CoBANK
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THE QUARTERLY

Dedicated to the industries financed by CoBank

October 2020

The Fragile Recovery is About to be Tested

Rebounding from the virus has been difficult, and more challenges lie ahead

Executive Summary

The coronavirus pandemic has now impacted all four quarters of 2020, and seemingly every aspect of life and business. The U.S. economy has been improving since late spring, but progress has slowed measurably, and with broad fiscal relief now off the table at least in the near-term, the economy will likely end the year in a fizzle.

Rural America is experiencing a dichotomy of improving industry fundamentals and a surge of COVID cases. Rural communities are now the source of a disproportionate number of new cases, just as we are all beginning to spend much more time indoors.

On the flipside, many rural industries have begun to turn the corner. This is particularly true in agriculture. A weaker, steady dollar has supported a price recovery in most agricultural commodities. And despite the fact that China is unlikely to fulfill its 2020 phase one purchase obligations, sales to China have been incredibly strong in recent months.

The power sector is now in the midst of an accelerating transformation from carbon-based fuel sources to renewables. The disruption has been, and will continue to be, painful for some and beneficial for others. And the communications sector is attracting greater investment as the message of rural broadband needs has reached the masses.

A historic number of hurricanes, devastating fires – nothing about 2020 has been easy. But as always, essential rural industries are finding new ways to survive and in some cases, thrive.

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.

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Inside this issue

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SPOTLIGHT

The Candidates' Best Laid Economic Plans

By Dan Kowalski

In less than a month, the country will choose the next president and with that choice, the country's economic path for the next four years. Their overall visions sharply contrast, including on economic policy.

President Trump is largely running on the economic record of his first term, promising broader tax and regulatory relief and protectionist policies aimed at bringing back manufacturing and industrial jobs. Getting GDP back to steady 2%+ growth and quickly reducing the unemployment rate would be the first priority. A significant part of Trump's plan to boost the economy is rebuilding domestic infrastructure by investing $1 trillion-$2 trillion.

The president's stance on China would likely harden as a result of the coronavirus, and relaunched trade negotiations with the EU could ignite a trade war on another front. The president's America First approach got him elected in 2016, has solidified his base since then, and he sees no reason to deviate from it. He has few well-defined new policy proposals, but his message is straight forward and consistent.

Vice President Biden's economic plans are much more specific, making it possible for economists to project the impacts. First on Biden's agenda would be to dig out from the COVID-19 recession with a $2 trillion+ stimulus bill. He is also proposing hefty income tax hikes for those earning over $400,000 per year (less than 2% of the population) and raising corporate tax rates from 21% to 28%. These tax increases are estimated to cover roughly half of Biden's proposed spending plans.

Similar to Trump, Biden supports major spending to rebuild badly ailing transportation infrastructure. However, in contrast to Trump, some of that spending would go toward building a green, climate-friendly energy economy. Other Biden priorities include child care tax credits, $15 minimum wage, and restoring several regulations removed by Trump. Several economic outlets including Moody's, Oxford Economics, and the Penn-Wharton Budget Model predict that the Biden plan would add to economic growth.

Of course, for either candidate, successfully implementing economic policy will largely depend on Congressional support. At the time of writing, FiveThirtyEight assigns a 68% probability that the Democrats will regain control of the Senate. Either way, Trump would be challenged to pass new laws with a divided Congress. However, if both the White House and the Senate turn blue, Biden's economic plan would become the blueprint for reshaping the U.S. economy from 2021 to 2024. ■

1 **The President's America First approach got him elected in 2016**, has solidified his base since then, and **he sees no reason to deviate from the current path.**

2 **First on the agenda for Biden would be to dig out from the COVID recession** with a **$2 trillion+ stimulus bill.**

3 **The candidates' plans are profoundly different,** but both would **focus on stimulus in 2021** **to get the economy back on level footing.**

MACRO ECONOMIC OUTLOOK

The Economy Will be Sick For Quite a While Longer

By Dan Kowalski

The U.S. economic recovery is sputtering. With COVID-19 cases stubbornly high, and cooler temperatures forewarning a return to the indoors, the economic progress ahead will be slower than the gains already achieved.

The September jobs report confirmed this slow down, with smaller employment gains for the third consecutive month, and a concerning surge in permanent job losses. The steady decline in the unemployment rate has been an upside surprise, now at 7.9%. But behind the headline number are 700,000 people who left the labor force during the month, making things appear better than they are.

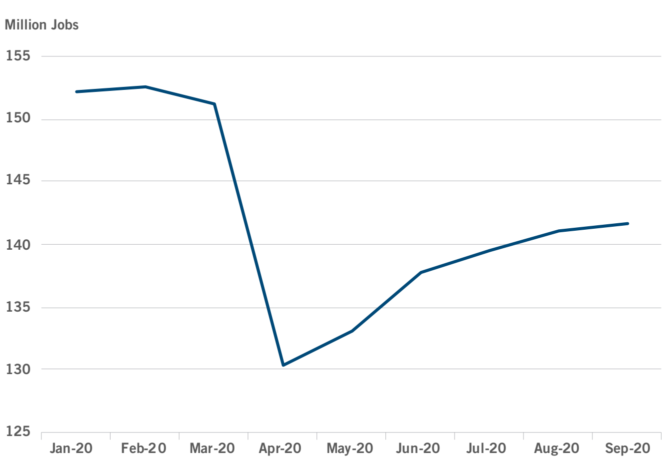
It's not all doom and gloom, though. Consumers, stuck at home, are buying a lot of goods. Spending on tangible items in August was up 5% from pre-pandemic February, while spending on services was still down 7%. Business inventories are at the lowest level since January 2018 and prices on many goods have ticked up measurably, even as flat or falling prices for other goods and services are keeping the overall inflation rate well below the Federal Reserve's key 2% level.

The Fed has reassured markets that it will be much more patient than it has been when it comes to raising interest rates. The Fed will now wait for inflation to exceed 2% for "some time," which could mean a rate increase is as far off as 2023 or 2024. At some point in 2021, pent up demand for goods will put upward pressure on prices, but it's doubtful those increases will collectively surpass an annualized 2% rate for a period long enough to cause the Fed to act.

1 The economic progress ahead **will be slower than the gains already achieved.**

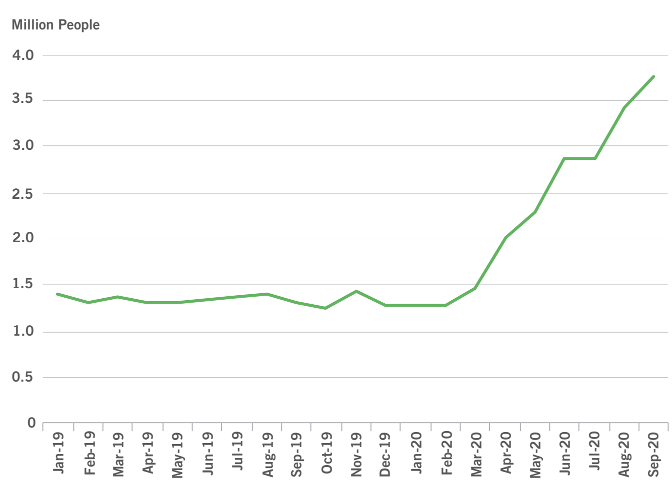
2 The **Fed will now wait for inflation to exceed 2% for "some time,"** which could mean **a rate increase is as far off as 2023 or 2024.**

