA), as well as agricultural deals with Japan and negotiations with the United Kingdom.

The Biden administration and U.S. Trade Representative Katherine Tai have reversed course. The administration allowed Trade Promotion Authority to expire and they haven't offered a proposal for Congress to reauthorize it. Without a new TPA, it's more complicated for Congress to vote on a new trade deal. Tai's focus in recent months has been to negotiate rollbacks of Trump's steel and aluminum tariffs with allies and use that as a strategy to reduce the carbon intensity in those industries. That was the deal reached with the European Union and offered by Japan. Agricultural groups earlier this month lamented the administration's slow approach to trade. There are no new trade deals getting lined up for agriculture or other industries. The U.S.-China Economic and Trade Agreement (Phase One) is set to expire December 31st with no clear pathway to extend or renew it.



The Environmental Protection Agency reversed positions under Administrator Michael Regan on pesticides. EPA announced in August it would revoke all residue tolerances for chlorpyrifos, essentially making it illegal to use on food and feed crops. The official ban on food-residue tolerance for chlorpyrifos takes effect on February 28, 2022, and has drawn criticism from more than 80 agricultural groups, which have called on EPA to delay its actions.

Waters of the United States (WOTUS) was a mantra in rural America in the 2016 election and helped drive farmers to vote for Trump. Regan, though, made it clear he objected to the Trump-era's Navigable Waters Protection Rule, which EPA moved quickly to repeal.

In November, EPA announced it would replace the Trump rule with a definition of waters of the U.S. going back before 2015. It took much of 2021 for EPA to move ahead with plans to set the Renewable Fuel Standard blend volumes. Biofuel groups spent much of the year pointing to the Biden administration's goal of reducing greenhouse gases and highlighting how renewable fuels could meet that goal. Yet, despite the White House desire to address climate change, the administration called on petroleum refiners to increase production in 2021 to counter fuel price inflation.

Agriculture Secretary Tom Vilsack came into his second stint at the helm of USDA to aggressively reduce greenhouse gases across agriculture. The Biden administration set a path for agriculture to achieve "net-zero" emissions. Vilsack has stressed from the beginning that farmers and ranchers should be paid to reduce emissions through voluntary programs.



This year's supply chain challenges spared no segment of the agriculture industry. Whether it was a shortage of chemicals, fertilizer, seed, farm machinery parts, and many other items, farmers struggled throughout the year to find enough of what they needed. It was the perfect storm of factors that created a bevy of supply chain challenges. Even before the John Deere employee strike late in 2021, the farm equipment industry faced a shortage on parts and new equipment.

At the onset of COVID-19, manufacturers found they had to dial back on production, often due to lack of parts and, at times, labor shortages. Then, by the second half of 2020, the economy- the farm economy included- snapped back in a big way. A sudden wave of demand crashed headlong into supply

disruptions that were not easily solved. The supply crisis of 2021 featured a combination of many factors, including everything from the continuing global pandemic to the freeze that hit Texas in February. The freeze killed the power grid and led to reduced oil production, creating a wave of problems across the country.

Computer chips and electronics are in short supply. Their availability dictated how much ag equipment companies were able to produce in 2021. In the ag industry in particular, the confluence of high commodity price and government stimulus funds combined with years of deferred maintenance in leaner times. This all was aggressively magnified by worldwide raw material shortages, factory shutdowns and shipping delays attributed to the ongoing COVID-19 pandemic. The industry faced problems that farmers, ranchers and ag businesses could never have imagined.

Agricultural chemicals experienced a year of rising prices and spotty shortages. Soaring freight costs, labor shortages and tight inventory left the supply chain vulnerable to sudden weather or logistical hiccups. The movement of agriculture commodities and other products across the country, and in the export market, was slowed as a result of a backlog of ships entering U.S. waters and fewer ships making the trek back across the Pacific Ocean. Movement of products in the U.S. has been pressured by a shortage of commercial truck drivers.

Forces Shaping the U.S. Rural Economy in 2022

A CoBank report examines several key factors shaping agriculture and U.S. rural economies. Those forces are identified and discussed below.

1. Global Economy: Fragile Growth

In 2021, the global economy significantly rebounded from the extreme headwinds of 2020. But for it to perform well in 2022, it will have to overcome three major issues: a persistent pandemic, monetary tightening in the U.S., and a slowing growth in China.

2. U.S. Economy: Labor and Supply Chains to Improve, Inflation Might Not

The pandemic has significantly altered how our economy functions, with the greatest impact coming from what we consume, Kowalski says. Through October, in 2021 Americans spent 18% more on goods and about 1% less on services than they did in 2019.

Compounded by a labor shortage, it is easy to see why supply chains have become one of the biggest economic challenges of the pandemic — demand has significantly exceeded the capacity of our existing system. For most consumers and businesses, a key focus in 2022 will be tackling the effects of inflation. Operating and input costs will remain high for businesses in early 2022, and they will continue to look for ways to pass on those costs to consumers.

3. Monetary Policy: Tough Fed Decisions Approaching

The Fed will want to extend the economic recovery as long as possible before raising interest rates. But it will also be cognizant that the longer inflation remains elevated the higher the likelihood that it leads to a perpetuating cycle of higher prices and higher wages.

4. U.S. Government: Spending, Partisan Control Will Dominate 2022

COVID-19 has lingered far longer than everyone hoped and continues to cast a long shadow on Capitol Hill. Both the House and Senate agriculture committees plan oversight hearings in 2022 to begin the farm bill planning for 2023. While that is important and timely work, the widely expected change in partisan control of Congress following the 2022 elections may render much of that work perfunctory.

5. U.S. Farm Economy: High Costs and Trade Battle Tighten Farm Margins

The U.S. farm economy will continue to struggle with the ongoing supply chain dysfunction and cost inflation issues that emerged in the summer of 2021. Historically strong prices will be more than offset by increases in cost structure for nearly all crops.

6. Grain, Farm Supply and Biofuels – Inflation, Volatility Create Mixed Outlook

The grain, farm supply and biofuels sectors enter 2022 facing a mixture of inflationary headwinds, supply chain bottlenecks and high-energy prices that present challenges — but also a few opportunities, says Kenneth Scott Zuckerberg, CoBank's lead economist for grain and farm supply. The short-term outlook is viewed as being mixed for grain, challenging for farm supply and positive for biofuels. Biofuels enter 2022 with considerable momentum as the fuel ethanol complex is revving on all cylinders driven by strong consumer demand and higher gasoline and fuel ethanol prices. Beyond ethanol, 2022 should see the continued build-out of soybean crushing and soy oil refining capacity to support the expected growth in renewable diesel.

7. Animal Protein – Lean Supplies, Strong Demand Bolster Prices

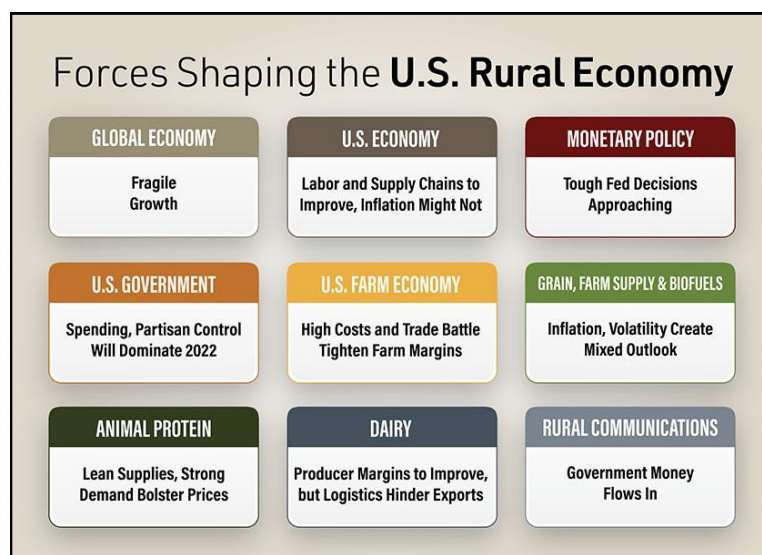
The Bureau of Labor and Statistics' Consumer Price Index for all meats, poultry fish, and eggs hit an all-time high in October, up 12% year-over-year. As restaurant and grocery prices adjust, consumer-level meat inflation is likely to continue well into the new year. While higher retail prices could limit consumption growth, tighter cattle supplies, ongoing broiler breeder issues and sow herd reductions should support favorable processor margins through at least the first half of 2022. Although beef exports have been robust during the second half of 2021, the collective U.S. protein opportunity to China may have already peaked.

