CoBANK
KNOWLEDGE EXCHANGE

THE QUARTERLY

Dedicated to the industries financed by CoBank

July 2021

A Long Tail: Pandemic After-Effects are Just Beginning

Agri-food invests in resiliency as it benefits from the snapback recovery

Executive Summary

The long-awaited period of pent-up, exuberant demand is here. And for all the benefits to businesses and consumers, bumps are unavoidable – labor shortages, price inflation, supply chain disruptions, and uncertainty about what a new steady-state economy will look like. They loom large, even as we celebrate a return to normalcy.

The rural economy is rebounding as well. Most of agriculture has been recovering since Q3 2020, but now the manufacturing and energy sectors are too, even as all three face labor and raw material shortages. More economic fuel could be coming in the fall if policy makers can agree to an infrastructure bill that increases investment in rural broadband, water, energy, and transportation infrastructure.

The agri-food supply chain is adapting once again. Reversing the adjustments that rerouted products from food service to grocery channels will take months, and some of the rising costs are now being passed on to consumers. Amidst these near-term complications, businesses are focusing on resiliency before the next black swan event by addressing persistent labor challenges and automation investments.

However, while many rural businesses can breathe a sigh of relief as the economy roars back, many in the western U.S. are still holding their breath. The drought is the worst in at least 40 years, and could become the worst in a century. Water and electricity providers as well as the specialty crops sector are navigating terrible and uncertain conditions, trying to bridge to better, wetter days ahead.

Topics In this Issue:

This quarterly update is prepared by the Knowledge Exchange division and covers the key industries served by CoBank, including the agricultural markets and the rural infrastructure industries.

Inside this issue

SPOTLIGHT

COVID's Lasting Impact on Food and Agriculture

By Dan Kowalski

With the precipitous decline in COVID cases, U.S. consumer behavior is beginning to normalize. However, food and agricultural businesses will make meaningful adjustments to their operations and investments in the wake of the pandemic.

The most significant lasting impact from COVID will be an acceleration in automation. Business investment in automation and robotics was increasing before the pandemic, but labor challenges over the past 18 months (and likely for the next 6–12 months) will only hasten the pace of automation. The pandemic has brought on a trifecta of labor issues for those in food and agriculture: health and in-person dependence risk during COVID, hiring challenges today, and elevated wage inflation that we believe will last into 2022. All of these concerns incentivize businesses to increase automation, and it will affect the entire supply chain from field to grocery and restaurants.

This will not be an overnight transformation, but much larger investments in technology now will lead to a much more technology-driven supply chain over the next few years.

Commodity price inflation has been a boon to many ag producers over the past year. But increases in raw material costs, combined with higher wages and transportation expenses, is causing retailers to push those higher costs on to consumers. In 2020, consumers did pay more for meat and dairy products – grocery prices for these products were up by a range of 4.5% to 10% in 2020. Restaurants didn't have the leverage to push prices higher then, but they do now. And food manufacturers have also gained pricing leverage as a result of large federal support programs and an improved economy. No company wanted to raise food prices in a pandemic, but many of them will now raise prices to recoup cost increases that are nearing double digits. Consumers have benefited from very low food inflation for much of the past decade, but higher prices are a near certainty for the next year.

Finally, grocers and restaurants are anxious to learn what and how consumers will want to eat in the new equilibrium.

Consumers are still working through a period of pent-up demand and thus current demand patterns are not yet steady or sustainable. We know that online grocery shopping peaked at about 13% of total sales earlier this year. Since then, that figure has dropped to 10%. It's unlikely online shopping will decline to the pre-pandemic level of 4%, but how far will it fall, and what does the growth trajectory look like thereafter? About 60% of online grocery shoppers say they will maintain their level of online buying post-pandemic or at least buy more online than they did pre-pandemic.

The coming adjustments will look quite different for each segment of the food supply chain. But the acceleration in change will be meaningful, and strategic steps to build more resilient businesses are coming sooner than we thought before. ■

MACRO ECONOMIC OUTLOOK

A Messy but Solid Recovery

By Dan Kowalski

The expected summer economic boom is well underway. Nearly 70% of adults are vaccinated, consumers are spending on services again, and jobs are abundantly available. The one element missing in the economic bounce back: workers.

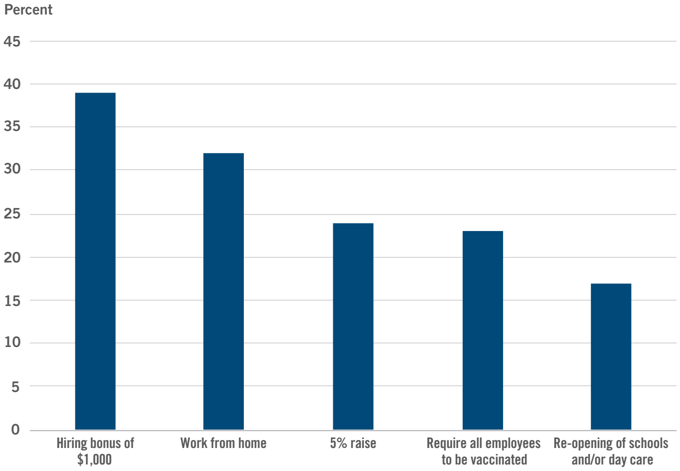
The labor market is healing, but more slowly than most economists expected. Job openings have soared to the highest level on record as workers trickle back into the workforce. There are several reasons for the slow return, but it is increasingly clear that enhanced federal unemployment benefits are keeping many workers on the sidelines. Twenty-one states discontinued enhanced federal benefits in June, and saw the number of people enrolled in state unemployment benefits fall by 14%. In states that will maintain enhanced benefits until September, state unemployment benefits enrollment declined by 6%. A recent survey by the U.S. Chamber of Commerce also supports the conclusion that federal benefits are contributing to the labor shortage. When asked what would cause them to return to work, 63% of polled unemployed workers said they would return for either a $1,000 hiring bonus or a 5% raise.

This leads us to two conclusions. First, labor shortages will act as a drag on the economic recovery until at least early fall. Second, people are very conscious of rising prices and expect higher wages to combat higher living expenses.

1 Inflation is being driven mostly by a supply shortage in labor, transportation, goods inventories, and service offerings. And these shortages will take time to correct.

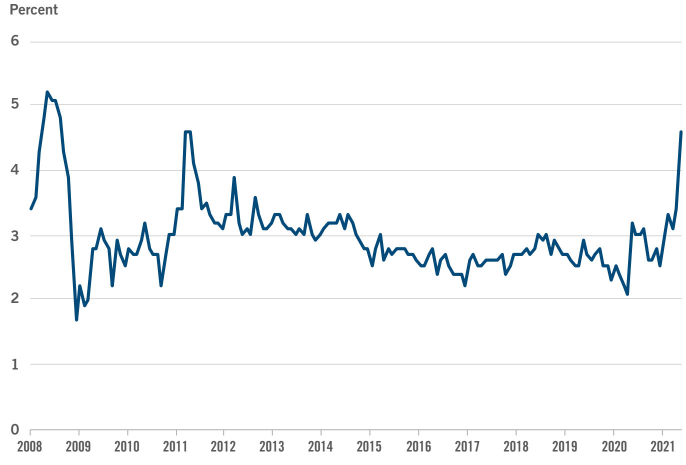
2 People are very conscious of rising prices and expect higher wages to combat higher living expenses.

EXHIBIT 1: Poll of unemployed Americans not actively seeking work: Which of the following, if any, would increase your urgency to return to full-time employment?



Source: U.S. Chamber of Commerce

EXHIBIT 2: University of Michigan Consumer Inflation Survey
(Median expected price change next 12 months)



Source: University of Michigan, St. Louis Federal Reserve

The University of Michigan tracks consumers' inflation expectations for the coming 12 months, and in May, consumers reported that they anticipated a 4.6% rise in prices, the highest reading in 13 years. Most economists are expecting headline inflation to run between 3% and 4%, but most economists will also admit that forecasting inflation in the current environment is very difficult. In its June forecast, the Federal Reserve moved its 2021 inflation expectations a full point higher to 3.4%. This signaled that while it still believes above-trend inflation will be "transitory," the term transitory might mean a longer period than previously thought.

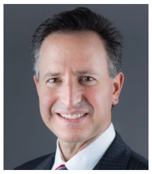
Inflation is being driven by a confluence of factors, but most of them can be boiled down to some form of supply shortage. That includes supply imbalances in labor, transportation, goods inventories, and service offerings. And these shortages will take time to correct. Goldman Sachs expects goods shortages to begin improving by year-end, but to persist into 2022. That will correspond to elevated inflation for much of the next year.