EXHIBIT 1: U.S. Nonfarm Employment



Source: Bureau of Labor Statistics

EXHIBIT 2: U.S. Permanent Job Losse



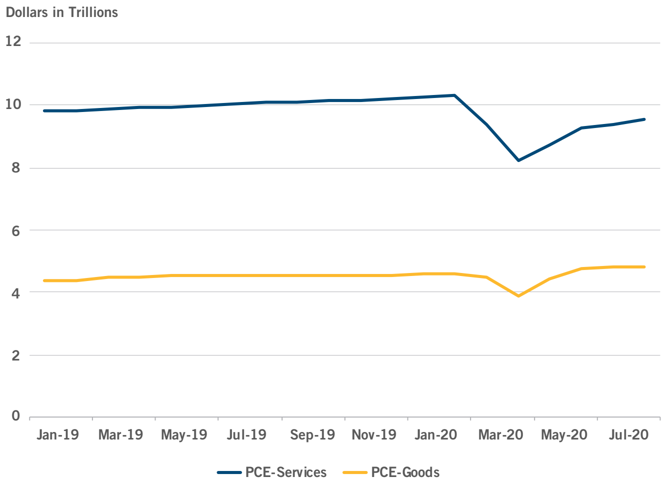
Source: Bureau of Labor Statistics

The Fed was instrumental in staving off a financial crisis early in the pandemic, and it will likely add 2 percentage points to 2020 GDP, now estimated to shrink only 4%. But fiscal policy will prove to be just as meaningful. For now, President Trump has called off negotiations for a second broad COVID relief bill until after the election. Should he win re-election, a bill could be passed before the end of the year. However, if Biden wins, it's unlikely a bill would be passed before February. A bill signed by Trump would likely total less than $1 trillion, while a bill under a Biden presidency would be closer to $2.5 trillion.

There is little concern about mounting government debt amidst the pandemic, as Americans and both parties in Washington prioritize policy that will generate growth and jobs. The impact from stimulus would be substantial in both rural and urban communities. Rural counties were largely spared the health impacts of COVID until September. Now, however, U.S. cases are the highest in rural areas on a population-weighted basis, and more than half of rural counties are in the "red zone," indicating more must be done to get the virus under control. Aside from the terrible personal impact this is causing, rural businesses and the rural economy will see increasing damage. The persistently high number of cases throughout the country will keep downside economic risk high, and horizon estimates for full economic recovery long.

3 **Rural counties were largely spared the health impacts of COVID until September. Now, U.S. cases are the highest in rural areas on a population-weighted basis.**

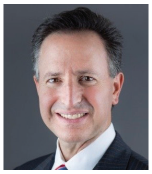
EXHIBIT 3: U.S. Personal Consumption Expenditures



Source: Bureau of Economic Analysis

GRAINS

China Exports: Will Actual Shipments Follow Recent Large Sales?



By Kenneth Scott Zuckerberg

Large sales to China, and recent reductions in ending stocks and expected production, have provided a relief rally for U.S. grain farmers. Strong export sales were a major driver of recent positive commodity price performance. Additional factors included: 1) downward estimates by WASDE of expected corn acres, and lower yields reflecting late season heat and other crop stress; 2) losses to field crops and stored grain stemming from the Aug. 10-11 derecho storm in Iowa; and 3) several bullish data points in USDA-NASS' September Grain Stocks report. Wheat prices were further bolstered by supply contraction concerns stemming from dry weather in several key growing regions (Europe and the Black Sea).

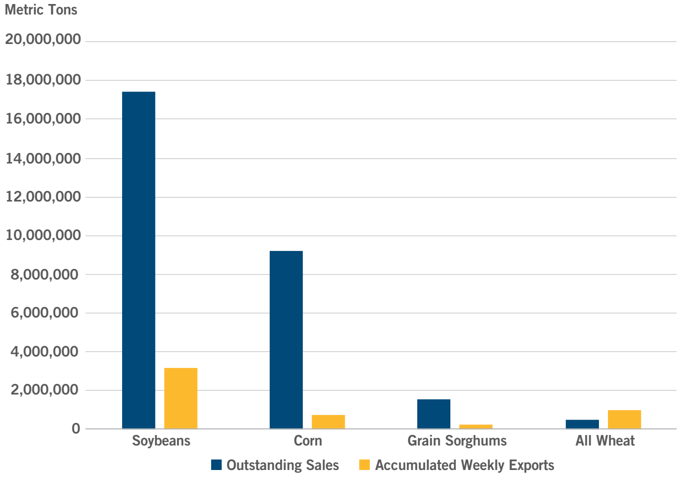
Exports. China began buying record amounts of U.S. grain over the past three months. While a steady buyer of corn throughout the summer, China made two record one-day purchases of corn: 1.8 MMT (million metric tons) on July 14 and 1.9 MMT on July 30. Corn sales outstanding (i.e., recorded grains sales awaiting shipment) now total 9.2 MMT. Given trade reports pointing to a 30 MMT corn deficit for 2020-21, China should continue buying U.S. No. 2 yellow corn.

China has continued to purchase U.S. soybeans as it attempts to rebuild its hog herd after African swine fever decimated its pig population in 2019. The country has also been an active buyer of U.S. grain sorghum (milo), a key ingredient in the Chinese liquor Baijiu. Outstanding sales total 17.4 MMT for soybeans and 1.6 MMT for milo.

1 U.S. grain export sales to China have been robust for the past three months. **The lingering question is, will China actually import the grain?**

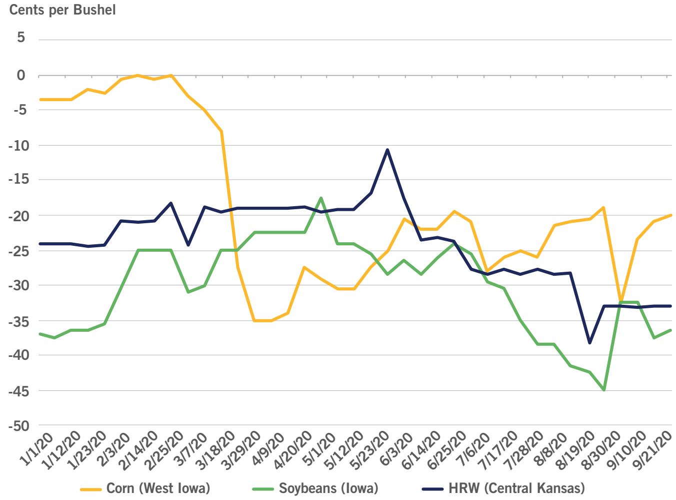
2 **Basis has been volatile and directionally mixed recently,** with **corn improving while soybeans and wheat widen.**

EXHIBIT 1: U.S. Grain Exports to China



Source: USDA-FAS, Current Marketing Report, Report for the Week Ended September 24, 2020

EXHIBIT 2: 2020 Basis for Corn, Soybeans and Wheat



Source: USDA-AMS and KSU, September 2020

Grain sales to actual grain physically exported – Accumulated Weekly Exports – shows how the latter is considerably smaller than the former for all grain exports but for wheat. The key takeaway here is caution, as China has a propensity to announce grain purchases, which accumulate in the "outstanding sales" category, but then fails to close previously announced transactions. This is a risk factor given that the recent export momentum has placed a bid under futures prices.

Quarterly Stocks. USDA's recent report – covering both on-farm and off-farm storage as of Sept. 1, 2020 – was bullish (ending stocks were lower than expected), and provided an additional late quarter lift to corn, soybean and wheat prices. Relative to average trade estimates, USDA's ending stocks figures were 11.6% lower for corn, 9.2% lower for soybeans and 3.6% lower for wheat.

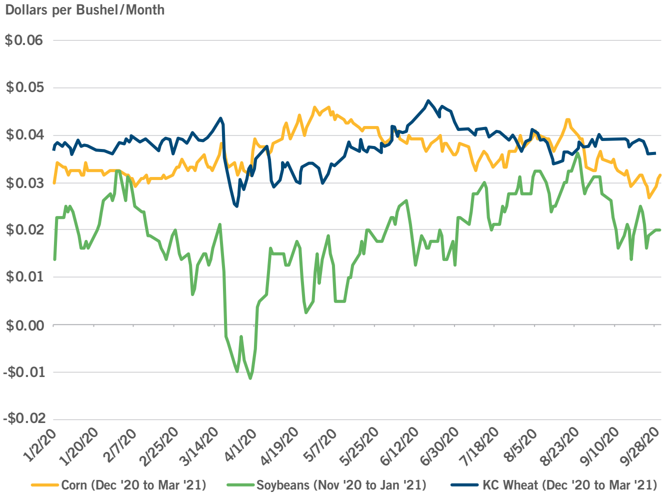
Basis and Carry. Corn basis (Western Iowa) finished the quarter flat at -$0.20 after widening on initial large crop expectations. As China began to aggressively buy corn and ethanol demand increased incrementally, corn basis then tightened sharply. Soybean (Iowa) and wheat (Central Kansas) basis also gyrated but widened to their lowest year-to-date levels. Grain elevators have an opportunity to buy basis cheap and capture between $0.02 and $0.03 of monthly carry.