8. Dairy – Producer Margins to Improve, but Logistics Hinder Exports

Milk supplies in the U.S. and around the world will tighten in 2022 as dairy farmers reduce herd sizes in response to cost inflation pressures. The cross current of resilient domestic and global demand for dairy products with the slowing growth in milk supplies will give an upward lift to milk prices in 2022. Combined with softer feed costs following big corn and soybean harvests, producer margins will finally improve. However, high costs for labor, construction, and freight will limit upside margin potential and dampen milk production growth. For dairy processors, tighter availability of milk will mean some processors get squeezed.

9. Rural Communications – Government Money Flows In

With bipartisan support to bridge the digital divide, the government funding flood gates are expected to open in 2022. The Infrastructure Investment and Jobs Act includes \$65 billion in broadband funding, of which \$42.5 billion will be allocated to the states to build networks in unserved and underserved areas. Cable operators have enjoyed robust broadband subscriber growth over the last several years due to consumer trends and limited competition from the telecommunication companies. But competition should start to heat up in 2022.



AgWeb.

The Highs and Lows of Ag Policy in 2021

High: USDA pays out billions in government payments. To date, USDA has paid out \$29.3 billion in Coronavirus Food Assistance Program payments through CFAP 1 and CFAP 2 in 2020. In March, USDA announced \$6 billion for producers previously left out, including \$700 million for biofuel producers, \$580 million for dairy farmers and processors, and \$20 million for organic producers. Congress also provided \$1 billion in funding for 2020 and 2021 disasters, and \$750 million for 2021 livestock losses.

Low: Ad-hoc payments make planning difficult. As the next farm bill debate intensifies, can farm operations make it without the influx of government help? Farmers saw the highest farm income in eight years in 2020, yet one-third came from government payments.

Low: Waters of the United States- WOTUS- is being rewritten. Initial comments showed Regan would pursue tweaks to former President Donald Trump's revised water rule. However, the EPA has now taken steps to rescind and rewrite the Navigable Waters Protection Rule, which found widespread support from the ag sector.

High: Carbon payments offer another revenue stream. As nations around the world grapple over what defines sustainable agriculture and how to achieve net zero agricultural emissions by 2050, Secretary of Agriculture Tom Vilsack continues to advocate for a voluntary, incentive-based approach that does not result in less food or limit farmers' ability to make the right decisions for their own operations.

Low: Carbon market is the Wild West. Without a referee or consistent standards, farmers who want to get involved in the carbon market may be taken advantage of, according to those who testified this fall during a House Ag Committee hearing on voluntary carbon markets in the ag and forestry sector. The Senate has advanced the Growing Climate Solutions Act, which directs USDA to step in and provide third-party certification in the confusing carbon markets. But the House has failed to act.

High: Congress advances historic infrastructure investment. Congress finally came together to pass its bipartisan infrastructure legislation to invest \$548 billion over five years. This entails \$110 billion for U.S. roads and bridges, including \$40 billion for bridge repairs; \$65 billion for broadband with \$2 billion specified for rural areas; and approximately \$17 billion for ports and waterways.

Low: Supply chain issues still limit all economic sectors. The supply chain will need all the help it can get. It has faced roadblocks involving higher transportation costs, labor availability, rising energy costs, and challenges with obtaining inputs and products for the ag sector. General freight trucking prices increased by 21% since May 2020 and rail by 28% over the same period. Port congestion and challenges could be the cause of nearly \$1.5 billion in lost ag exports, according to the Agricultural Transportation Working Group.

Low: U.S. farmers fear falling behind on trade. With the news that China, the United Kingdom, South Korea and Taiwan are seeking entry into the Comprehensive and Progressive Agreement for Trans-Pacific Partnership, the successor to the Trans-Pacific Partnership, this puts pressure on the U.S. to be at the table when it comes to trade in the Pacific Rim.

High: Immigration policy ripe for reform. Congress has not attempted comprehensive immigration reform since 2013, and an overhaul hasn't passed into law in more than 30 years. The House overwhelmingly passed its Farm Workforce Modernization Act this spring. However, it then stalled in the Senate. It provided a path to legal status for farmworkers and updates and streamlines the H-2A temporary worker visa program.

U.S. Seasonal Farm Price Outlook

The following table represents national seasonal average farm prices (\$/unit), as per the USDA WASDE report.

Crop	2018/19 Estimate	2019/20 Estimate	2020/21 Estimate	2021/22 November	2021/22 December
Corn	\$3.61	\$3.56	\$4.53	\$5.45	\$5.45
Cotton	\$0.703	\$0.596	\$0.663	\$0.900	\$0.900
Rice (LG)	\$10.80	\$12.00	\$12.60	\$13.00	\$13.10
Rice (Southern MG)	\$12.30	\$11.60	\$13.10	\$14.00	\$13.70
Sorghum	\$3.26	\$3.34	\$5.04	\$5.45	\$5.45
Soybeans	\$8.48	\$8.57	\$10.80	\$12.10	\$12.10

Agricultural Law Issues Making Headlines in 2021

In the world of agricultural law, 2021 was a year for significant developments and changes. Below, attorneys at the National Agricultural Law Center have identified and summarized the top legal and policy developments that affected agriculture in 2021.

Pesticides: This year, judges considered whether the Federal Insecticide, Fungicide, and Rodenticide Act (“FIFRA”) preempts state law failure-to-warn claims in lawsuits involving glyphosate, a component of Roundup. These state law claims have been raised by plaintiffs in lawsuits involving glyphosate and other pesticides, arguing that pesticide manufacturers failed to warn the public about the allegedly dangerous effects of using the pesticides. Some judges have found that FIFRA preempts state law failure-to-warn claims, concluding that the claims should not have been brought at all, while other judges have found that FIFRA does not preempt those claims and that plaintiffs were able to bring them. The issue has been appealed to the United States Supreme Court, though it is currently unknown whether the Court will decide to hear it.

Foreign Ownership of Farmland. Over the past year, the issue of restricting foreign investments and ownership of agricultural land emerged in a few states, including Arkansas and Missouri. On the federal level, Congress has recently introduced several bills, such as the Foreign Adversary Risk Management (“FARM”) Act, to increase oversight of foreign investments in U.S. farmland by adding USDA as a member of the Committee on Foreign Investment in the United States.

Slaughter: The availability of options for slaughter, processing and sale of meat products has been in front of several state legislatures this year. Some have considered or implemented state inspection programs, while others have further defined the level of ownership that is necessary to custom slaughter livestock and poultry.