The longer inflation lasts, the more consumers will begin to expect it. At some point, employees begin to demand higher wages from their employer, which can drive up the amount of dollars being spent, spurring even higher prices. This self-fulfilling cycle is what the Fed is trying to avoid when it talks about "well anchored" inflation expectations. Chair Powell and the rest of the FOMC will attempt to keep the economic boom alive while also keeping the inflation spike short-lived. As part of its plan, we expect that Fed to announce in August that it will begin tapering its security purchases in Q1 2022. Beyond that, inflation is the wild card, and will determine if the Fed will first raise rates in late 2022, or if it will be able to wait until 2023 as it would prefer to do.

3 Most economists expect headline inflation to be 3%-4%, but admit that forecasting inflation in the current environment is very difficult.

GRAINS

Riding a Crazy Train of Price, Weather and Basis Volatility



By Kenneth Scott Zuckerberg

The second quarter saw extreme volatility in grain prices and basis levels, driven by hot temperatures, widespread drought, and swings in China's grain purchases, both in magnitude and cadence. We expect an elevated level of volatility for grain prices in this new phase, as mixed weather forecasts, dryness, and moisture deficits threaten yields during critical stages of the current growing season. Grain elevators and merchandisers will need to maintain excess liquidity during this period.

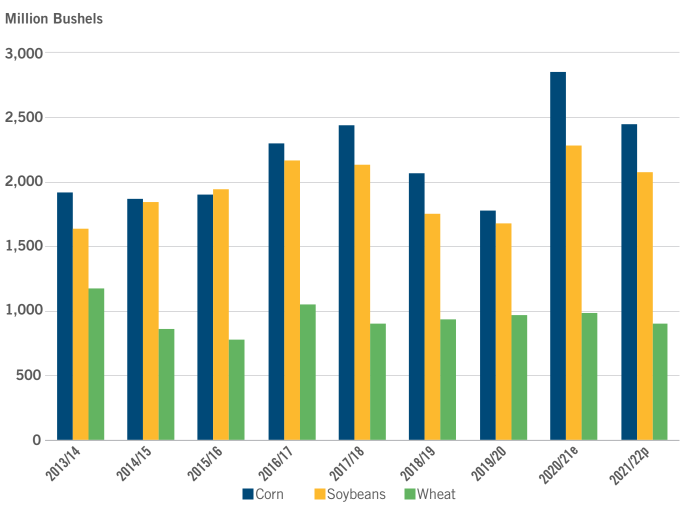
Grain prices took a roller coaster ride in Q2. Corn, soybean, and wheat prices first ascended to a 9-year peak but then non-commercial (speculative) buyers pulled back their positions, reducing their exposure as fears of runaway inflation tempered. The quarter's strong exports support USDA's 2020-21 and 2021-22 crop marketing year forecasts. For a deeper dive on China, please read our report, *Feeding the Hungry Dragon: China Changes Buying Tactics in Volatile Phase of U.S. Grain Run.*

National corn and soybean basis were whipsawed over the past three months by a confluence of factors, including strong export demand for U.S. grain, less competition from Brazil due to worsening corn production prospects, logistical bottlenecks, and the U.S. government's changing signals regarding biofuel policy. Basis vacillated within a range of -$0.40 to +$0.16 for corn, and -$0.34 to +$0.10 for soybeans. In contrast, wheat basis was more stable, averaging -$0.26 and trading in a $0.10 range.

1 **The grain run has entered a new phase of higher volatility that has been exacerbated by increasing non-commercial speculation activity.**

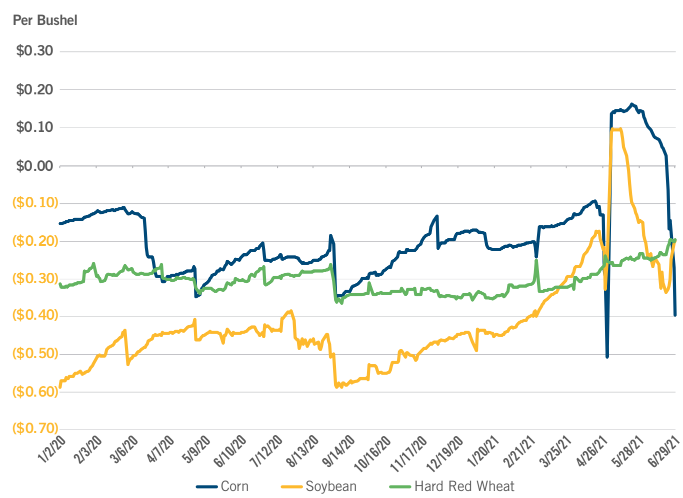
2 **With USDA's June acreage report widely distributed and analyzed by the market, weather will now be the main catalyst driving grain prices over the next two months.**

EXHIBIT 1: Actual and Projected Grain Exports



Source: WASDE June 12, 2021

EXHIBIT 2: National Basis Comparison



Source: BarChart Cmdty View Pro

June concluded with two key USDA reports – *U.S. Planted Acres* and *Quarterly Grain Stocks* – that were bullish for grain prices, causing yet another sharp price rally on June 30. This was a fitting end to a volatile quarter. The key takeaway from the more important acreage report was that the increase in corn acres was less than the market expected relative to the March 30 planting intentions survey report. Trade estimates had called for a 3% upward revision in corn acres (vs. 1.7% realized). Revised planted acreage for soybeans and wheat crops were minimal and below trade forecasts. We see lower crop yields driven by weather volatility between now and harvest, supported by two observations:

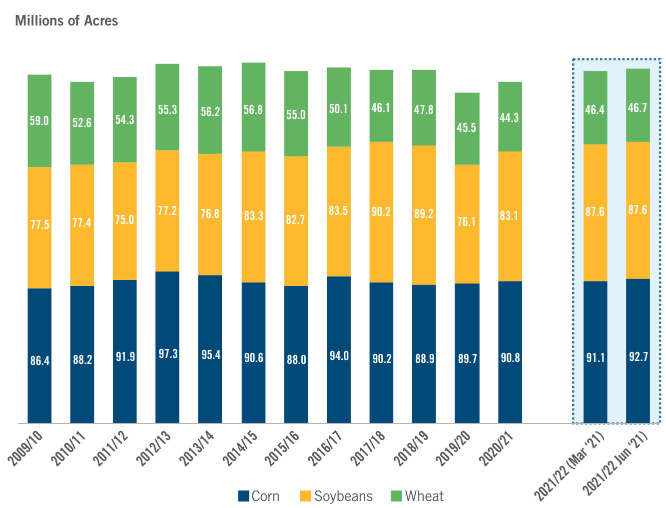
- First, after five consecutive months of above-average temperatures, June 2021 broke all-time records in numerous states according to the National Oceanic and Atmospheric Administration (NOAA). Wide swaths of the U.S. have endured day after day above 100 degrees, with the heat wave hitting regions already experiencing significant drought conditions.
- Second, after an excellent initial start through Memorial Day, heat stress has hurt crop progress, specifically for corn in the northern Great Plains and Iowa, soybeans in recently flooded areas, and spring wheat planted in South Dakota. While the driest farming regions benefitted from recent rains, most areas other than the central and eastern Corn Belt have significant soil moisture deficits.

Suffice it to say, July weather will be critically important to the U.S. corn crop during pollination, while August (at this moment unpredictable) will be important for soybean and spring wheat development. Buckle up your seatbelts, the next phase of the grain run will not be one for the faint of heart.

3 **Drought and excessive heat have diminished the yield prospects for corn, soybeans, and wheat, although USDA production estimates do not yet reflect this view.**

4 **The outlook for exports remains constructive, though we see China buying U.S. grain on price dips rather than at recent 9-year high record levels.**

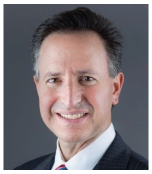
EXHIBIT 3: U.S. Planted Acres



Source: USDA as of June 30, 2021

FARM SUPPLY

Agronomy Remains Strong, Seasonal Pause Ahead



By Kenneth Scott Zuckerberg

Farm supply cooperatives enjoyed a strong spring agronomy season, as rising grain prices gave U.S. crop farmers confidence to increase input spending. Crop progress is well underway, and the next three months should be slow ahead of fall fertilizer applications.

While too early to make predictions for the fall agronomy season, we see both opportunities and challenges. Fertilizer supplies remain plentiful in North America and retailers that bought extra inventory early in 2020 (at much lower than current price levels) should be able to re-sell at attractive margins. On the other hand, prices are approaching decade-high levels, exposing re-sellers who buy fertilizer now to the risk that nutrient prices will correct by the fall should 2021 prove to be a bumper crop. One way for cooperatives to protect themselves from declining prices is to accelerate farmer prepayments for the 2022 growing season, thereby locking in current price levels.