Corn vs. Milo Prices. An interesting dichotomy occurred during the quarter between two commodity prices in Garden City, Kansas. Corn typically trades at a premium to milo but began reversing significantly after June. Specifically, the corn-to-milo premium went from positive $0.30 in June to negative $0.57 in September as China's purchases created a major domestic milo shortage. Extreme basis tightening followed positive price movement, with Central Kansas milo basis moving from minus $0.48 to positive $0.67 per bushel in late September.

3 **Carry was and remained positive,** with quarter-ending **spreads above $0.03 for corn and wheat and $0.02 for soybeans.**

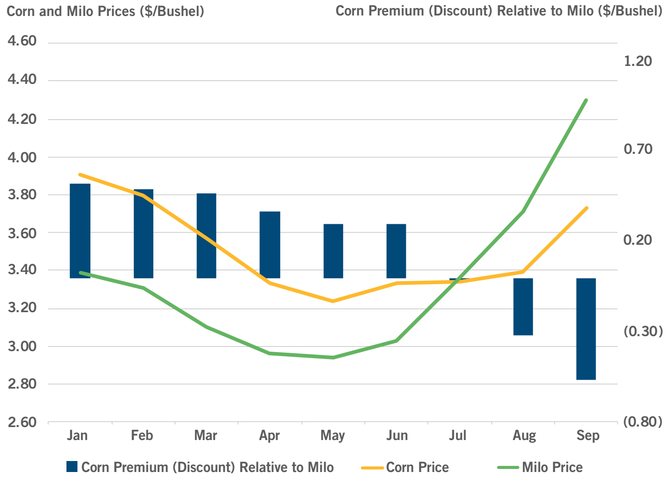
4 **Grain sorghum (milo) is priced at a large premium to corn** due to **continued and robust China export demand.**

EXHIBIT 3: 2020 Carries for Corn, Soybeans and KC Wheat



Source: Barchart.com

EXHIBIT 4: Median 2020 Corn and Milo Cash Prices
Garden City, Kansas



Source: Garden City Co-Op

FARM SUPPLY

Riding Out the Summer Storms and COVID

By Kenneth Scott Zuckerberg

Farm supply retailers navigated through a unique and volatile, yet in the end, successful 2020 growing season. The current planting season will end with a strong harvest despite crop damage and stress caused by extreme storm activity and dry weather. This has been an especially active hurricane season with nine named storms making landfall, the most in a century. The real damage, however, came from the derecho that cut through Iowa on Aug. 10-11. Based on early reports, that storm ruined at least 550,000 acres of corn and an unspecified number of soybean acres, and caused over $300 million in property damage to grain elevators across the state.

Notwithstanding the crop losses, USDA's Sept. 11, 2020 report estimates that harvested acres will still rise for corn by 3% and soybeans by 11% but drop for wheat by 1%. Production in bushels and year/year growth are estimated to be 14.9 billion (+9%) for corn, 4.3 billion (+21%) for soybeans and 1.8 billion (-4%) for wheat – implying yields (per bushel/harvested acre) of 178.5, 51.9, and 50.1, for corn, soybeans and wheat, respectively.

Third quarter agronomic activities are typically limited to top dress fertilizer, herbicide, insecticide and fungicide applications, and this year was no exception. After harvest concludes in late October/early November, farmers will apply fall fertilizers and plant winter cover crops to promote soil health.

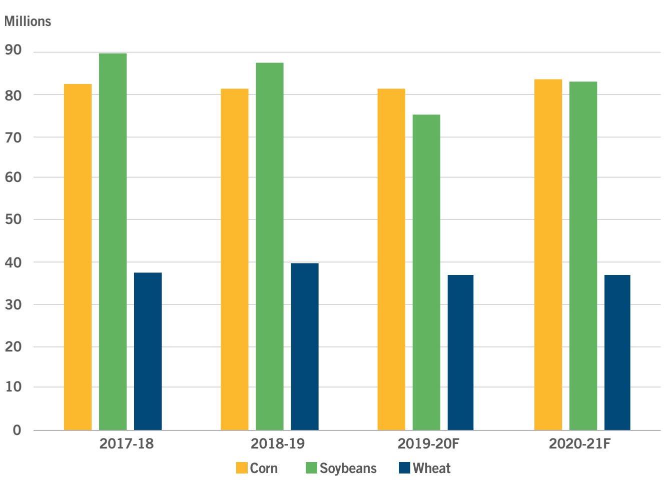
Direct government payments to agricultural producers throughout 2020 has provided many crop farmers with additional cash and liquidity. CoBank believes that this could result in higher prepayments to farm supply cooperatives during the fourth quarter in advance of the spring 2021 planting season. ■

1 Harvest has begun and **despite lower than initially expected acres and production, yields of corn, soybean and wheat will still be very good.**

2 **Though fertilizer prices rose along with grain prices during Q3, fall application demand should be very strong** after the **large current year's crop.**

3 While **difficult to predict** with certainty, **unprecedented government support to farmers this year** could mean **they make higher prepayments to co-ops in Q4.**

EXHIBIT 1: U.S. Acres Harvested



Source: USDA-WASDE Report September 11, 2020

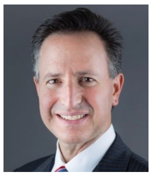
EXHIBIT 2: Green Markets North America Fertilizer Price Index

The index has a starting date of January 7, 2002 and an associated starting value of 100.

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

BIOFUELS

Ethanol Recovers to a 'New Normal'



By Kenneth Scott Zuckerberg

The U.S. ethanol sector continued to recover during the quarter to a new baseline level equating to 85%-90% of pre-COVID demand. Based on EIA data on an annualized basis, weekly production averaged 14.2 billion gallons for the third quarter, 89% of the first quarter's average production of 15.9 billion gallons. For a representative Iowa dry milling fuel ethanol plant, industry operating margins (defined as return on operating costs but before capital costs) also improved, averaging $0.21 per gallon, up from break-even during the first quarter. The improvement occurred as supply and demand became more balanced, and active producers benefited from better productivity.

New developments support the industry as we head into the November elections. First, the Trump administration is removing E15 federal roadblocks. The recently-introduced Next Generation Fuels Act would enable the sale of E15 fuel using E10 pumps, subject to state regulations. Second, EPA has promised to deny numerous oil refineries' ethanol blending exemption requests. Third, Brazil has agreed to duty-free imports of U.S. ethanol for 90 days. Fourth, there is potential for financial relief to the biofuel sector in the next government spending program. Fifth, perhaps most importantly, supply and demand remain in relative balance at current production levels.

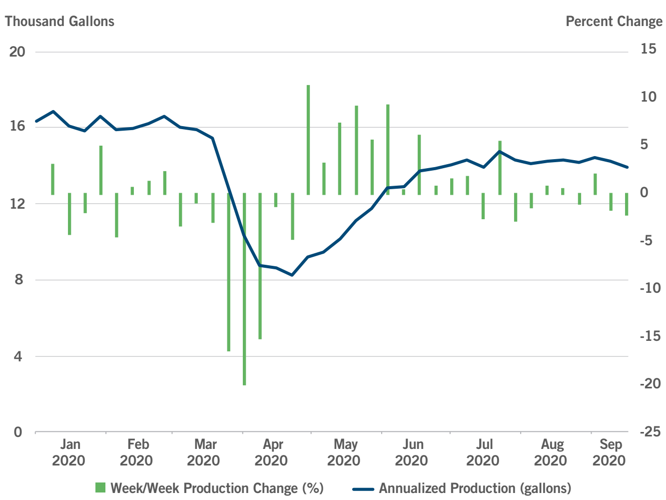
We maintain a stable industry outlook over the next two quarters for U.S. ethanol, assuming that the economy does not experience a double dip. Our outlook assumes continued high unemployment levels and below average consumer miles driven. Our opinion could become more bullish should new coronavirus cases drastically decline and/or an effective COVID-19 vaccine is rapidly produced and widely administered.