Competition in the meat industry has been another topic of interest this year. The Department of Justice has active antitrust investigations into multiple companies and industries as well as a criminal trial of four poultry executives. Additionally, USDA is drafting another version of the “GIPSA Rules,” outlining fair competitive practices within the integrated livestock industries.

Salmonella: This year, the Food Safety Inspection Service (FSIS) received petitions asking the agency to consider Salmonella as an adulterant, which would allow the agency to prevent contaminated products from being sold or recall it if necessary. In October, FSIS announced new efforts to reduce Salmonella caused illness, as well as responding to a requested status update on a petition.

COVID Legislation. The COVID-19 pandemic has affected the entire agricultural industry. Congress has responded by enacting several stimulus packages, including the Consolidated Appropriations Act (CAA) and the American Rescue Plan Act (ARPA). The CAA provided \$13 billion to the agricultural sector, \$11.2 of which USDA used to launch a new four-part initiative known as the Pandemic Assistance for Producers. Much of the initiative’s funding was used to provide additional assistance under the Coronavirus Food Assistance Program (CFAP). ARPA allocated \$10.4 billion to USDA for programs intended to support the agricultural and food supply chain, improve access to food supplies and provide \$4 billion in debt relief for certain socially disadvantaged farmers and ranchers.

Regulatory Review: After President Biden took office in January, his administration issued an Executive Order requiring federal agencies to review agency actions taken during the previous administration. Many of the regulations identified for review were the subject of on-going lawsuits. Judges were largely willing to dismiss on-going lawsuits and sent the rules back to the agencies for further review while also allowing the rules to remain in legal effect. However, some judges concluded that the challenged regulations had been unlawfully adopted, and suspended or “vacated” them before sending them back to the agencies. In August, a federal judge in Arizona vacated the 2020 final rule redefining “waters of the United States” (“WOTUS”) under the Clean Water Act.

All fifty states have a Right to Farm statute; however significant questions often arise on when they apply, what they do, and how they work. These statutes are meant to provide a defense against nuisance lawsuits brought by neighbors. The amount of legal protection provided by the statutes varies significantly between the states.

Carbon. Over the past year, the opportunities for producers to participate in a voluntary carbon market increased as more market operators offered programs specific to producers who implement climate-smart farming practices. While these are private sector markets, the federal government has become increasingly involved in the climate policy debate. Currently, Congress is considering the Growing Climate Solutions Act. If enacted, this bill would require USDA to provide technical assistance to producers and foresters to overcome market entry barriers, and develop protocols ensuring consistency within the voluntary carbon markets. Additionally, the proposed Build Back Better Act would allocate billions to the agricultural and forestry sectors to advance the current administration’s climate mitigation goals. This bill would fund conservation programs, carbon sequestration research, and a program that would pay producers \$25 per acre for 5 years to plant cover crops.

“Equitable apportionment” of Groundwater: In late November, the Supreme Court issued a ruling in the years-long water dispute between Mississippi and Tennessee. The case originated in 2014 when Mississippi filed suit against Tennessee in regards to groundwater from the Middle Claiborne Aquifer that lies beneath both states. After review, the Special Master issued a report recommending that the Court dismiss the lawsuit, finding that because the aquifer is an interstate water resource, equitable apportionment is the appropriate remedy. The Supreme Court agreed, dismissing the case. Equitable apportionment is the water law doctrine that requires the Supreme Court to allocate the use of interstate waters between states. Until now, this doctrine has only been applied to surface waters like rivers and lakes.



Farm Futures.

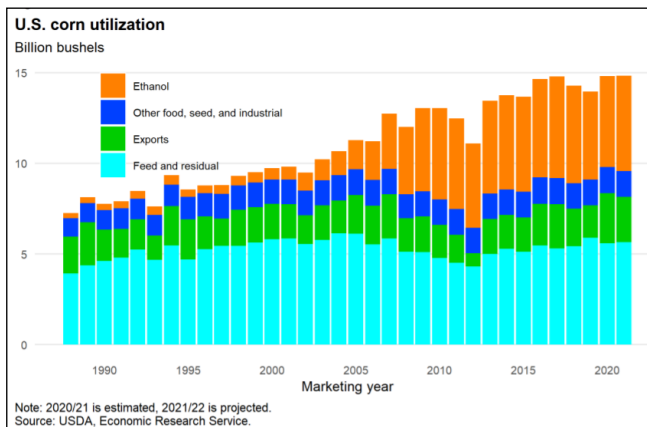
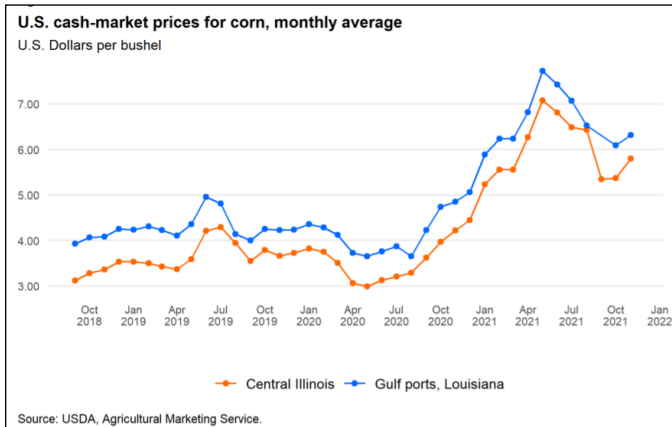
Crop Market Situation for the 2021/22 Marketing Year

The information that is presented in this market update reflects current information as of December 31, 2021.

Corn

According to the last NASS Crop Production report covering corn harvest progress for 2021, 95 percent of the corn crop was harvested by November 21. That percentage would put the harvest ahead of 2020 and longer-term averages, but well within the range for a normal year. Generally, cash markets across the country have steadily strengthened since September. For example, the Central Illinois average cash price for November 2021 was \$5.80 per bushel, compared with \$5.35 in September 2021 and \$4.22 in November 2020. High cash prices, coupled with relatively strong basis levels (the difference between futures market prices and local cash prices), indicate strong market signals for supplies to move from producers to users and off-farm storage facilities. It is important to keep in mind that some of these price movements may be driven by factors beyond corn market fundamentals, such as global macroeconomic inflation concerns and supply chain issues. Nonetheless, cash-market prices have remained firm during the harvest season, which typically sees seasonal lows.

Total corn use for 2021/22 is projected at 14,830 million bushels. This number is slightly larger than 2020/21's record of 14,818 million bushels. Domestic corn use is projected to total 12,330 million bushels, while exports are projected to reach 2,500 million bushels for the year. The current corn export projection is below the 2020/21 record amount of 2,753 million bushels. Domestic corn use for food, seed, and industrial (FSI) use is projected at 6,680 million bushels for 2021/22. The total FSI number includes a projected 5,250 million bushels to be used for fuel ethanol. Corn mill's margins for ethanol production have been strong since the harvest season began in September. The margins are due to relatively high oil and gasoline prices, as well as improved market availability of corn, compared with the summer of 2021. Through the first 2 months of the marketing year, corn crushed for fuel ethanol was significantly higher in 2021/22 than either 2019/20 or 2020/21—mostly led by a very strong October 2021 figure. The corn crush still lagged behind the pace set between 2016/17 and 2018/19, which saw the highest amounts of U.S. fuel ethanol production.