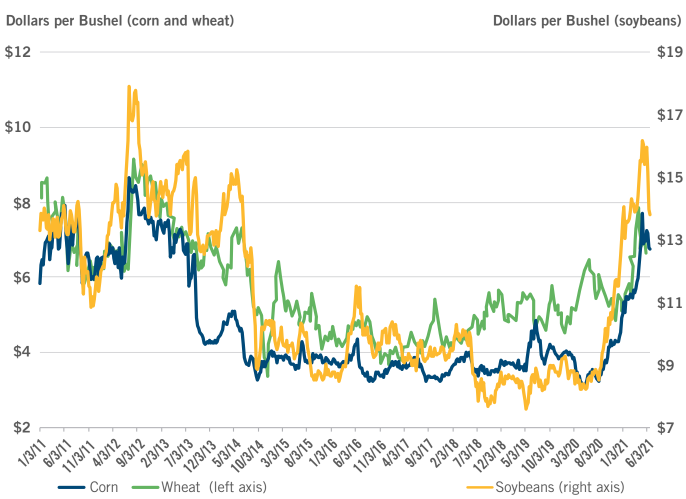
A secondary risk that we are closely monitoring is availability of herbicides, pesticides and fungicides. Industry channel checks point to delayed shipments and/or shortages of agrochemical production from Asia, even as manufacturing there recovers post-COVID. With more than 100 agrochemical products out of stock according to one of the largest U.S. ag retailers, the key risk is that 2022 crop protection sales could be down materially if the situation is not resolved.

1 Ag retailers delivered and captured significant value for this year's growing season, as **U.S. crop farmers increased planted acres of corn, soybeans, and wheat by 3.1%.**

2 Fertilizer prices, **up 17% in Q2,** continued to rise along with grain prices and now sit **within 10% of 2012 peak prices.**

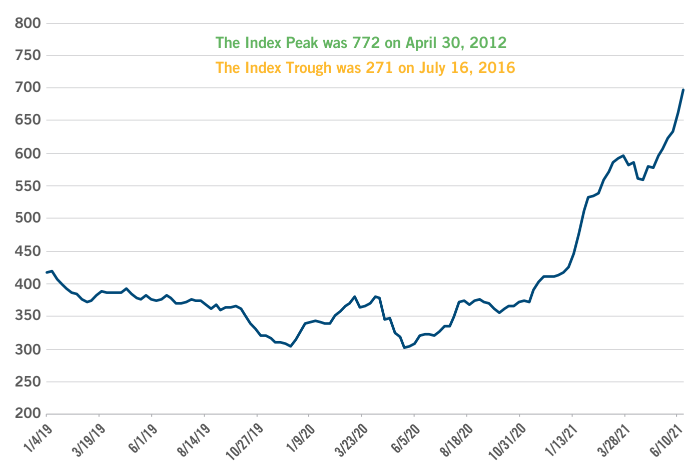
3 Though co-op inventories are currently full, **sourcing agrochemicals from Asia** may be a near-term challenge.

EXHIBIT 1: Weekly Cash Prices
January 2011 to June 2021



Source: Barchart.com as of 06-23-2021

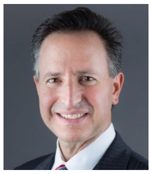
EXHIBIT 2: Green Markets North America Fertilizer Index
January 2019 to June 2021



Source: Green Markets, FertilizerPricing.com © Bloomberg L.P.

BIOFUELS

Production and Profits Are On a Major Comeback



By Kenneth Scott Zuckerberg

The U.S. fuel ethanol sector outperformed expectations during the past quarter and appears well positioned for the second half of 2021. Several key demand drivers underpin this outlook: general economic growth, seasonal summer driving, and more people driving as they return to offices and classrooms. The regulatory and policy environment remains dynamic with some recent positive developments, while electric vehicle adoption – a long-term threat to ethanol – is powering ahead.

Forty-eight states have enacted legislation allowing for the sale of gasoline used as motor vehicle fuel to contain up to 15% ethanol (E15) up from 10% (E10), which should be a positive demand driver for domestic ethanol consumption. Interestingly, while some retailers are concerned that existing storage tanks and pumps must be upgraded to accommodate E15, guidance from the Petroleum Equipment Institute suggests this is not necessarily the case.

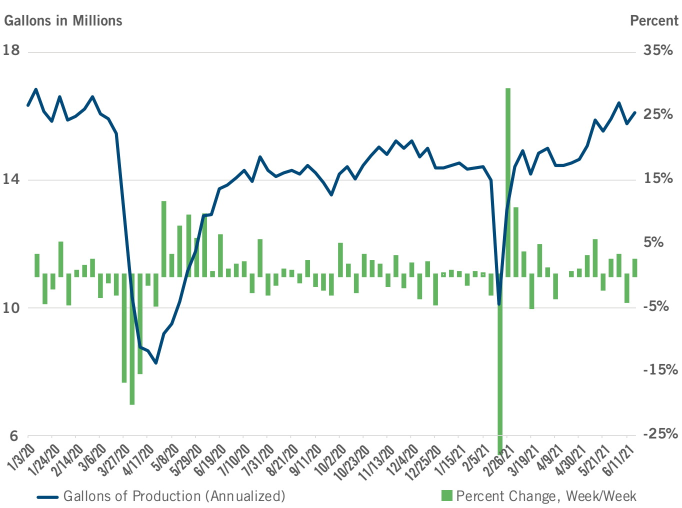
On the flipside, U.S. biofuel policy continues to be a major area of friction in Washington and between ethanol producers and fossil fuel refineries. First, it's unclear where biofuels, fossil fuels, and electric-powered vehicles will fit in under a final infrastructure package. Second, the U.S. Supreme Court's ruling that the Environmental Protection Agency has wide latitude to exempt small oil refineries from the Clean Air Act's renewable fuel standard (RFS) requirements is a negative development for the ethanol complex.

1 General economic growth and seasonal driving demand **pushed up fuel ethanol production in Q2,** recently trending **above 16 billion gallons.**

2 Average daily operating margins **more than doubled to average $0.26 during Q2.**

3 **While electric vehicle adoption threatens long-term demand for fuel ethanol,** its comeback to pre-pandemic levels should last through 2021.

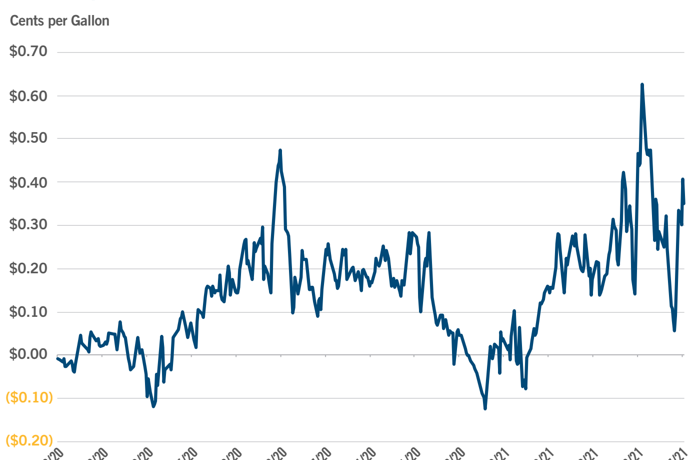
EXHIBIT 1: Weekly U.S Fuel Ethanol Plant Production



Source: Energy Information Institute (EIA)

EXHIBIT 2: Fuel Ethanol Operating Margins

Return over operating costs for representative Iowa dry-mill corn ethanol plant



Source: Center for Agricultural and Rural Development, Iowa State University (ISU-CARD)

ANIMAL PROTEIN

Booming Demand, Limited Supply Response Will Support Prices Through 2021

By Rob Fox

Meat and poultry prices began the year fairly low, but by mid-May wholesale prices hit record highs as food service and retail grocery pipelines were primed for post-COVID summer celebrations. Jumbo wings over $3/lb., ribeye over $11/lb., and pork bellies over $2/lb. are just a few examples. Although prices have since eased a bit, we expect another round of aggressive buying. In coming weeks, food service and institutional buyers will load up for September's expected full return to schools and offices, followed quickly by epic post-COVID holiday celebrations.