1 Ethanol production **has recovered to a new normal level of roughly 90%** of pre-COVID production, in line with our expectations.

2 Operating margins per gallon have continued to improve sequentially, **from zero in Q1 to $0.13 in Q2 to $0.21 in Q3.**

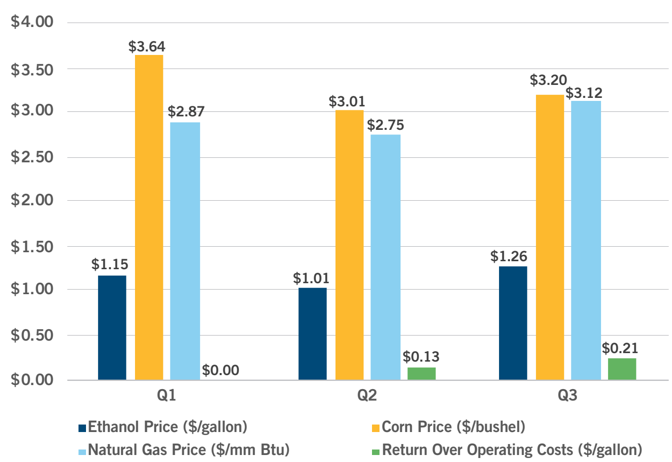
3 **Recent developments concerning E15,** small refinery exemptions, federal relief and another delay on Brazilian import duties **appear to be incremental positives for the ethanol complex.**

EXHIBIT 1: Weekly Fuel Ethanol Production During 2020
Data through September 18, 2020



Source: EIA

EXHIBIT 2: Average Quarterly Prices and Returns in 2020



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

CHICKEN

Summer's Modest Supply Contraction Helped Keep Prices Afloat

By Will Sawyer

After a very challenging and volatile second quarter, the third quarter of 2020 brought improved pricing and margins for the U.S. chicken industry. We expect that average industry margins were slightly positive in the third quarter, largely driven by a reduction in chicken slaughter of nearly 3%. While the fourth quarter is seasonally the weakest quarter for industry profitability, we expect demand from U.S. foodservice and U.S. chicken exports will drive pricing and margins.

Foodservice continues to be a difficult channel for U.S. animal protein, but the chicken sector is faring better than most, thanks to quick serve restaurants and take-out dining. Some fast food operators are experiencing sales growth over last year relative to many fine dining establishments that are still struggling with weak foot traffic and restaurant closures. With cooler temperatures coming in the fourth quarter and the risk of another wave of COVID-19 cases in the U.S., chicken demand from foodservice should be more insulated to these risks. However, weaker demand for U.S. beef would undoubtedly impact chicken prices as well.

As it has been for much of 2020, the weak spot in the U.S. chicken complex is dark meat chicken prices. Chicken leg quarters, which are heavily exported, have declined steadily since the beginning of February from $0.42/lb. to just $0.22/lb in late September. We attribute this price weakness to challenges in Mexico and many other export markets that are highly dependent on high energy prices. Now that oil prices have rebounded from the spring lows and Mexico's economy has bottomed, we expect an improvement in U.S. chicken exports and values in the coming months.

1 U.S. chicken production **declined by 3%** during Q3.

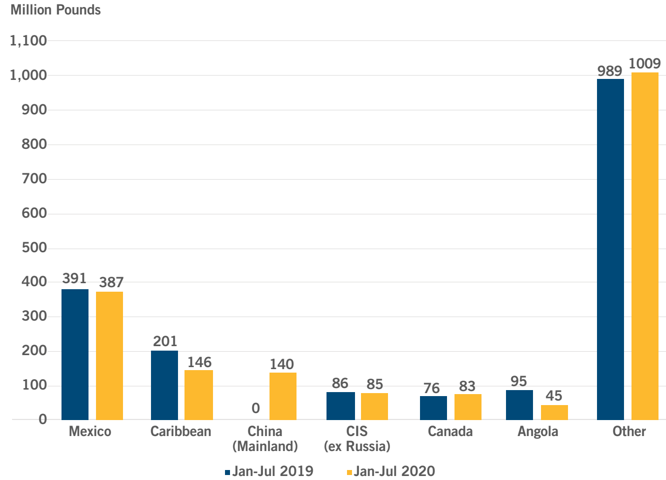
2 Most producers **were modestly profitable** over the summer.

3 The outlook for Q4 **depends on continued foodservice demand** and **improved export prices.**

EXHIBIT 1: Leg Quarter Prices

Source: USDA AMS

EXHIBIT 2: U.S. Chicken Exports YTD



Source: USDA-ERS

BEEF

U.S. Beef Demand Holds Strong Lifting Producer Margins

By Will Sawyer

The U.S. beef complex ended the third quarter in a far better position than where it started. Over the last three months, boxed beef cutout has climbed 5%. This helped lift cattle prices by 10% since the low around Independence Day. Profitability for cattle feeders has improved to break-even levels on a cash basis and packer margins have remained elevated. With continued limited beef packing capacity, a large backlog of cattle, and surprisingly strong beef demand, packers continue to have a strong position in the cattle supply chain. This will likely continue through 2020.

Strong beef prices have been a surprise in light of foodservice's challenges and the weak U.S. and global macro-economic environment. For most of the third quarter, the cutout has held above the seasonal five-year average and ended the quarter above this time last year. The U.S. consumer's beef budget is going further with more meals now eaten at home. Still, with cooler weather approaching and many cities and states limiting indoor dining, we are concerned about beef demand and prices in the fourth quarter.

The second variable driving the profitability outlook is packing capacity and the risk from a disruption at plants. Excluding holiday weeks, fed cattle slaughter each week during the third quarter was between 510,000 and 525,000 head with little volatility and at levels in sync with last year. The Kansas beef plant fire last year and COVID-19 meat plant shutdowns this spring made clear that beef plant capacity has minimal cushion. Beef plants and their essential workers are critical to ensuring a strong end to a very challenging and volatile year.

1 **Beef and cattle prices climbed in Q3** on **strong domestic demand.**

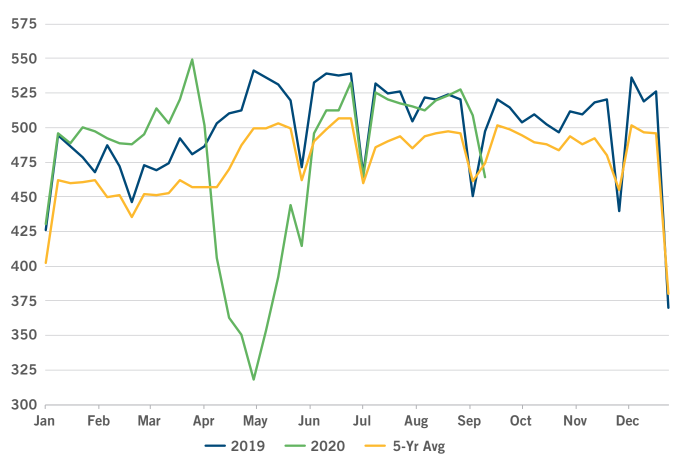
2 **Cattle prices are up,** and **feeders look forward to a strong end to a challenging year.**

3 **Foodservice demand will be tested this fall**, and **beef prices along with it.**

EXHIBIT 1: Cash Kansas Steer Prices

Source: USDA ERS

EXHIBIT 2: Steer and Heifer Slaughter



Source: USDA-NASS

PORK

Renewed Trade Optimism Boosts Outlook for Producer Profitability

By Will Sawyer

The U.S. hog and pork sector made up for lost time in the third quarter after COVID-19 drove plants to shut down and slowdown in April and May. Plants processed 4% more hogs in the quarter, helping to alleviate more than half a million hogs backed up this spring. Hog producer margins improved from the very weak levels at mid-year, but this only recently brought average industry margins in to positive territory. Processor margins have held, albeit at levels far less than what some processors enjoyed during the second quarter.