Cotton

U.S. cotton demand for 2021/22 remains projected at 18 million bales in December, 4 percent below 2020/21 but similar to the 3-year average. U.S. cotton exports contribute the bulk of demand and are projected at 15.5 million bales in 2021/22, with mill use forecast to account for the remaining 2.5 million bales. Although the global import estimate increased in December—supporting a higher world mill use—strong foreign competition and the smallest U.S. cotton supply in 6 years is expected to limit export prospects. In addition, ongoing supply chain disruptions and the recent surge in cotton prices add additional uncertainties to the global cotton market. Based on the December projections, the 2021/22 U.S. share of world trade is forecast at 33 percent—slightly below last season. With the U.S. cotton demand projection unchanged this month and a marginal change in the production estimate, the 2021/22 U.S. ending stocks estimate remains at a relatively low 3.4 million bales, compared with last season's 3.15 million bales—the lowest since 2016/17. Similarly, the stocks-to-use ratio (19 percent) is forecast slightly higher at the end of 2021/22, but below the 5-year average of 24 percent. Based on the U.S. and world cotton supply and demand estimates and recent prices, the 2021/22 average U.S. upland cotton farm price is forecast at a record 90 cents per pound, compared with the final 2020/21 estimate of 66.3 cents per pound.

Global cotton prices fell since last month's WASDE following downward movements on the Intercontinental Commodity Exchange's March 2022 contract and new crop supplies arriving to major markets. An additional factor included the onset of the Omicron variant which negatively affected prices of major stock market indices and futures; for example, the December 3 S&P Retail Select Industry Index was 6 percent lower compared with the previous week. Rapid and volatile downward movements in major U.S. stock indices incentivized speculators to liquidate their long positions and lowered open interest in the March 2022 contract. Nonetheless, the A-Index is nearly 40 cents above last year's level, signifying prospects for robust global consumption relative to the previous year as 2021/22 global consumption is forecast up more than 3 million bales.

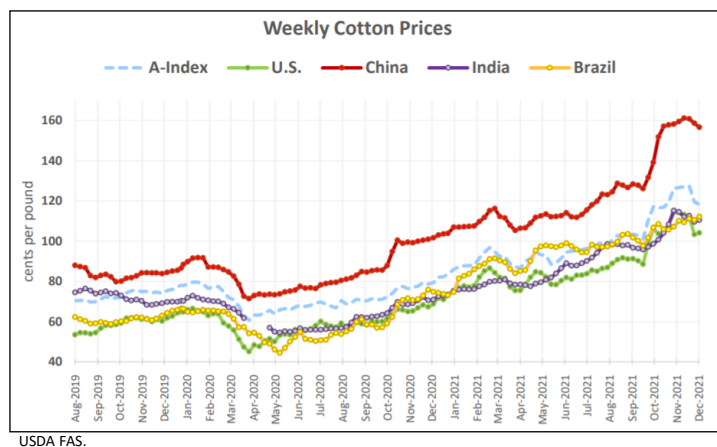
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In-depth Crop Market Update (Cont'd)

The information that is presented in this market update reflects current information as of *December 31, 2021*.

Cotton (cont'd)

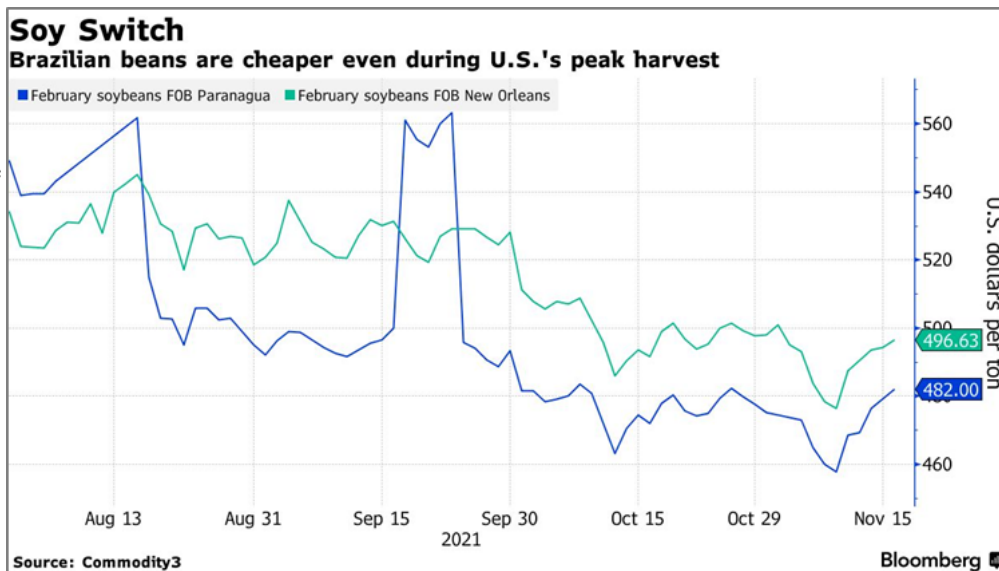
Although the high recent cotton prices were driven by speculation, the fundamentals of the cotton market both domestically and globally remain strong for producers, with U.S. stocks projected to stay among their lowest levels this decade and global stocks at a three-year low. The low stocks combined with sustained demand is a good signal for high cotton prices next year.



market on the defensive to prevent a big-time switch to soybeans in 2022.

China is making big purchases of soybeans from Brazil, an unusual move for this time of year. The Asian nation needs soybeans to feed its expanding hog herds, and November is a prime time for the U.S. to sell its crops, having just finished the harvest. Supplies are at their peak and American prices should be the most attractive in the world.

Yet this year, Brazil is even cheaper and cutting into the U.S.'s key sales window. Last week China bought at least 30 soybean cargoes from the U.S. and Brazil, with more than half coming from the South American nation, according to people familiar with the matter. The move shows that Brazil, already the No. 1 shipper, is becoming ever more competitive on world markets. In an unusual twist, this slight shift in global trade flows could send world soybean prices falling. If Brazil steals market share from the U.S., American stockpiles could rise, driving down prices at the exchange in Chicago -- which is also the benchmark for global prices. Lower soybean prices could relieve some of inflationary pressure on food, since it is a key cost in raising animals for meat. Soybean futures in Chicago are already down about 25% from a high reached in May.



Brazil's soybeans are increasingly competitive compared to the U.S., the No. 2 shipper. Its crops are winning on the world marketplace because everything from land to labor to fuel is cheaper, and it's benefiting from weak local currency. Brazil shipments totaled 1.5 million tons in the first 12 days of November, more than what was shipped the whole month last year. The U.S.'s loss of exports probably can't be made up, even as demand rises for biofuels and cooking oil, said AgriVisor LLC analyst Karl Setzer. "This domestic demand may lessen the impact of slow exports, but unfortunately it will not completely offset it," Setzer said Tuesday in a note to clients.

Most of the purchases will be shipped in December and January, the people said, asking not to be identified as they're not authorized to speak publicly. Brazil's soybean harvest is expected to have an early start around Christmas in the state of Mato Grosso, the top grower, meaning shipments of the new crop could start in the second half of January, according to Siqueira.

In-depth Crop Market Update (Cont'd)

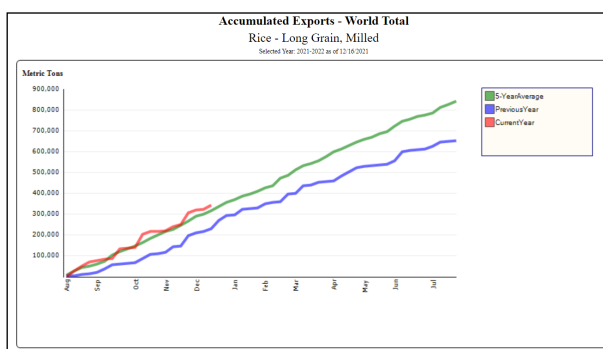
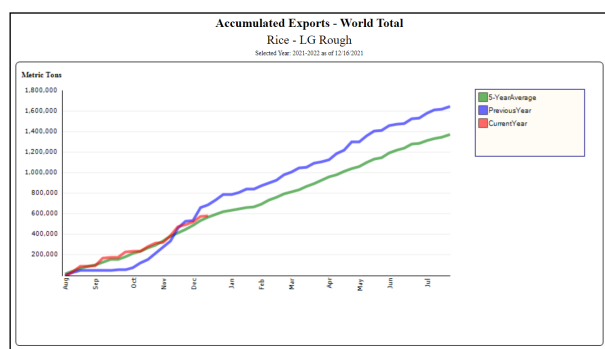
The information that is presented in this market update reflects current information as of *December 31, 2021*.