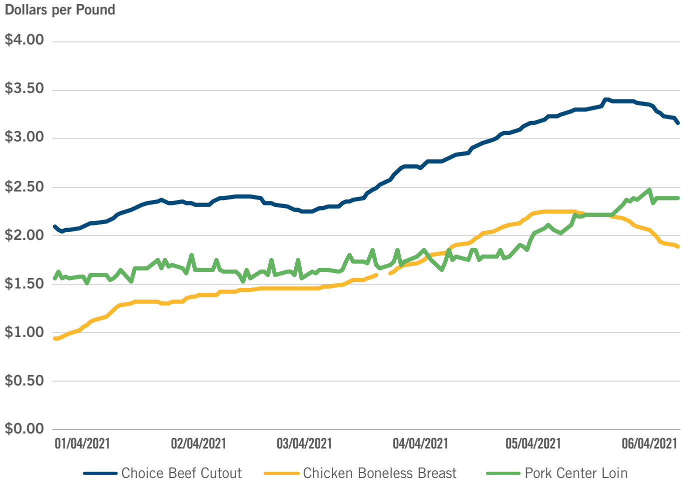
Food service sales regained pre-COVID levels in April (reaching an all-time monthly high of $75.3 billion). More illuminating, however, is overall retail grocery stores sales growth is strong: up 7.3% from a year ago and up 15.3% from 2019, providing evidence of longer-term changes in consumer behavior. With cash in the bank, job offers in hand, a new cookbook collection, and fancy cooking gear bought during the pandemic, the middle- and upper-classes are spending more on food at home and willing to pay for higher-end meat cuts.

From farm to supermarket, labor availability is management's biggest concern and continues to be a significant impediment to quick supply-side responses. April job openings quickly surpassed 9 million after topping 8 million for the first time ever the month prior. Meanwhile, the labor force participation rate has only marginally recovered from its pandemic lows. While worker availability should improve by September when schools reopen and all enhanced unemployment benefits expire, the labor market will still remain incredibly tight.

1 **Overall retail grocery store sales are still growing strongly: up 7.3% from a year ago and up 15.3% from 2019.**

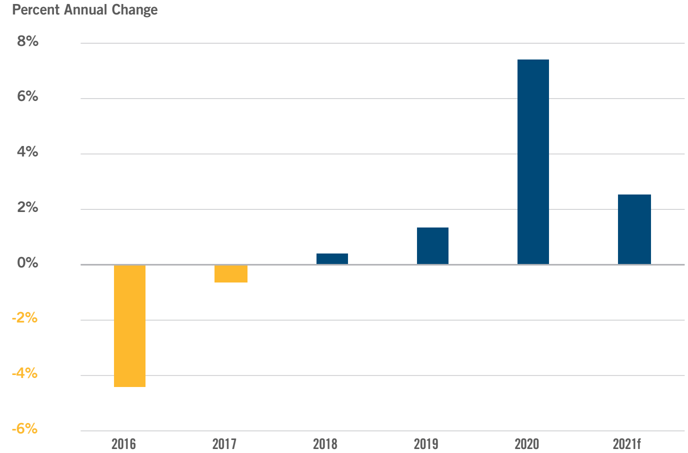
2 **Labor availability is management's biggest concern across the production chain.**

EXHIBIT 1: Wholesale Meat Prices



Source: USDA-AMS

EXHIBIT 2: Consumer Price Index: Meat



Source: Bureau of Labor Statistics

CHICKEN

Chicken prices have rallied most of the year with the increases most notable among the individual cuts:

- Boneless/skinless breasts are trading in the $1.80 - $2.00/lb. range after averaging just over $1.00/lb. last year;
- Jumbo wing prices, which have been above the $2.00 mark only once for a short time in 2017, have skyrocketed to over $3.00/lb.; and
- Export leg quarters are trading near $0.50/lb. after spending much of last year in the $0.25/lb. range.

Historically, skyrocketing prices and a jump in profit margins would bring about a swift production response. However, this year is different: The well-publicized issues with breeding stock changes in the past couple of years have limited short-term expansion potential. The number of broiler laying hens is currently up over 4% YoY. But because of poor hatching and chick viability, the number of chicks placed in barns over the past 52 weeks is well off trend and is essentially the same as back in 2018.

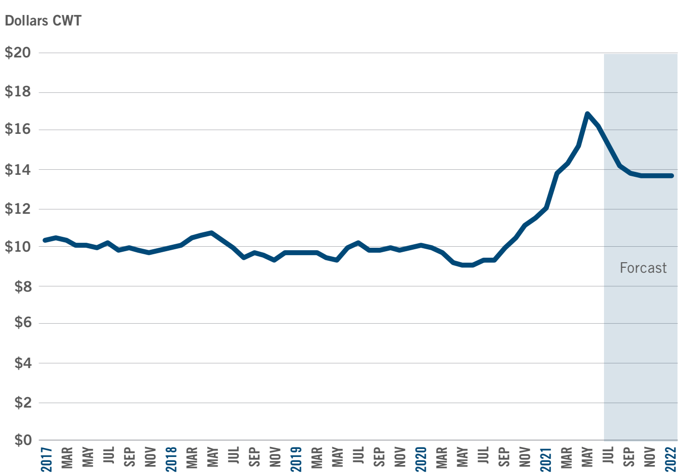
Despite feed prices roughly 60% higher than last year, industry margins have markedly improved from the worst of 2020. Given the price and feed outlook, profitability should remain strong through the end of 2021.

1 The well-publicized issues with **chicken breeding stock changes** in the past couple of years have **limited short-term expansion potential.**

2 **Chicken industry margins have markedly improved** from the worst of 2020. Given the price and feed outlook, **profitability should remain strong through the end of 2021.**

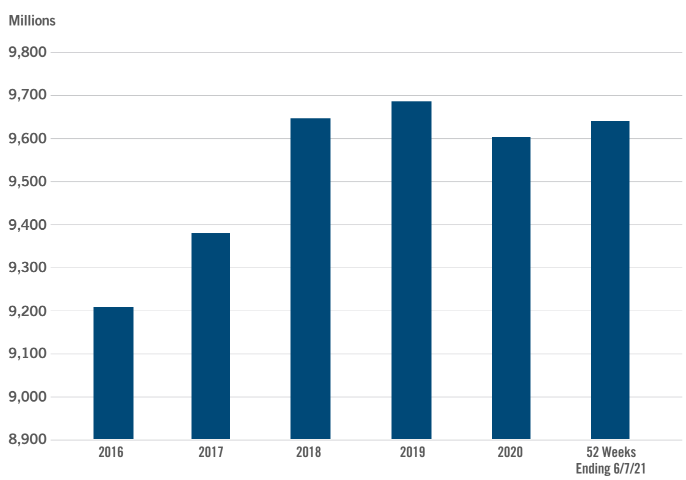
EXHIBIT 3: Broiler Ration Cost

58% corn, 42% soybeans



Sources: USDA & CME

EXHIBIT 4: Broiler Chick Placements



Source: USDA-NASS

BEEF

Despite beef prices at or near record highs, cattle ranchers and feeders are currently caught in a vise between maxed-out national slaughter capacity and the liquidation pressures of exceptional drought hitting the western U.S. combined with high feed costs.

With packer margins reportedly hitting $1000/head earlier in the year, it is not surprising that producer organizations have pressured Congress to help their cause. Congress has responded with hearings and draft bills geared to increase pricing transparency and competition for cattle. The four major beef packers assert there is ample processing capacity to handle a "normal" flow of fed cattle. While true, the problem is that over the past few years, major packing plants have been shut down by a fire, epic winter storms, COVID, and most recently, a cyberterror attack. Cattle producers would rightly argue that a market overwhelmed by one temporary plant shut down is not a very robust one.

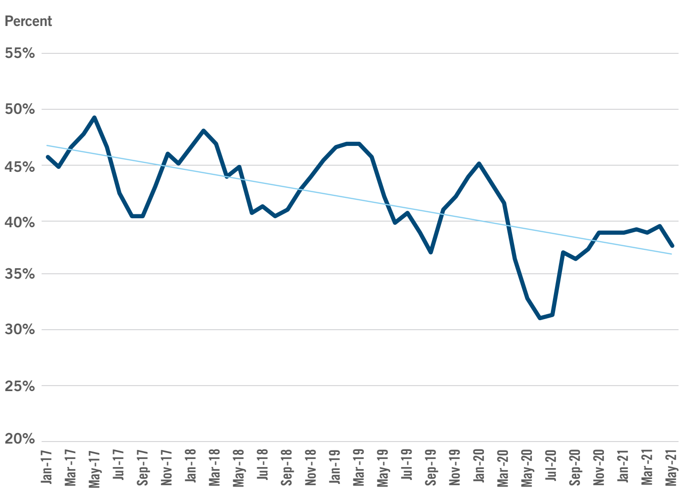
In the near-term, the most likely outcome of the federal government involvement will be enhanced transparency into cattle pricing mechanisms. However, jawboning in DC is unlikely to convince a major packer to build a new multi-hundred million dollar slaughter plant amid declining cattle numbers.

The national beef herd is already in contraction due to weak cow-calf profitability going back as far as 2015. Beef cow slaughter is currently up 10% YoY, with the big jump occurring since April. The U.S. beef cow herd will likely be down another 1%-2% by year end. There is a sliver of silver lining for producers: As cattle on feed numbers work themselves down and feed prices have backed off recent highs, August feeder futures are trading near $160, a level the market has not settled at since 2017.