Renewed optimism for trade is the bright spot for the U.S. pork sector after pork exports slowed significantly over the summer. In September, Germany discovered African Swine Fever (ASF) in wild boars, leading many key pork importing markets – including China, Japan and Korea – to ban pork exports from Germany. Lean hog futures have spiked on this news. Hog producers are expected to lose "just" $7/head in the coming quarter and see positive margins of $15 to $20 per head in the first half of 2021.

One area of continued risk in the fourth quarter is the availability of shackle space in pork plants, and not only because this time of year is the seasonal peak in hog supplies. The remaining backlog of hogs (especially in the Carolinas) are keeping housing levels at the brim and pork plants continue to feel the stress of high employee absenteeism due to COVID-19 fears and illnesses. Finally, a resurgence of COVID-19 in some rural communities in the U.S. could limit the pork plants' ability to increase harvesting at the time of year when the industry needs it most.

1 **ASF has been found in Germany**, leading to **bans from China, Japan and Korea.**

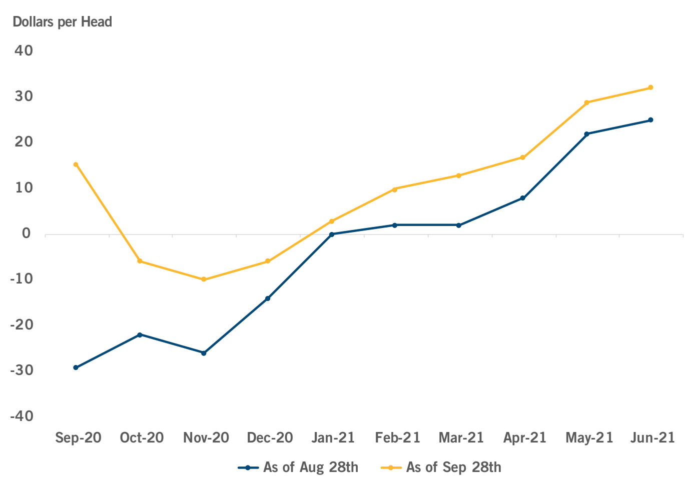
2 **Hog futures** now indicate **positive margins for producers in 2021.**

3 **Pork plant capacity must stay intact** for the **coming fall hog run**.

EXHIBIT 1: U.S. Hog Slaughter per Week

Source: USDA-AMS

EXHIBIT 2: Outlook for U.S. Hog Producer Margins



Source: USDA-AMS, CoBank estimates

DAIRY

Cheese, Butter Stocks Rise Heading into Holiday Season

By Tanner Ehmke

Dairy markets continued to be mired in volatility last quarter with milk and cheese prices ending Q3 on a strong note. But concern about dairy product consumption in the upcoming holiday season is building.

The recovery in milk prices has already incentivized more milk production on the farm. August data shows a 1.8% increase YoY, driven by higher cow numbers and a continual increase in productivity.

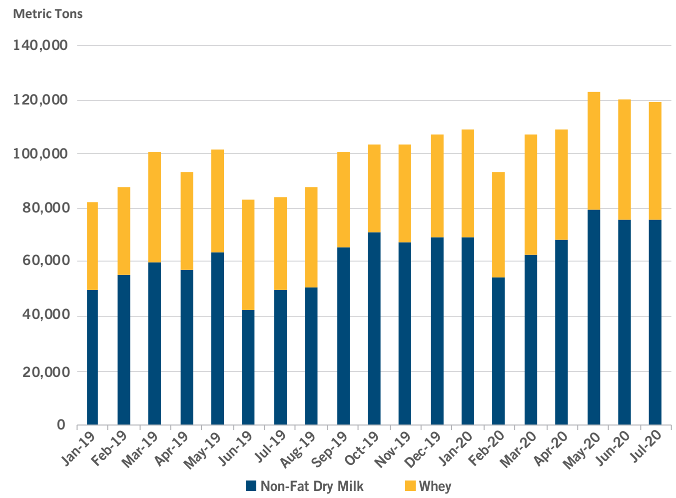
Federal programs also helped provide financial cushion for some struggling dairy producers last quarter. Dairy Margin Coverage paid out $196 million in Q3, and payments through the Dairy Revenue Protection program for Q3 are expected to fall below the $240 million paid in Q2. Dairy purchases through USDA's Farmers to Families Food Box program are expected to total $1 billion by the end of the year, while the Coronavirus Food Assistance Program (CFAP) has paid out roughly $1.7 billion to dairy farmers through September. CFAP2 is expected to pay out up to $2 billion through Dec. 11.

The federal aid through cheese purchases has brought welcomed support to cheese prices and milk prices. In addition, consumers are eating more cheese at home and

1 **Cheese and butter inventories grew last quarter** as **food service demand remained weak.**

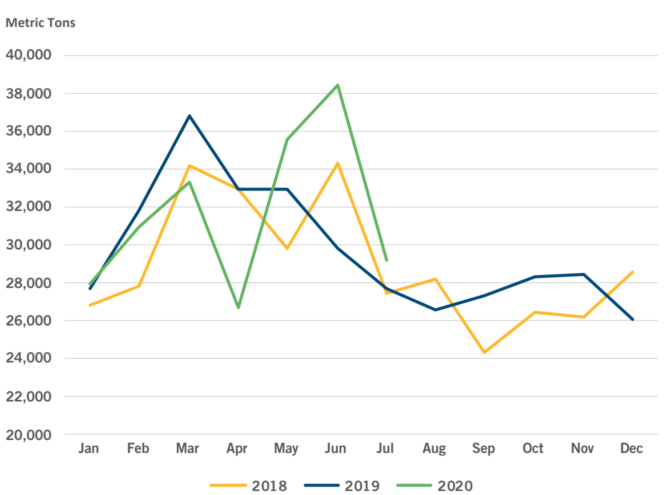
2 **Milk production reached new highs** despite regional **price controls imposed in May and June.**

EXHIBIT 2: Dry Powder Exports



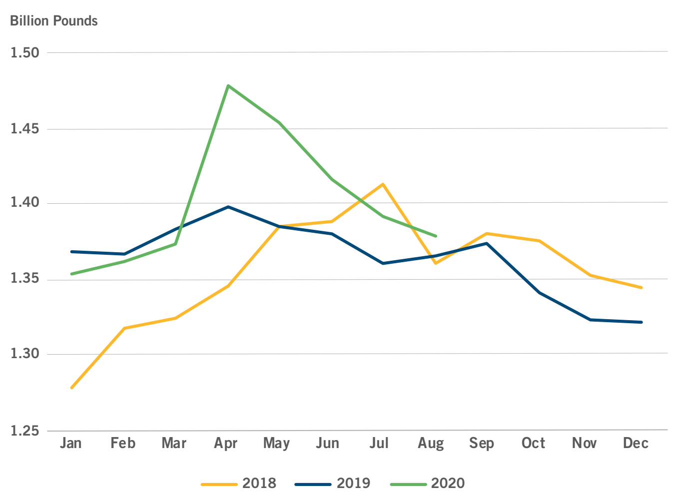
Source: USDA-FAS

EXHIBIT 1: Cheese Exports



Source: USDA-FAS

EXHIBIT 3: Cheese Stocks



Source: USDA-NASS

demand for pizza is particularly strong. The partial recovery in food service demand last quarter has also been a boon for cheese consumption. A new cheese plant scheduled to open in Michigan in Q4 will produce 800,000 pounds of block and barrel cheddar/day and take 8 million pounds of milk by next spring. This will likely add to the total nationwide cheese inventory and weigh on Class III prices, particularly barrel prices.