Rice

The 2021/22 U.S. rice production remains forecast at 193.8 million, almost 15 percent smaller than a year earlier. Harvested area declined more than 16 percent from 2020/21 to 2.5 million acres, while the average yield of 7,756 pounds per acre was the highest on record. Long-grain production remains forecast at 146.7 million, down 14 percent from a year earlier. The year-to-year decline is the result of a substantial area reduction. The area decline was due to both expectations of higher returns for soybeans and corn just prior to planting and then to excessive rainfall nearly all spring in much of the South- especially the Delta- that prevented plantings on more than 354,000 acres.

At 33.5 million cwt, U.S. imports are 1.5 million cwt below the previous forecast and almost 2 percent below a year earlier and the second consecutive year of a decline. This month's downward revision was based on reported monthly imports from the U.S. Bureau of the Census through October and expectations regarding purchases the remainder of the marketing year. Much of the recent and expected slower pace of imports is likely due to the continued global container shortage, historically high freight costs, and other supply chain disruptions and terminal inefficiencies. By class, U.S. long-grain imports are projected at 26.0 million cwt, down 1.0 million cwt from the previous forecast and 5 percent below a year earlier and the lowest since 2018/19. India accounts for the bulk of the year-to-year decline, with imports of just 39,851 tons through October 2021, 43 percent below a year earlier. Nearly all U.S. long-grain rice imports from India are its premium basmati rice, an aromatic. Imports from Thailand, the largest supplier of long-grain rice to the United States, were reported at 113,510 tons through October, down 3 percent from a year earlier. Almost all of the U.S. long-grain rice imports from Thailand are its premium jasmine rice, another aromatic. Imports from Pakistan through October were reported at 6,332 tons, down almost 30 percent from a year earlier. The shipments from Pakistan are almost all basmati rice. Combined medium- and short-grain imports are projected at 7.5 million cwt, down 0.5 million cwt from the previous forecast but nearly 12 percent above a year earlier and just fractionally below the 2019/20 record of 7.586 million cwt.

U.S. rice exports in 2021/22 are projected at 89.0 million cwt, 1.0 million cwt below the previous forecast, 5 percent below a year earlier and the smallest since 2017/18. This month's downward revision was largely based on monthly U.S. Bureau of the Census trade data through October, shipment and outstanding sales data through November 25 reported in the weekly U.S. Export Sales report, and expectations regarding shipments and sales the remainder of the 2021/22 market year. Long-grain exports in 2021/22 are projected at 64.0 million cwt, unchanged from the previous forecast but nearly 2 percent smaller than a year earlier. The year-to-year decline is primarily based on smaller supplies and higher U.S. prices. Through October, the United States exported 584,974 tons of long-grain rice, up almost 64 percent from the year-earlier's abnormally low level but 16 percent below the first 3 months of the 2019/20 market year. Shipments to Haiti, the top market for U.S. long-grain milled rice exports, were well below typical levels over the past decade for the first 3 months of the market year, mostly due to reduced rice imports by Haiti this year. Based on data reported in U.S. Export Sales, long-grain shipments and outstanding sales to Colombia and Venezuela were well behind a year earlier through November 25. In contrast, shipments and outstanding sales were well ahead of a year earlier through November 25 to El Salvador, Honduras, and Guatemala, and somewhat ahead to Mexico, the largest market for U.S. long-grain rice. Mexico imports mostly rough rice. By spring 2022, the United States is expected to face stronger competition from South American long-grain suppliers in key Latin American markets, largely offsetting the impact of the large sales to Iraq in early August 2021. Most South American exporters are expected to harvest larger crops next spring compared with their 2020/21 crops,



USDA FAS.

monthly reported cash prices and marketings through October and expectations regarding prices and marketings the remainder of the market year. The 2021/22 long-grain SAFP was raised 10 cents to \$13.10 per cwt, up 50 cents from a year earlier. The southern medium- and short-grain SAFP forecast was lowered 30 cents to \$13.70 per cwt, still up \$0.60 from 2020/21 and the highest since 2014/15. The California medium- and short-grain 2021/22 SAFP remains forecast at \$23.00, up \$2.10 from 2020/21 and the highest since the 2008/09 record of \$27.40 per cwt. The U.S. 2021/22 medium- and short-grain SAFP forecast was lowered 10 cents to \$20.00 per cwt, still \$1.20 higher than a year earlier. The 2021/22 U.S. all-rice SAFP remains forecast at \$14.80 per cwt, up \$0.80 from a year earlier.

which in several countries were adversely impacted by drought.

There were several revisions this month to the 2021/22 season-average farm price (SAFP) forecasts. The revisions were based on USDA's National Agricultural Statistics Service's

USDA WASDE Report Release Dates for 2022

World Agricultural Supply and Demand Estimates (WASDE) Report: Jan. 12, Feb. 9, Mar. 9, Apr. 8, May 12, Jun. 10, Jul. 12, Aug. 12, Sep. 12, Oct. 12, Nov. 9, and Dec. 9.



In-depth Crop Market Update (Cont'd)

The information that is presented in this market update reflects current information as of *December 31, 2021*.

Sugar

The December World Agricultural Supply and Demand Estimates (WASDE) revised the U.S. 2020/21 total sugar deliveries by 26,000 STRV to 12.341 million due to import data corrections for August in the Sweetener Market Data (SMD) report (table 1). This correction to deliveries resulted in ending stocks being lowered by a like amount to 1.700 million STRV. The net effect is a revised stocks-to-use ratio of 13.8 percent, which is down 0.3 percentage points compared with last month (table 1). Lower stocks are also projected for 2021/22 as the lower beginning stocks, domestic sugar production, and imports from Mexico more than offset the 50,000-STRV increase in high-tier imports. With use unchanged at 12.305 million STRV, the resulting 2021/22 ending stocks-to-use ratio is 13.6 percent, which is 0.2 percentage lower than the revised 2020/21 ratio. Spot and futures prices for domestic refined sugar and raw cane sugar are holding close to levels that make high-tier imports economically feasible.

Beet sugar production for 2021/22 is decreased by 19,871 STRV to 5.393 million. Similar to last month, the beet sugar projection was based on the processors' forecast in the December 9 SMD report, which updated the sugarbeets sliced estimate to 33.956 million short tons, down 135,207 from last month due to processors' expectation of higher shrink in the sugarbeet piles. The National Agricultural Statistics Service's (NASS) Crop Production report did not include updated forecasts for the sugarbeet crop in December. Following its normal schedule, NASS will publish the final data on area harvested, yield, and sugarbeet production in January.

There are no changes made to sucrose recovery, sugar produced from desugared molasses, and August-September 2022 production. Cumulative sucrose recovery appears to be in line with historical levels and will be reevaluated next month when slice data through November from Sweetener Market Data (SMD) becomes available, particularly given the late season rainfall during harvest in the Great Lakes region. While that rain contributed to record-high yields, it has reportedly diluted sugar content, diminished the quality of the beets going into the stockpiles, and increased the beet pile shrink.