1 **Over the past few years, major beef packing plants have been shut down by a fire, epic winter storms, COVID, and most recently, a cyberterror attack.**

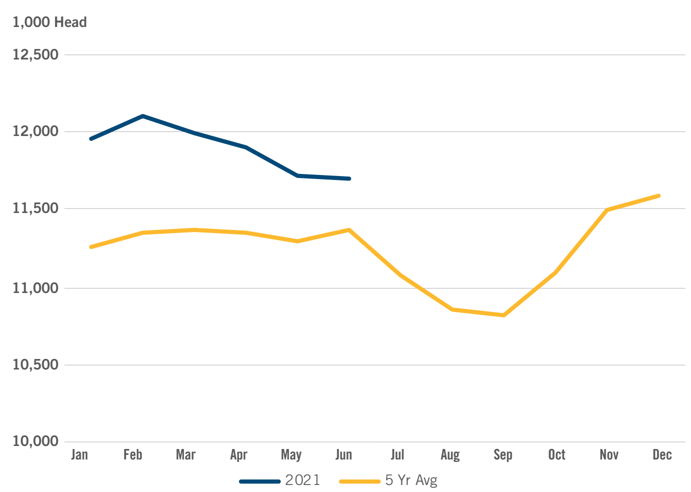
2 **August cattle feeder futures are trading near $160, a level the market has not settled at since 2017.**

EXHIBIT 5: Farm and Feeder Share of Retail Beef Price



Source: USDA-ERS

EXHIBIT 6: Cattle on Feed



Source: USDA-NASS

PORK

Pork has been one of the highest-rising commodities in 2021, with nearby lean hog futures topping out at $122 in mid-June (73% above Jan. 1). Although the market has cooled a bit in recent weeks, the fundamentals still tell a bullish story: incredible consumer meat demand, tight supplies of competing meats, freezer stocks at 10-year seasonal lows, and declining pork production in the second half of 2021 (forecast down 2.3% YoY by USDA).

USDA's June 1 *Quarterly Hogs and Pigs Report* was mildly bullish and confirmed what most of the trade expected: the U.S. hog inventory shrank again, dropping 2% YoY, continuing a contraction since mid-2019. There were a couple of surprises, however:

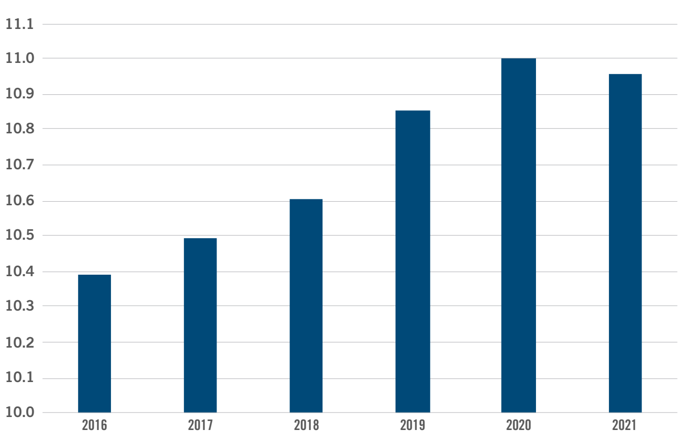
- Pigs per litter shrank, breaking a strong five-year growth trend with increased disease pressure the most logical explanation; and
- June-November farrowing intentions are down 3.2% from a year ago, aligning with declining breeding sows and gilts numbers, which are down 2.8% since 2019.

The one noteworthy bearish item is the recent collapse in Chinese pork prices, which have dropped 65% since the beginning of the year. China has been the top U.S. pork export market since 2019 – expect significantly reduced exports to China in the second half of the year.

1 **Pork has been one of the highest-rising commodities in 2021, with nearby lean hog futures topping out at $122 in mid-June.**

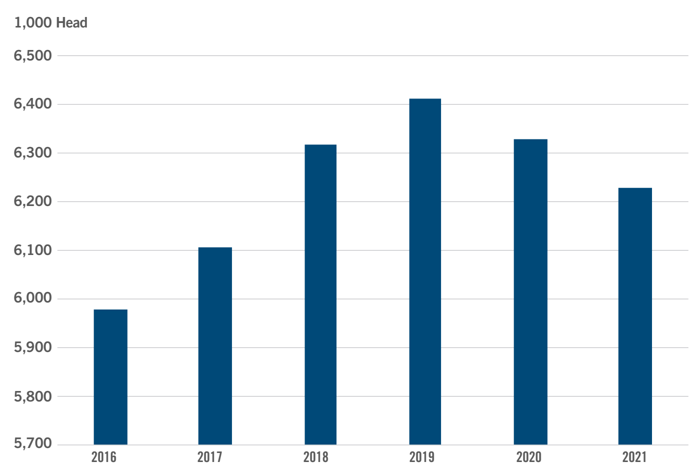
2 **June-November farrowing intentions are down 3.2% from a year ago, aligning with declining breeding sows and gilts numbers, which are down 2.8% since 2019.**

EXHIBIT 7: Pigs per Litter



Source: USDA-NASS

EXHIBIT 8: Hogs Kept for Breeding: June 1



Source: USDA-NASS

DAIRY

Record Exports Struggle to Keep Pace with Record Milk Production

By Tanner Ehmke

Milk production in the U.S. continues to chart new record highs despite the surge in feed costs and hot temperatures. U.S. milk production in May topped 19.85 million pounds for the first time, with daily output up 4.6% YoY as milk cow numbers climbed to the highest since 1994. Production has been especially strong in the Midwest, Southwest, and California. The ever-growing milk supply has pushed Class III futures sharply off their highs to the lowest level in seven months. The addition of 145,000 new cows YoY to the U.S. dairy herd as of May will continue to bring more milk availability in the months ahead.

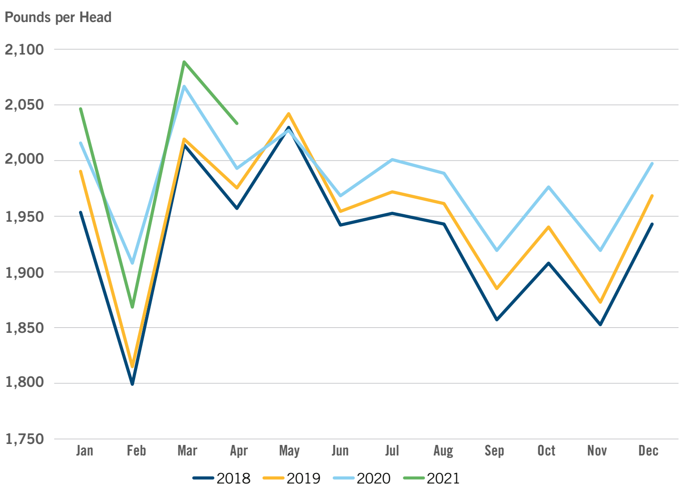
Record summer heat and high feed costs may impact cow productivity, which has continued to climb to new records. Many dairy farmers have averted the pain of high feed costs since booking feed and forage needs late in 2020. Income over feed, though, is falling. With stout feed prices expected to persist through 2021, growth in milk cow productivity could be curtailed as farmers trim feed bills by altering rations with cheaper feed alternatives.

While labor shortages and logistics constraints may be limiting manufacturing capacity in some regions, dairy processors continue to take advantage of the current abundance of milk with cheese and butter plants running full steam. Cheese and butter inventories are now accumulating in warehouses with production advancing faster than demand. Butter inventories in May crossed the 400-million-pound mark for the first time since 1993, while total cheese stocks in the U.S. are nearing all-time

1 **Milk and dairy product supplies continue to hit new records,** sending prices sharply off their highs.