While at-home fluid milk consumption surged during the early stages of the coronavirus, fluid milk demand will continue to struggle from school closings this fall – 60% of K-12 students started classes virtually. Nearly 8% of all fluid milk goes to schools, and consumers are not replacing that demand at the grocery store.

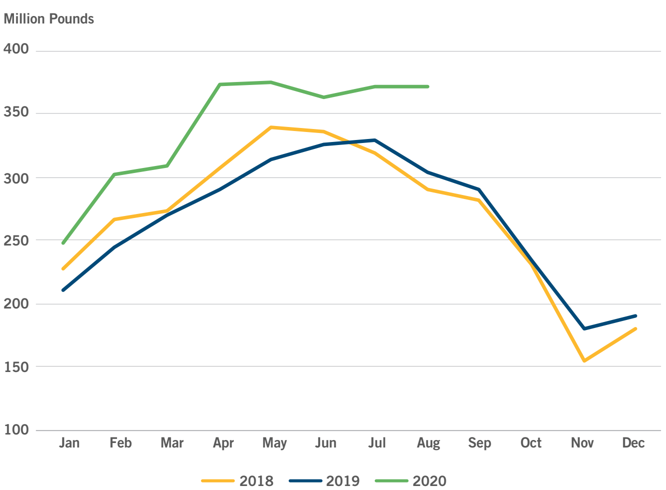
Ample butter inventories held prices back from participating in the recent price recoveries in milk and cheese in Q3. Butter and cream face an uphill battle in Q4 with the uncertainty over consumer demand during the important holiday season when butter and cream demand peaks. A resurgence of COVID-19 this fall and will likely cause consumers to avoid holiday gatherings, denting demand at a time of surplus butter and cream inventories.

On the export front, U.S. dairy export volumes have neared record levels. Skim milk powder (SMP) exports have jumped with nearly all of the increase moving through the Pacific Northwest to Southeast Asia. Whey exports have followed suit with increasing shipments to China. Demand for whey as a feed additive is rising as China continues rebuilding its hog herd. The lift in powder exports isn't a story just for Q3 as exports were significantly higher in 4Q 2019. The long term trend of higher powder exports is widely expected to continue into 2021.Cheese exports have trended higher despite increase in Class III prices. Exports continue to support milk prices into the coming quarter.

3 **The holiday season will help relieve the industry of some excess cheese and butter supplies,** but the **resurgence of COVID-19 raises the uncertainty of how much social distancing will affect holiday dairy consumption.**

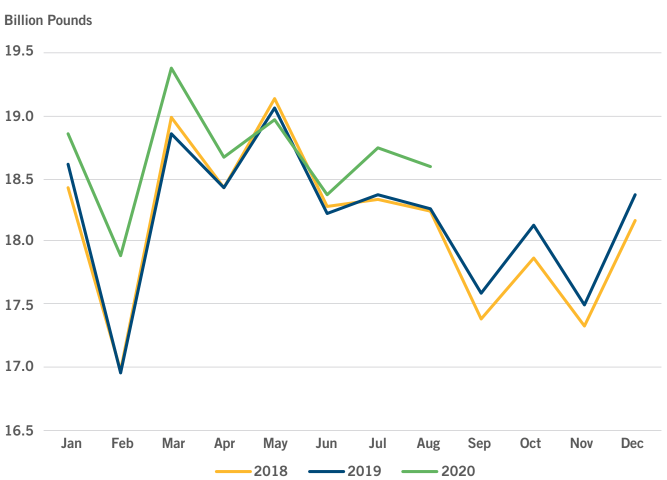
4 **A new cheese plant in Michigan is scheduled to open in Q4 and take 8 million lbs./day of milk.** The additional capacity **will take more milk off the market but add to cheese supplies.**

EXHIBIT 4: Butter Stocks



Source: USDA-NASS

EXHIBIT 5: U.S. Milk Production



Source: USDA-NASS

COTTON, RICE AND SUGAR

Cotton, Rice Prices Rise Despite Weak Exports

By Tanner Ehmke

Cotton

China held the position as the standout buyer of U.S. cotton last quarter and entered the new marketing year starting Sept. 1 as the top destination for U.S. upland cotton. Shipments of upland cotton to China in the opening weeks of the crop year were running a whopping 667% higher YoY while outstanding sales to China were 34% higher YoY as the Chinese government replenishes state reserves.

Despite strong Chinese purchases, total cotton demand remains weak. Total U.S. upland cotton export sales for the 2020-21 marketing year still lag last year's pace by 17%. Global retail demand for clothing and apparel has yet to recover from the economic shock of the COVID-19 pandemic with the global textile industry operating on a limited schedule. U.S. cotton prices have rallied in recent weeks on the support in equity and energy markets.

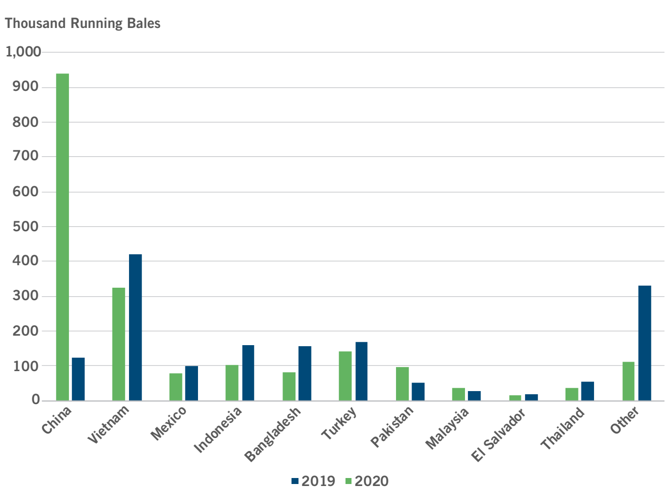
Policy risk with China may impact exports in the quarter ahead. The U.S. announced sanctions on cotton, yarn, and apparel exports from Xinjiang province in response to human rights violations of Uighurs. As 85% of China's domestic cotton production is in Xinjiang, China may be forced to use Xinjiang cotton for domestic consumption and reduce its reliance on imports. Cotton in strategic reserves may also buffer domestic demand should the Chinese government reduce purchases of U.S. cotton.

The U.S. cotton crop incurred minor damage from hurricanes Laura and Sally. Crop losses were concentrated in Georgia, Alabama, and Louisiana, which total 22% of U.S.

1 Despite strong Chinese purchases, **total cotton demand remains weak** as **retail demand for clothing and apparel has yet to recover.**

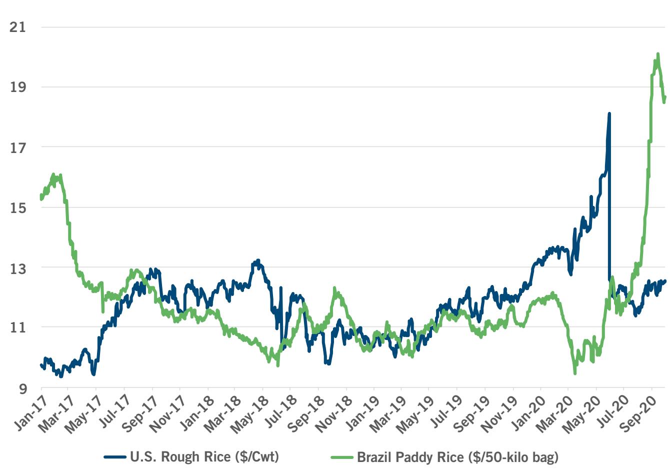
2 **Rising rice global prices, notably in Brazil,** hint at a **potential improvement in export demand for U.S. rice in Q4.**

EXHIBIT 1: Upland Cotton Accumulated Exports
As of Sept. 17, 2020 vs Corresponding Week in 2019



Source: USDA-FAS, Export Sales Sept. 24, 2020

EXHIBIT 2: U.S. vs. Brazilian Rice Prices



Source: CME Group; Cepea

cotton production. Cotton harvest is slowly progressing. USDA's latest projection puts the cotton crop at 17.1 million bales, down 14% YoY, due mostly to reduced acreage nationally.