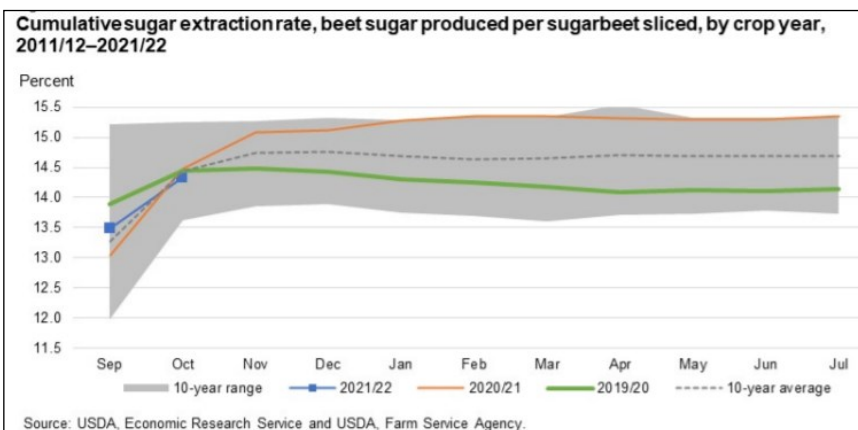


Table 2: Beet sugar production projection calculations, 2020/21 and 2021/22

	2018/19	2019/20	2020/21	2021/22	2021/22	Monthly
				Nov	Dec	change
Area harvested (1,000 acres)	1,096	980	1,142	N/A	N/A	N/A
Yield (tons per acre)	30.4	29.2	29.4	N/A	N/A	N/A
Sugarbeet production (1,000 short tons) 1/	33,282	28,650	33,618	36,493	36,493	0
Sugarbeet shrink (percent)	5.17	5.34	6.60	6.58	6.58	0
Sugarbeet sliced (1,000 short tons)	31,561	27,072	31,399	34,091	33,956	-135
Sugar extraction rate from slice (percent)	14.77	14.14	15.3	14.7	14.7	0
Sugar from beets sliced (1,000 STRV) 2/	4,660	3,828	4,818	5,010	4,991	-20
Sugar from molasses (1,000 STRV) 2/	352	341	362	360	360	0
Crop-year sugar production (1,000 STRV) 2/	5,012	4,169	5,181	5,370	5,351	-20
August-September sugar production (1,000 STRV)	655	582	765	676	676	0
August-September sugar production of subsequent crop (1,000 STRV)	582	765	676	678	678	0
Sugar from imported beets (1,000 STRV) 3/	N/A	N/A	N/A	40	40	0
Fiscal year sugar production (1,000 STRV)	4,939	4,351	5,092	5,413	5,393	-20

1/ USDA, National Agricultural Statistics Service for historical data.

2/ August–July basis.

3/ Sugar from imported beets split out for projections only, included in total once full crop-year slice is recorded.

Sugar from imported beets is incorporated into total production in historical data.

Note: STRV = short tons, raw value.

N/A = not applicable.

Source: USDA, Economic Research Service; USDA, World Agricultural Outlook Board; USDA, Farm Service Agency.

Total cane sugar production is reduced for 2021/22 by 72,000 STRV to 3.847 million, with Louisiana accounting for all the changes (table 3). Louisiana cane sugar production is decreased to 1,712 million STRV based on the NASS Crop Production report in December that showed sugarcane yields at 30.5 tons per acre, down 4.1 percent from last month's 31.8. NASS revisions to Florida and Texas were minor and since these campaigns are at an early stage, cane sugar production in these states is unchanged.

The 2021/22 total deliveries of 12.305 million STRV, including the projected 12.200 million STRV for domestic deliveries for food and beverage use, is unchanged from the November WASDE. With the 2020/21 correction, the forecast indicates an increase of 0.5 percent

from the previous year's food and beverage use (figure 5). Industry sources, including the Sosland Sweetener Report, have noted that the costly and oftentimes undependable truck and ocean freight, along with shortages in labor and packing materials, continue to pose challenges for sugar sellers and buyers.

The 2021/22 ending stocks are reduced by 87,000 STRV to 1.678 million. Given no changes in domestic use, this stock level is equal to the U.S. Needs in accordance with 13.5 percent stocks-to-use ratio as specified in the suspension agreements (1.666 million STRV), plus the additional 12,800 STRV from the 2020/21 Mexico export allocation that DOC granted entry to the U.S. after September 30. The net result is a stocks-to-use ratio of 13.6 percent.

Continued next page

In-depth Crop Market Update (Cont'd)

The information that is presented in this market update reflects current information as of *December 31, 2021*.

Sugar Cont'd

Imports for 2021/22 are increased by 30,812 STRV to 3,076 million as a larger estimate for high-tier tariff imports offsets the reduction in imports from Mexico. There are no changes to the rest of the import categories. Imports from Mexico are projected to total 1.065 million STRV—a 19,200-STRV decrease from the previous month.

The U.S. Needs formula yields 1.052 million STRV based on the 13.5 percent stocks-to-use ratio as specified in the suspension agreements between U.S. Department of Commerce (DOC) and the Government of Mexico. Added to the calculated U.S. Needs is the 12,800 STRV from the 2020/21 Mexico export allocation that DOC granted entry to the U.S. after September 30th. On November 23, 2021, upon the request of the U.S. Department of Agriculture, DOC raised Mexico's Export Limit by 150,000 STRV of "Other Sugar," with a polarity of less than 99.2 degrees as produced and measured on a dry basis, to be exported no later than March 31, 2022. Given that the September 2021 Export Limit is 70 percent of U.S. Needs (1,083,900 STRV x 0.7 = 758,730), DOC established a revised "November Export Limit" of 908,730 STRV (758,730 + 150,000).

Based on the terms of the suspension agreements, it is expected that later this month DOC will calculate a Target Quantity of U.S. Needs based on the December WASDE. Because the Export Limit was increased on November 23rd, in between the September and December Export Limit calculations, DOC has identified two scenarios, each with two possible outcomes, that may affect the December calculation. Citing the novelty that these scenarios present in terms of calculation methodology and the lack of explicit text in the agreements for guidance, DOC solicited comments from interested parties for consideration by 5:00 p.m. on December 14th.

The scenarios and outcomes listed by DOC are: Scenario 1: "Following the November 2021 increase in the Export Limit, the December Export Limit calculation may result in a quantity that is less than the September Export Limit." Scenario 1-Outcome 1: "If the calculated December Export Limit is less than the September Export Limit or less than the revised November Export Limit, DOC may maintain the Export Limit at the level set by the revised November Export Limit." Scenario 1-Outcome 2: "If the calculated December Export Limit is less than the September Export Limit, DOC may decrease the Export Limit from the revised November Export Limit to the amount of the September Export Limit."

Scenario 2: "Following the November 2021 increase in the Export Limit, the December Export Limit calculation may result in a quantity that is higher than the September Export Limit but less than the revised Export Limit issued in November 2021." Scenario 2-Outcome 1: "If the calculated December Export Limit is less than the September Export Limit or less than the revised November Export Limit, DOC may maintain the Export Limit at the level set by the revised November Export Limit." This is similar with Scenario 1-Outcome 1. Scenario 2-Outcome 2: "If the calculated December Export Limit is less than the revised November Export Limit, DOC may decrease the Export Limit from the revised November Export Limit to the amount of the December Export Limit."