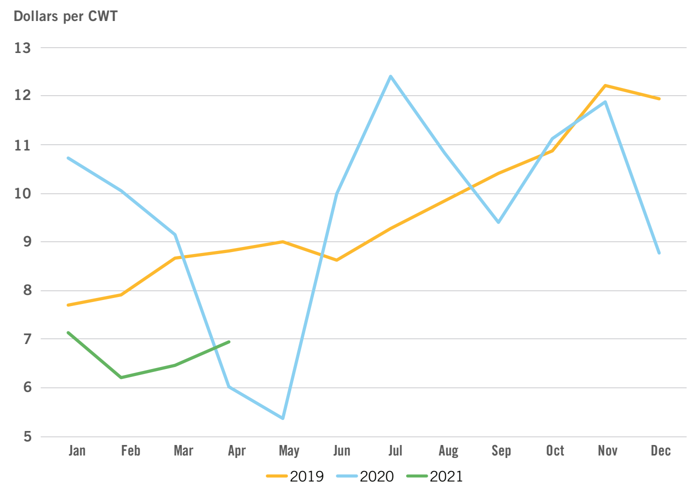
2 Dairy producer **margins are being compressed** amid **falling milk prices and high feed costs.**

EXHIBIT 1: U.S. Milk Productivity



Source: USDA-NASS

EXHIBIT 2: Milk Margin Above Feed Costs



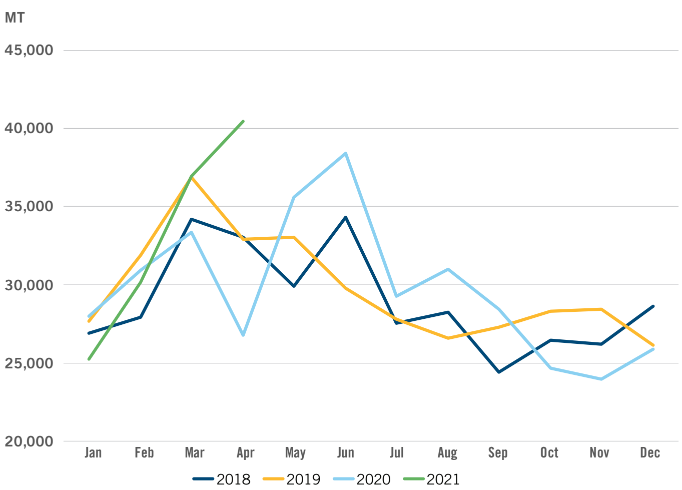
Source: USDA-FSA Dairy Margin Coverage Program record highs. The abundance of block cheese has driven volatility to new highs in block-barrel spreads with the price of 40-lb. blocks falling below the price of 500-lb. barrels. Warehouse space for cheese, butter, and powders is becoming tight. The expected growth of dairy product inventories in the months ahead will add further downward pressure on prices as product supplies swell with growing milk production.

The record export pace remains the key release valve amid the supply surge. Cheese exports, particularly to Mexico, continue to reach new records with Mexico's economy reopening, while exports of powders to China and Southeast Asia continue growing. Butter exports are the highest in seven years, with Canada continuing to be the key growth destination. The rebound in U.S. foodservice demand has also been a positive for demand, but has not been the driver needed to push consumption ahead of the robust production pace. Finding new channels to send product may become more challenging as production of milk and dairy products is expected to continue climbing. A potential strengthening in the U.S. dollar as the U.S. economy reopens could impair U.S. dairy exports in the months ahead, while the end of generous unemployment benefits may curtail foodservice demand in the U.S. The reopening of schools and return to offices in September, though, will boost demand.

More financial relief has been targeted to U.S. dairy farmers. USDA has earmarked $400 million for the Dairy Donation Program (DDP), providing additional pandemic payments to dairy producers who were not covered by previous pandemic relief. Approximately $580 million is also allocated to Supplemental Dairy Margin Coverage for small and medium farms.

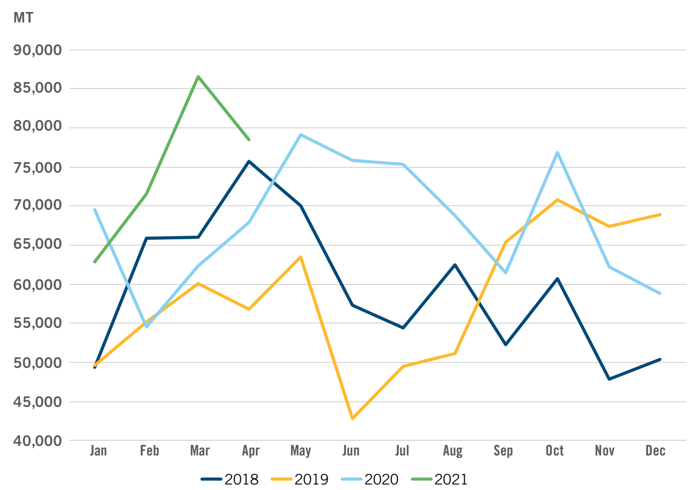
3 Dairy product exports remain exceptionally strong, but risk of a stronger U.S. dollar threatens the export pace.

EXHIBIT 3: U.S. Cheese Exports



Source: USDA-FAS

EXHIBIT 4: U.S. Nonfat Dry Milk Exports



Source: USDA-FAS

COTTON, RICE AND SUGAR

Flooding in U.S. Delta Raises Concerns for Long-Grain Rice Crop

By Tanner Ehmke

Cotton

Cotton held on to firm pricing last quarter, as Chinese demand continued unabated following strong purchases earlier in the marketing year. Expectations for continued recovery in the global economy continue to drive hopes for strong future demand for clothing and apparel.

China remains the key destination for U.S. upland cotton, with accumulated exports up 55% YoY as of June 24. However, new export bookings from China have waned in recent weeks. It's widely anticipated that the Chinese government's State Reserve Bureau will issue more import quotas in coming weeks.

Global shipping delays and logistical disruptions have delayed some cotton purchases around the world. Cotton prices, which are holding steadily at lofty levels, are less of a concern for spinners who are more concerned over securing freight.

Total U.S. cotton shipments are running 9% ahead of last year, drawing down U.S. cotton inventories. The tightness in supplies has buoyed prices in the U.S. as cotton futures resist the steep correction seen in other ag commodities following the Federal Reserve's more hawkish tone on interest rates. Prices have also been supported by concern over hot and dry weather that has crimped conditions for the Texas cotton crop with a USDA crop rating of only 28% good-to-excellent. The USDA rated 52% of the total U.S. cotton crop good-to-excellent at the end of June.

1 **Iraqi business for U.S. rice remains noticeably absent** **in 2021, dampening market sentiment.**

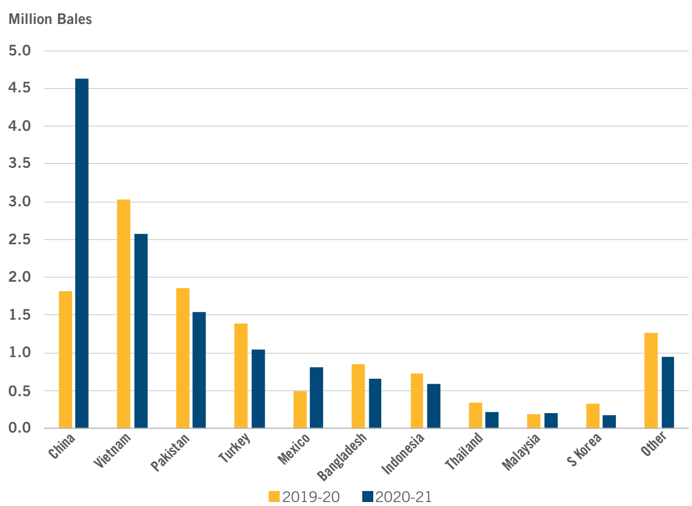
2 **Strong Chinese demand for U.S. cotton** **is expected to continue into the new marketing year.**

Rice

The concern over significant U.S. Delta and Southeast rice crop losses to tropical storm Claudette's historic flooding drove a sharp recovery in rough rice futures late last quarter. Most crop damage from submerged fields has been noted in the key rice-producing state of Arkansas, with Louisiana and Mississippi also noting losses.

Rice's slower export pace, though, continues to be a depressing factor in prices. U.S. all-rice accumulated exports as of June trailed last year's export pace by 4%, according to USDA-FAS. Conspicuously absent in the U.S.

EXHIBIT 1: U.S. Cotton Accumulated Exports



Source: USDA-FAS, U.S. Export Sales Report, June 24, 2021 export demand story for rice is Iraq. In prior years, Iraq's Ministry of Trade commonly sourced rice through a Memorandum of Understanding with the U.S. However, the Iraqi government has contracted with a private company to manage rice procurement through direct negotiations, circumventing the MOU with the U.S. Iraq's most recent rice purchases have instead been sourced from South America.

The loss of Iraqi rice business has been a major blow for the U.S., which now faces limited alternative exporting options amid abundant global supply. India in particular continues to saturate the global rice trade with its large inventories, while China helped dampen global rice prices by releasing old crop stocks from state inventories.

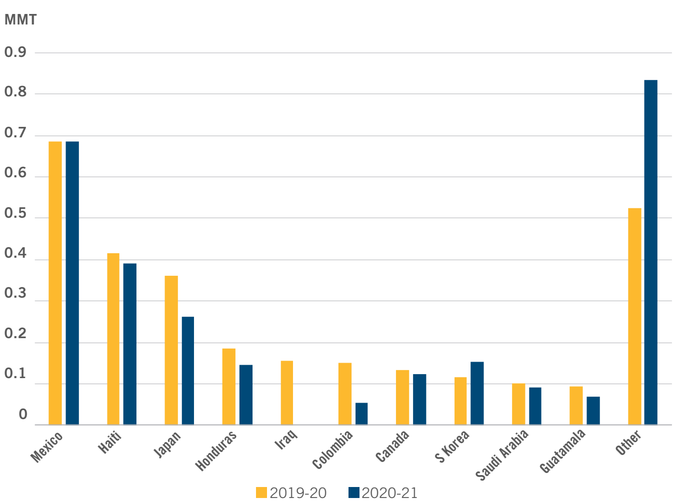
3 Domestic sugar deliveries are improving, but **sugar demand for food and beverages remains uncertain.**

Sugar

Healthy conditions of the U.S. sugarbeet crop point to a strong yield this fall following nearly ideal spring planting conditions that allowed for strong crop establishment. Minnesota, the largest producer, was rated 69% good/excellent as of June 13, Idaho was rated 73% good/excellent, while North Dakota's crop was 63% good/excellent, according to USDA.