Rice

After whipsawing from contract highs to contract lows, U.S. rough rice futures ended Q3 near contract highs in the pan-commodity rally with support from a weaker U.S. dollar. Rice export sales are starting Q4 on a weak note with current bookings of U.S. all rice running 22% behind last year's pace since the new marketing year started on Sept. 1. Domestic demand has also moderated from the exhaustive pace seen earlier this year as consumers are no longer stockpiling rice. U.S. rice processors note that restaurant demand in particular remains under pressure.

However, rising global prices, notably in Brazil, hint at a potential improvement in export demand for U.S. rice in Q4. Floods in Nigeria, Bangladesh, and China, and drought in Paraguay, are expected to cut further into global production and add more support to world rice prices.

U.S. rice harvest is nearing completion and long-grain rice crop losses to hurricanes Laura and Sandy are deemed minimal. Medium- and short-grain rice yields in California are reported as average. USDA anticipates the total U.S. rice crop to rise 22% YoY to 225.0 million cwt, with ample supplies expected to meet any rise in export demand.

Sugar

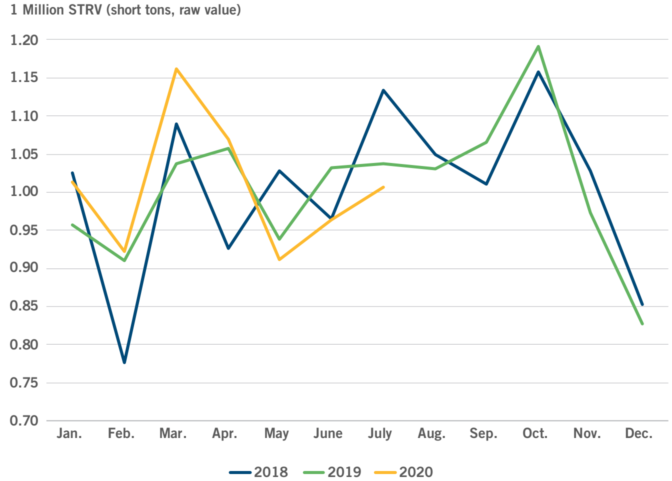
The U.S. sugar beet harvest was 17% complete at the end of Q3, with growers reporting improved yields over last year's complicated harvest. USDA projects the total U.S. sugar beet crop at 5.2 million STRV (short tons raw value), up 22% from last year. The harvest of the cane sugar crop is also reported to be strong, with production up 10% YoY at 4.1 million STRV.

USDA increased the 2019-20 raw sugar tariff-rate quota (TRQ) by 100,000 STRV in early September and extended the period that the TRQ raw sugar can enter the U.S. through Oct. 31. Deliveries to end users, meanwhile, have stabilized from the volatility seen earlier in the year with consumers stockpiling sugar and food service demand falling.

Investment in plant assets made by both beet and cane processors over the past several years should bode well for the processing campaign this year. Barring unforeseen weather events during harvest, there should be sufficient supplies to meet end-user demand. Cooperatives anticipate improved grower returns this year due to better yields, plant efficiencies, and fairly stable sugar prices.

3 Sugar cooperatives **anticipate improved grower returns** this year due to better yields, plant efficiencies, and **fairly stable sugar prices.**

EXHIBIT 3: Total Sugar for Domestic Consumption



Source: USDA-ERS, Sugar and Sweeteners Yearbook Tables

SPECIALTY CROPS

COVID-19, Wildfires Take a Toll on Specialty Crops Sector

By Tanner Ehmke

The reopening of restaurants in the last quarter was welcomed news for specialty crops producers and processors with food service contracts. Additional support came from USDA-AMS, which has purchased nearly $1 billion in surplus fresh fruits and vegetables for the Farmers to Families Food Box program since the program was launched in May. Round three of the program is scheduled to end Oct. 31. Specialty crops producers also benefited from payments through USDA's Coronavirus Food Assistance Program 1 (CFAP 1) included in the Coronavirus Aid, Relief, and Economic Securities (CARES) Act with payments to specialty crops to date totaling $732 million.

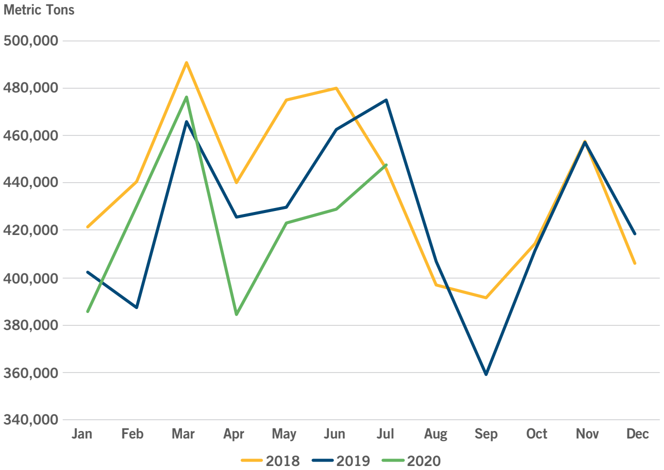
The expected rise in COVID-19 cases this fall and winter would further strain the restaurant sector and close more schools, causing greater uncertainty for specialty crops growers and processors with food service contracts in the year ahead. Imports of both fresh and processed fruits and vegetables have also dropped below prior year levels with the loss of food service demand in the U.S. The National Restaurant Association's latest survey of the restaurant industry indicates that 40% of operators expect their restaurant to close in the next six months in the absence of more government financial aid.

Produce sales at retail grocery stores, however, remain solidly above year-ago levels. With a resurgence of COVID-19 anticipated and more restaurant closures expected, retail grocery sales of produce are widely expected to maintain at higher levels than prior years for the foreseeable future.

1 With the **loss of food service demand** in the U.S., **imports of both fresh and processed fruits and vegetables have also dropped below prior year levels.**

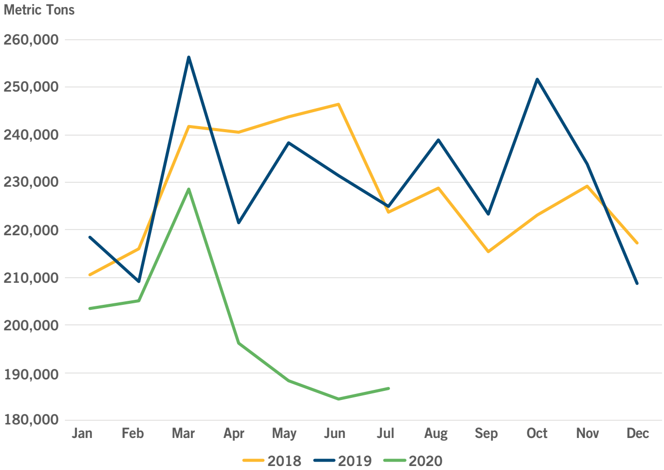
2 **Produce sales at retail grocery stores,** however, **remain solidly above year-ago levels.**

EXHIBIT 1: Fresh Fruit and Vegetable Imports



Source: USDA-FAS

EXHIBIT 2: Processed Fruit and Vegetable Imports



Source: USDA-FAS

H-2A visas for seasonal farm workers were also down last quarter compared to years prior as specialty crops growers harvested fewer acres due to lost food service contracts. Despite high unemployment, agriculture labor availability has remained tight. Social distancing among farm workers in fields has created greater inefficiencies in harvest and planting operations, with higher housing and transportation costs adding to growers' operation expenses. With higher labor costs, robotics and automation are being more financially feasible for specialty crops growers.