On November 23, 2021, the U.S. Department of Justice filed a civil antitrust lawsuit to block the proposed acquisition of Imperial Sugar Company (Imperial) by the United States Sugar Corporation (U.S. Sugar). The proposed acquisition was announced on March 24, 2021. U.S. Sugar grows sugarcane and operates a sugarcane milling as well as a cane sugar refining facility in Clewiston, Florida. Imperial operates a cane sugar refining facility in Savannah Georgia, as well as an intermediate sugar transfer and liquification facility in Ludlow, Kentucky. According to the companies, the acquisition will (1) facilitate modernization of the Savannah refinery, (2) reduce Imperial's reliance on imported raw sugar in favor of domestic suppliers, and (3) provide production, logistic and supply chain synergies, and efficiencies. As a result, the combined entity will better be able to service customer needs, benefiting the companies, the affiliated growers, and customers alike. The Department of Justice argues that the proposed acquisition, if allowed, will be anti-competitive because it will leave only two companies as the primary suppliers of refined sugar in the Southeast region of the country, lessening competition and raising prices to customers. The trial is currently scheduled to begin the week of April 11, 2022 according to the date established by the presiding judge.

Continued next page

Table 3: U.S. sugarcane and cane sugar production, by State, 2015/16 to 2021/22

	2017/18	2018/19	2019/20	2020/21	2021/22 November	2021/22 December	Change from November Percent
Florida							
Sugarcane harvested for sugar and seed (1,000 acres)	412.7	412.3	410.7	423.3	406.0	406.0	0.0
Sugarcane harvested for sugar (1,000 acres)	397.0	397.0	397.0	409.0	390.5	390.5	0.0
Sugarcane yield (short tons per acre)	40.9	41.7	42.8	44.4	42.7	42.7	0.0
Sugarcane production (1,000 short tons)	16,237	16,555	16,992	18,078.0	16,673	16,673	0.0
Recovery rate (percent)	12.2	12.1	12.4	11.6	12.0	12.0	0.0
Sugar production (1,000 STRV)	1,983	2,005	2,106	2,088.8	2,005	2,005	0.0
Louisiana							
Sugarcane harvested for sugar and seed (1,000 acres)	449.6	448.5	469.0	488.4	490.0	490.0	0.0
Sugarcane harvested for sugar (1,000 acres)	414.0	425.0	442.0	461.0	467.6	467.6	0.0
Sugarcane yield (short tons per acre)	32.5	35.3	27.7	32.9	31.8	30.5	-4.1
Sugarcane production (1,000 short tons)	13,455	15,003	12,243	15,167	14,871	14,263	-4.1
Recovery rate (percent)	13.86	12.51	12.73	13.02	11.78	11.78	0.0
Crop year sugar production (1,000 STRV) 1/	1,865	1,876	1,558	1,975	1,752	1,680	-4.1
Fiscal year sugar production (1,000 STRV) 1/	1,862	1,907	1,566	1,916	1,784	1,712	-4.1
Texas							
Sugarcane harvested for sugar and seed (1,000 acres)	41.8	38.9	33.5	35.9	36.0	36.0	0.0
Sugarcane harvested for sugar (1,000 acres)	40.5	37.6	31.3	33.5	33.6	33.6	0.0
Sugarcane yield (short tons per acre)	36.8	36.6	33.6	34.0	32.8	32.8	0.0
Sugarcane production (1,000 short tons)	1,490	1,376	1,052	1,139.0	1,103	1,103	0.0
Recovery rate (percent)	10.1	11.3	10.7	11.7	11.8	11.8	0.0
Sugar production (1,000 STRV)	169	147	126	133.5	130	130	0.0
United States							
Sugarcane harvested for sugar and seed (1,000 acres)	904.1	899.7	913.2	947.6	932.0	932.0	0.0
Sugarcane harvested for sugar (1,000 acres)	859.6	859.6	870.3	903.5	891.7	891.7	0.0
Sugarcane yield (short tons per acre)	36.6	38.3	34.8	38.1	36.6	35.9	-1.9
Sugarcane production (1,000 short tons)	31,182	32,934	30,287	34,384	32,647	32,039	-1.9
Recovery rate (percent)	12.9	12.3	12.5	12.2	11.9	11.9	0.0
Sugar production (1,000 STRV)	4,014	4,060	3,798	4,139	3,919	3,847	-1.9

Note: STRV = short tons, raw value.

1/ Louisiana's harvest and processing of sugarcane begins typically in September, thus the crop year and fiscal year sugar production for this State tend to be slightly different. Fiscal year production is the final value used for official USDA estimates. For Florida and Texas, the crop year is the same as the fiscal year.

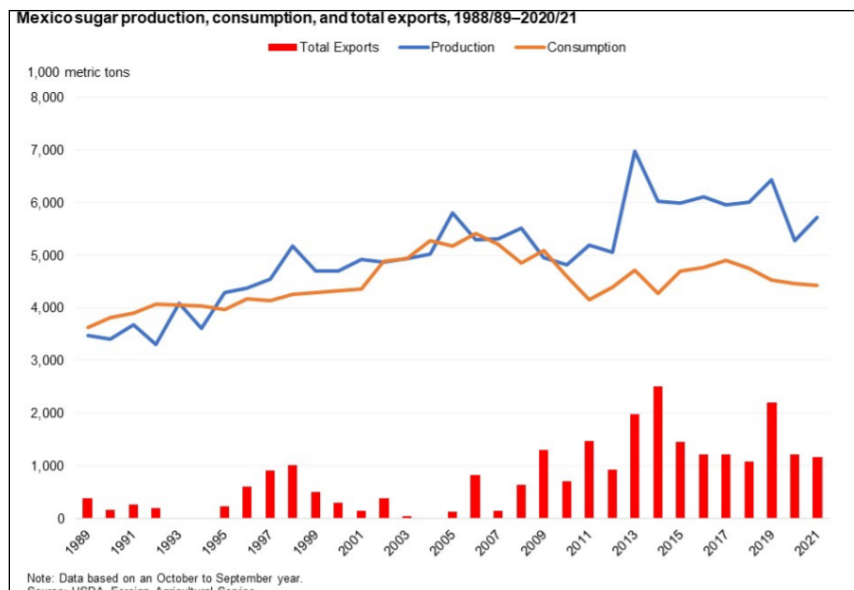
Source: USDA, Farm Service Agency; USDA, National Agricultural Statistics Service; USDA, World Agricultural Outlook Board.

In-depth Crop Market Update (Cont'd)

The information that is presented in this market update reflects current information as of *December 31, 2021*.

Sugar Cont'd

Mexico historically produced a variable but modest surplus of sugar. In 1997 and 1998, total exports reached about 1 million metric tons (MT). Over the next decade, exports declined as sugar consumption rose with population and income growth while production stagnated. A major change in the trade relationship occurred when Mexico and the United States fully implemented the sugar provisions of the