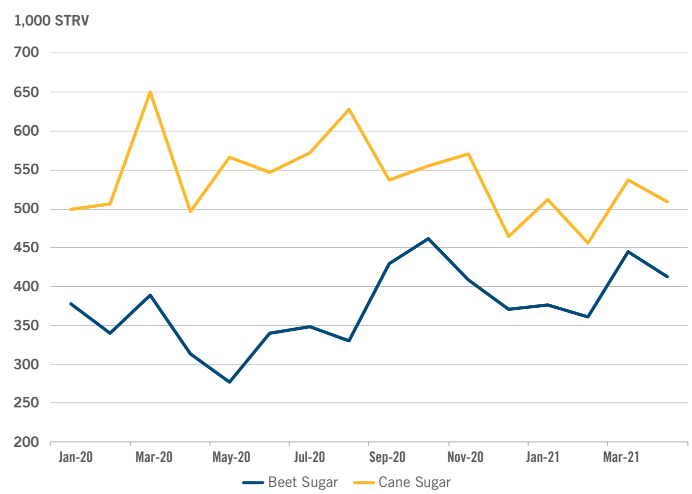
Domestic sugar deliveries are also improved for both beet and cane sugar with April cane deliveries the highest in six years. Beet sugar deliveries were up from last year's sharp drop related to COVID-19 disruptions. Refined white sugar prices in May were down 17% YoY, but are still stronger than historical averages. Raw sugar prices, though, were up 25% YoY, driven higher by drought conditions in Brazil. As the economy recovers in the months ahead, the industry faces significantly uncertain demand, particularly for food and beverages.

EXHIBIT 2: U.S. Rice Accumulated Exports
By marketing year



Source: USDA-FAS, U.S. Export Sales Report, June 24, 2021

EXHIBIT 3: U.S. Sugar Deliveries for Domestic Consumption



Source: USDA-ERS

SPECIALTY CROPS

Historic Drought Shrinks Crop Prospects in Western U.S.

By Tanner Ehmke

Water

The historic drought conditions in the Western U.S. intensified last quarter with water allocations to some agricultural irrigators cut to zero in California. Ninety-five percent of California and Arizona, 77% of Oregon, and 46% of Washington are experiencing severe drought conditions or worse. The region is now in the worst drought in four decades. Reservoirs are well below normal following the unusually dry winter and unseasonably warm spring that evaporated the Sierra Nevada snowpack, which typically supplies a third of California's water needs. Snowpack levels had fallen to just over 50% of the seasonal average.

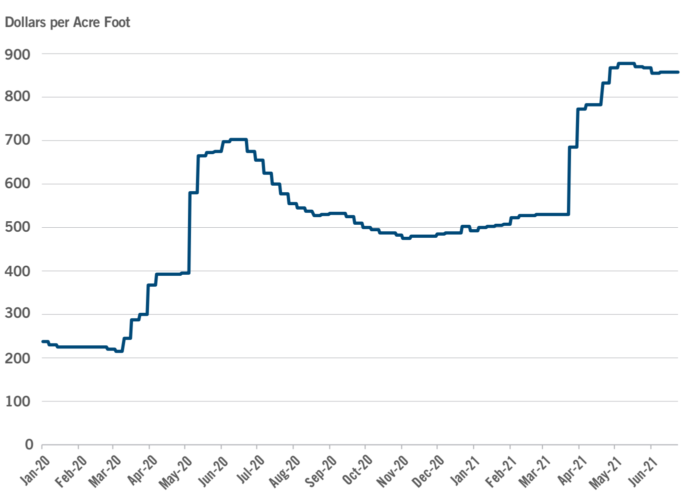
California's State Water Resources Control Board notified 6,600 farmers in June of "impending water unavailability," with many farmers told they will receive little to no water allocations. Senior water right holders, though, will receive greater allocations. The extreme drought situation is expected to persist until winter rains arrive and is shrinking crop prospects.

Growers are adjusting to the historic dryness by fallowing crop acreage and allocating scarce water to permanent plantings rather than field crops like silage, hay, and cotton, or by removing permanent crops. Growers who are struggling with no water allocations may pump from backup wells, or purchase water through the water market. Prices on the Nasdaq Veles California Water Index (NQH2O) have nearly doubled since January to $850/acre foot.

1 **As the drought situation worsens, some California growers are fallowing crops and pulling trees.**

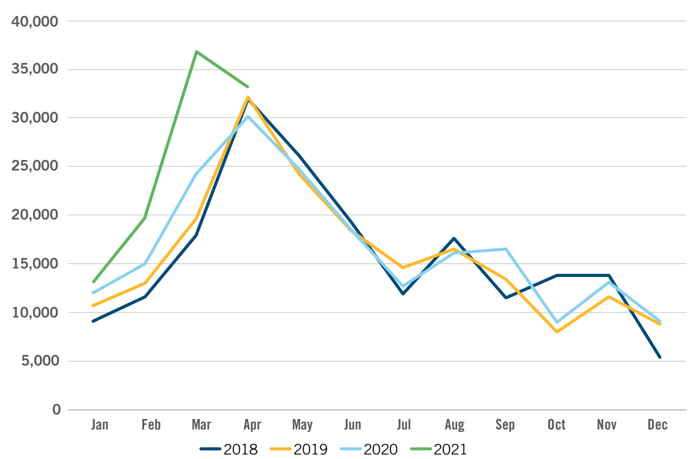
2 **The farm labor situation remains tight as issuances of H-2A farmworker visas to Mexico have slowed.**

EXHIBIT 1: Nasdaq Veles California Water Index (NQH2O)



Source: NASDAQ

EXHIBIT 2: H-2A Visa Issuances to Mexico



Source: U.S. Dept. of State, Monthly Nonimmigrant Visa Issuance Statistics

Labor

The agricultural labor situation continues to remain tight with employers raising wages and paying prospects to interview. Generous unemployment benefits are frequently noted as keeping workers sidelined. Higher state minimum wages and overtime laws have also contributed to local wage increases. Agricultural employers anecdotally note that they're paying wages 10%-20% higher YoY, in addition to offering sign-on bonuses to new hires and increasing benefits.

Despite higher wages, bonuses, and benefits, field crews are commonly understaffed. Issuances of H-2A farmworker visas to Mexico have also slowed, exacerbating worker shortages. Worker availability is expected to increase once enhanced unemployment benefits end in September, in time for fall harvests.

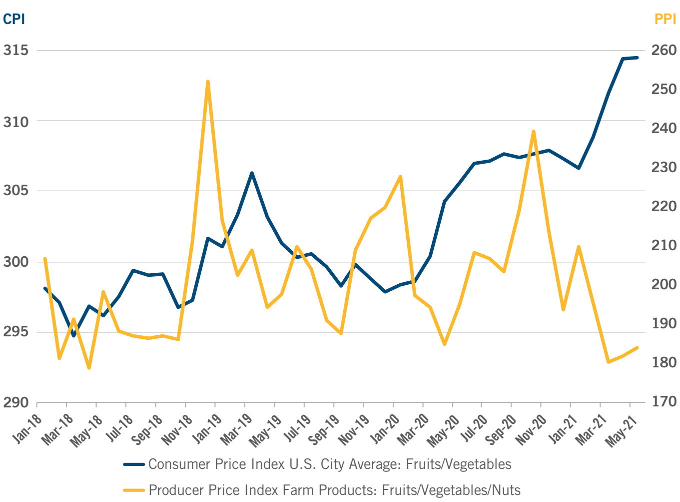
Markets

Crop yields in the west are expected to be down this fall should drought conditions intensify. Lower yields for crops like wine grapes, though, come at a time of building consumer demand. Following last year's smaller harvest that was crimped by frost and wildfires, another year of a smaller grape harvest and lower crush is expected to lift prices on wine grapes.

Fruit and vegetable prices paid by consumers have been caught in the inflation trend with other goods and services, with prices on the CPI as of May rising nearly 3% since the start of the year. However, higher prices for fruits, nuts, and vegetables at retail are not necessarily benefiting growers. Prices received by growers as measured by the Producer Price Index (PPI) fell over 12% in the same period. Rising transportation and warehousing costs have been noted as the key drivers for rising prices on produce with refrigerated truck rates having surged to multi-year highs. On the spot market, the cost of moving produce in refrigerated trucks has climbed to $3.10/mile in May, up 41% YoY, according to DAT Freight & Analytics.

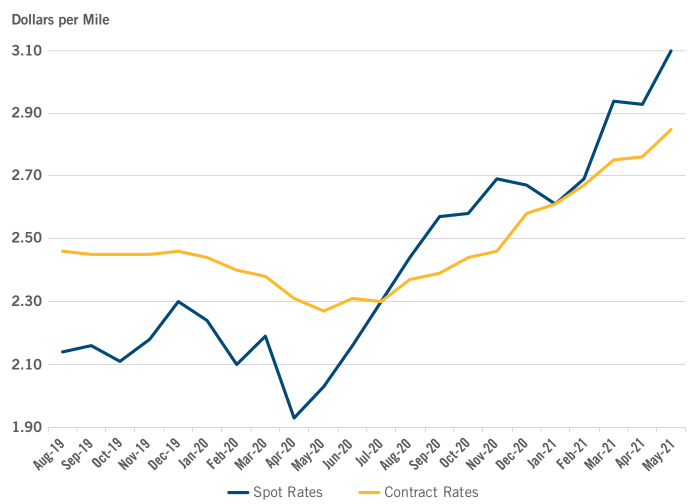
3 Prices for fruit and vegetables are rising for consumers, but not necessarily for growers.

EXHIBIT 3: CPI vs PPI for Fruits, Nuts, Vegetables



Source: Federal Reserve Economic Data

EXHIBIT 4: National Refrigerated Truck Rates



Source: DAT Freight & Analytics

POWER, ENERGY AND WATER

An FDR-Era Utility Blueprint for a Post-COVID America

By Teri Viswanath

Over the past quarter, the Biden administration has outlined ambitious plans to aid rural Americans returning to the post-COVID workforce.

First detailed in the American Jobs Plan and the American Families Plan, and then in the $6 trillion budget proposal, the administration has outlined massive reinvestment in public infrastructure and institutions to achieve more inclusive economic growth. Admittedly, this agenda might be significantly pared back – its hefty price tag would push federal spending to its highest sustained levels since World War II. Still, it establishes the administration's framework for negotiations with Congress over the next year, putting infrastructure and the rural economy at its heart.

The pandemic's end is an opportunity to rebuild the economy on a firmer foundation with bold investments that President Biden says will "raise both the floor and the ceiling" for everybody – with "everybody" appearing to pointedly include rural communities.[1] He recently drew parallels to Franklin D. Roosevelt's 1930s New Deal that brought electricity to every household, noting, "Those electrical poles and wires still help power rural communities 80 years after they were built, and it's time now to rebuild them." In other words, a crumbling infrastructure perpetuates inequity, leaving the next generation of Americans worse off.[2]

1 The White House envisions the **American Jobs Plan** will bring the sort of **employment to rural communities that occurred under Roosevelt's 1930s public works program.**

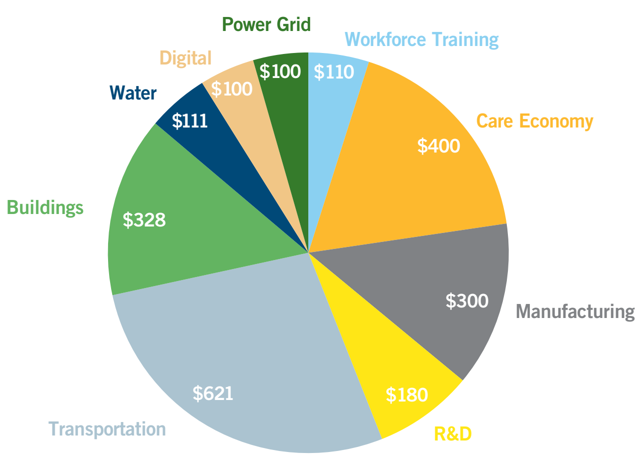
2 The plan means **$10 billion each for rebuilding rural water infrastructure and funding rural electric cooperatives** as they invest in clean-energy transition.

Recognizing that eight in 10 Persistent Poverty Counties fall outside of metropolitan areas, the White House envisions that the direct investment under the American Jobs Plan will bring the sort of employment to rural communities that occurred under Roosevelt's public works program.

For the energy and water sector, this means $10 billion each for rebuilding rural water infrastructure and funding rural electric cooperatives as they invest in clean-energy transition. Funding would directly address lead pipe replacement and coal retirements within rural communities, line item set-asides that alone would amount to about 10% of the identified sector level spending (the water and power grid categories in the chart). In addition, one of the central underpinnings for the American Jobs Plan is to address climate action – with rural communities at the center.

EXHIBIT 1: What's in the $2.3 Trillion American Jobs Plan?

Dollars in Billions



Source: White House and press reports

Rural communities have produced the majority of America's energy for decades, from fossil fuel supply (such as coal, oil, and natural gas) to renewables (like hydro, biofuels, wind, and solar). Rural communities also host plenty of modern energy infrastructure, like pipelines and transmission lines. Plus, with rural communities the site of nearly all onshore wind and a growing share of utility-scale solar projects, this plan is a blueprint for boosting the local economy. This means that a larger share of the $100 billion proposed power grid investment – to build a cleaner, more resilient electric transmission system – will impact the communities that these systems run through. In the same vein, with 20% of energy-intensive manufacturing currently taking place in rural communities, some portion of the $300 billion earmarked investment in manufacturing will accrue to rural communities, as well.

Finally, President Biden is proposing $5 billion for a new Rural Partnership Program to help rural regions, including tribal nations, build on their unique assets and realize their vision for inclusive community and economic development. All told, we agree with NRECA that Biden's plan includes scores of items that could affect rural cooperatives. And as such, we are all ears.

3 **Biden's agenda might not advance in Congress, but it puts infrastructure and the rural economy at the heart of their negotiations framework.**

[1] *https://www.whitehouse.gov/wp-content/uploads/2021/04/American-Jobs-Plan_Rural-Fact-Sheet.pdf*

[2] *A recent McKinsey survey supports these findings of inequity with particular inclusion of rural communities. The consultancy notes that rural communities, in particular, have a particular concern about being left behind as the nation recovers from the economic effects of the pandemic. McKinsey notes, "rural respondents were 1.3 times more likely than urban respondents to say that they and their families will have fewer economic opportunities in the next 12 months and 1.7 times more likely to say that there will be a general, national decline in economic opportunity over the next five years." https://www.mckinsey.com/about-us/covid-response-center/inclusive-economy/unequal-america-ten-insights-on-the-state-of-economic-opportunity*

COMMUNICATIONS

M&A Still Robust, White House Readies Broadband Funding Spigot

By Jeff Johnston

The Biden administration is still hashing out the American Jobs Plan with Republicans, but has established bipartisan support for $65 billion in broadband funding. This is $35 billion less than President Biden proposed in March. Coupled with existing programs, total federal support would be approximately $100 billion, which is on the lower end of the estimated range of what is needed to bridge the digital divide – $80 billion-$150 billion, depending on the technology used. To address the partisan funding impasse, some in Congress propose using proceeds from recent spectrum auctions instead of raising taxes on individuals and corporations to fund the broadband infrastructure package.

Merger and acquisition (M&A) activity in the communications industry remains robust, with rural cable operators garnering tremendous interest from strategic buyers and investors. These companies tend to operate in lower penetrated markets with limited competition, making them attractive candidates. As a result, all of this activity has driven up EBITDA valuations to the upper teens in some cases. At this point, it's hard to see a path to lower multiples anytime soon given the rapid digitization of the economy, and the associated increased demand on broadband networks.

In wireless, deployments of Citizens Broadband Radio Service (CBRS) networks are starting to ramp up across the nation, including among the 75 organizations that received licenses to serve rural areas. For high-cost, underserved areas, CBRS networks are being built via private/public partnerships, typically at the city and county levels. These types of partnerships reduce the risk for private enterprises, which is important given the poor economics of building networks in high-cost areas. CBRS enables organizations to build carrier-grade fixed wireless networks that can deliver speeds in the 100Mbps range, at costs far below where they were two years ago.

1 **The American Jobs Plan provides $65 billion for rural broadband networks,** bringing total government funding to the lower end of the estimated range **to bridge the digital divide.**

2 **M&A activity** in the communications industry remains robust – which is **pushing up valuations** – and rural operators are **garnering a lot of interest.**

3 **Cities and counties** are starting to **partner with private companies to build CBRS fixed wireless networks** in underserved areas.

This quarterly update is prepared by the Knowledge Exchange Division and covers the key industries served by CoBank, including the agricultural markets and the rural infrastructure industries.

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