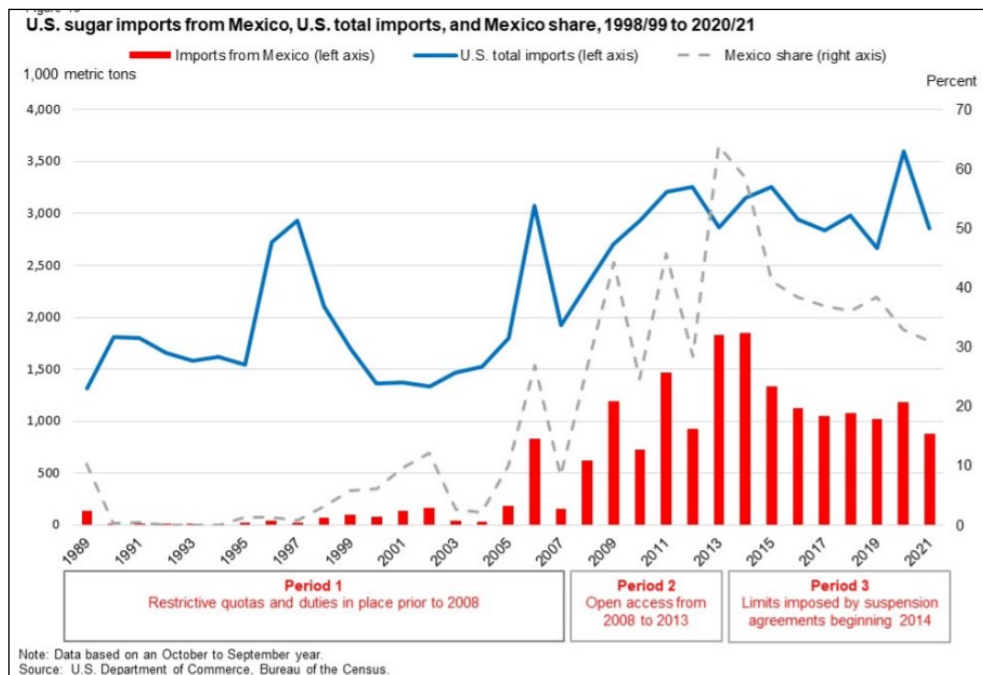
North American Free Trade Agreement (NAFTA) in 2008. Under the fully-implemented NAFTA, trade in sugar and high fructose corn syrup (HFCS) between the United States and Mexico was duty-free, quota-free, and this remains the case under the United States-Mexico-Canada Agreement (USMCA) agreement that replaced NAFTA in 2020. The next major change was the implementation of agreements in 2014 under which the United States agreed to suspend the imposition of prohibitive antidumping and countervailing (AD/CVD) duties on sugar from Mexico.

Mexican consumption of HFCS was essentially zero. HFCS is preferred by beverage and soft drink manufacturers in North America due to both to its functional characteristics and lower price than sugar. In the United States, HFCS achieved almost 100 percent of the market for soft drink and beverage caloric sweeteners; once NAFTA was signed many expected a similar opportunity for HFCS in Mexico. Under NAFTA, sugar duties between the United States and Mexico were phased out

over 15 years, but duties on corn were phased out over 10 years. U.S. HFCS producers established manufacturing facilities in Mexico soon after NAFTA took effect in 1994, with a capacity of about 500,000 metric tons dry basis, and likewise saw opportunities to increase exports to Mexico, particularly when the duties went to zero in 2003. When the United States and Mexico did not agree on how the NAFTA sugar provisions should be implemented, and when the United States restricted Mexico sugar access to levels below what Mexico believed it was owed, Mexico imposed restrictions on imports of U.S. From 2002 to 2005, with less domestic HFCS consumption, Mexico sugar exports were much lower than would otherwise have been the case, due to the increased domestic sugar consumption required to replace the loss of HFCS.

As the Mexican economy and population grew in the 1990s and early 2000s, so did the total consumption of caloric sweeteners. Sugar consumption peaked at about 5.4 million metric tons in 2006, but total caloric sweetener consumption increased until 2017, peaking at 6.4 million tons, comprised of 1.5 million of HFCS and 4.9 million of sugar.

Three periods can be identified regarding the conditions of access that applied to U.S. sugar imports from Mexico. During Period 1, which lasted until 1996, imports were a relatively insignificant share of total U.S. imports, and were largely limited to the share allocated to Mexico under the U.S. World Trade Organization raw and refined sugar tariff-rate quotas. In July 2006, increased access was negotiated during a phase-in period leading up to the full implementation of NAFTA, January 1, 2008. During Period 2, which lasted from 2008 until 2013, there were no duties or quotas on U.S. imports from Mexico. Since U.S. sugar prices are more attractive than the world price, any Mexican surplus during Period 2 was shipped to the United States rather than the lower-priced world market. Mexico's share of total U.S. imports grew sharply and peaked at 64 percent in 2013. Period 3 began when the United States imposed AD/CVD duties on Mexico in 2014. A detailed discussion of Period 3 is provided in the subsequent section.



EPA Releases Summary on Dicamba Incident Reports

EPA, concerned about continued reports of off-target dicamba injury in the 2021 season, is considering changes to the most recent 2020 registrations of the dicamba herbicides XtendiMax, Engenia and Tavium. But the agency refuses to commit to a timeline for a decision on dicamba use moving forward. Despite the control measures implemented in EPA's October 2020 dicamba registration decision, the 2021 incident reports show little change in number, severity, or geographic extent of dicamba-related incidents when compared to the reports the Agency received before the 2020 control measures were required. Given the new information from the 2021 growing season, EPA is reviewing whether over-the-top dicamba can be used in a manner that does not pose unreasonable risks to non-target crops and other plants, or to listed species and their designated critical habitats. The regulatory tools that the Agency could use to address the extent and severity of the alleged dicamba-related incidents are unlikely to be fully implemented by the 2022 growing season due to the statutory processes the Agency is required to follow. The Agency is committed to acting in a transparent manner, following well established regulatory processes, while upholding its mission of protecting human health and the environment. To view the report and supporting documents, visit docket EPA-HQ-OPP-2020-0492 at www.regulations.gov.



2021 PLC Payment Projections

Below are projections for the Price Loss Coverage (PLC) program national Marketing Year Average (MYA) prices for 2021/22 for specific commodities based on reported prices from the December WASDE report. A PLC program payment is triggered when the MYA price for a commodity falls below that commodity's effective reference price. The payment rate is then multiplied by the farm's program yield and is made on 85% of base acres.

Covered Commodity	2021/22 MYA Price*	Effective Reference Price	2021/22 CY PLC Payment Rate
Corn	\$5.45	\$3.70	--
Grain Sorghum	\$5.45	\$3.95	--
Long Grain Rice	\$13.10	\$14.00	\$0.90
Medium Grain Rice	\$13.70	\$14.00	\$0.30
Seed Cotton	\$0.4595	\$0.3670	--
Soybeans	\$12.10	\$8.40	--
Wheat	\$7.05	\$5.50	--

Producers are reminded that they can now make elections and enroll in the Agriculture Risk Coverage (ARC) and Price Loss Coverage (PLC) programs for the 2022 crop year. Recall, that the current farm bill allows for producers to make their commodity program choice on an annual basis.

Enrollment for the 2021 crop year closes March 15, 2022. For more information on ARC and PLC, including two online decision tools that assist producers in making enrollment and election decisions specific to their operations. Additional information can be obtained at https://www.fsa.usda.gov/programs-and-services/arcplc_program/index.



Newsletter Information

A group of growers inquired about a quarterly newsletter being delivered to them containing relevant market news and agricultural policy events. As a result, this publication will be delivered electronically per the release schedule. Please contact Dr. Mike Deliberto at mdeliberto@agcenter.lsu.edu to be added to the email distribution list. As always, subscription is free of charge.

QUARTER	Reporting Period	Release Date
1	January 1 through March 31	April 15
2	April 1 through June 30	July 15
3	July 1 through September 30	October 15
4	October 1 through December 31	January 15

Please direct questions and comments to Dr. Michael Deliberto, Department of Agricultural Economics and Agribusiness, LSU AgCenter. Mailing Address: 101 Martin D. Woodin Hall, LSU Campus, Baton Rouge, LA 70803. Office Phone: 225-578-7267. Email: mdeliberto@agcenter.lsu.edu Staff Report 2022-06. January 2022.