3

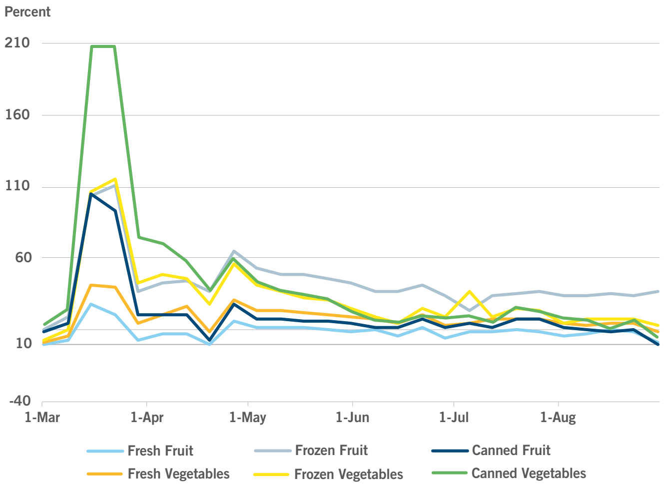
H-2A visas for seasonal farm workers were **also down** as specialty crops growers **harvested fewer acres** due to **lost food service contracts.**

Wild Fires

Wildfire smoke in California, Washington, and Oregon has impacted harvest operations and crop quality, with wine grapes being of particular concern in Napa and Sonoma counties in California. Wine grapes in affected areas may not be harvestable due to smoke impacting wine flavor. Oregon, Washington, and California combined produce 90% of all U.S. wine. Total losses to smoke taint are currently unknown because damage between fields can be highly variable, but harvested supplies are widely expected to be smaller.

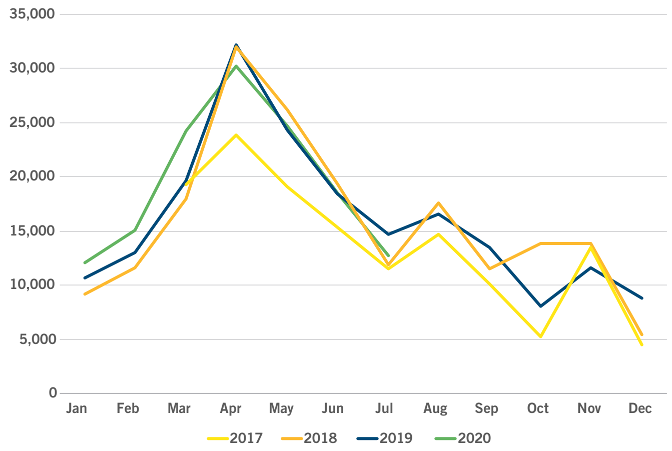
The wild fires are creating numerous other difficulties for growers, with ash coating fruits and vegetables in fields and smoke compromising the safety of field workers who lack access to N95 masks and thus slowing field operations. Dense clouds of smoke and soot in the atmosphere have also cooled temperatures in fields and obscured sunlight, impairing crop development. Total crop losses resulting from smoke and fire will likely not be known for months, but are an additional financial stressor for operations struggling with the loss of food service demand.

EXHIBIT 3: Dollar Sales Growth vs. Comparable Week in 2019



Source: Produce Marketing Association. IRI

EXHIBIT 4: H-2A Visa Issuances to Mexico



Source: U.S. Department of State, Bureau of Consular Affairs, Nonimmigrant Visa Statistics

POWER, ENERGY AND WATER

Clean Energy, Water Scarcity Solutions Becoming Reality

By Teri Viswanath

Addition by Subtraction: Recent Trends Reinforce Longer-term Shift to Clean Energy

The electricity sector's transition from coal to clean energy is happening more quickly than expected, according to September data. The pandemic has reduced loads and intensified fuel competition, with coal-to-gas switching idling a significant amount of coal capacity this year. Producers have been quick to respond; Vistra's recently announced early retirement of its entire Midwest coal fleet (6.8 GWs of capacity) is one of the largest in U.S. history. At the same time, states, cities and businesses are expanding their support for renewable energy.

Energy Information Administration's (EIA) latest tally of planned coal retirements increased by 57% or 27.6 GWs, rising from 48.5 GWs just a year ago to 76.2 GWs now. More importantly, most of this capacity will retire over the next five years, with companies now accelerating decommissioning schedules.

Yet despite the significant contraction in electricity demand and the related ramp down in thermal units, renewable energy investment has accelerated – with the number of additions outpacing retirements by nearly 2-to-1. EIA's updated numbers for planned renewable generation additions has soared by 72% or 46.7 GWs, rising from 67.8 GWs last year to 114.5 GWs now. This rush to develop new sources of clean energy is partially driven by policy. 2019 proved to be a watershed year for clean energy commitments, with the number of states setting clean electricity targets more than doubling.

Investor pressure as well as the pandemic appear to be quickly reshaping the U.S. power plant dispatch, with a new reinforced acknowledgement of the "changing of the guard" paving the way toward a faster shift away from fossil fuels and towards renewables and other forms of low-carbon energy.

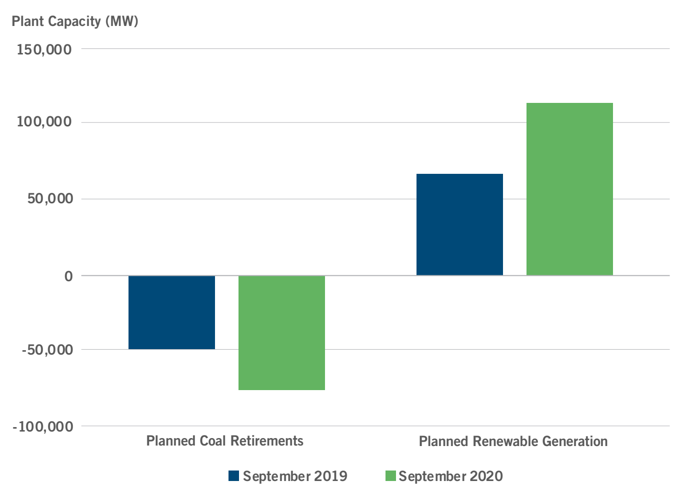
1 **Cheap natural gas** and **increasingly competitive wind and solar resources are forcing coal plant retirements to accelerate.**

2 **2020 will likely prove a watershed year,** with a **newly reinforced acknowledgement** of the **"changing of the guard" paving the way for faster energy transition.**

Taking Affirmative Steps in Measuring (and Hedging) Water Scarcity

Last year, a government-backed study issued a sober warning that America is running out of water. According to that analysis, as many as 96 out of 204 total U S. freshwater basins are in trouble, with water shortages extending well beyond the drought-prone west and possibly materializing as soon as 2021. Yet, the report also contained a hopeful assessment, reflecting on a history of adaptive ingenuity in the country – both on the supply as well as the demand-side of water management.

EXHIBIT 1: Planned Coal Retirements vs. Planned Renewable Additions



Source: EIA

Imposing a price on water scarcity requires visibility into how balanced the market is, and that visibility has been limited. Water risk models are largely based on estimates of average water supply and demand, and lack the sort of transparency needed for a market-based approach to resource management.

Now it appears that this might change. California, the country's largest consumer of U.S. freshwater withdrawals, rolled out groundwater regulations this year that appear to be prompting market response. The state's largest consumers – like almond farms and municipalities – can now look to a new benchmark that signals just how acute the water scarcity is and will soon be able to hedge their financial exposure to it.

Exchange operators CME Group Inc. and Nasdaq Inc. are planning to launch a futures contract later this year that will reflect transactions in the market for water in California. Water futures contracts will be a financially settled contract, priced in dollars per acre-foot (which is the volume required to cover an acre a foot deep or about 325,851 gallons). The contracts will be based on the Nasdaq Veles California Water Index. This index, which Nasdaq launched in 2018, tracks the price of water rights transactions (leases and sales) across the five largest and most actively traded regions in the state of California, including surface water and four adjudicated groundwater basins. The exchange hopes it will ultimately become a benchmark for the acuteness of water scarcity in California and a practical solution for managing resource risk.

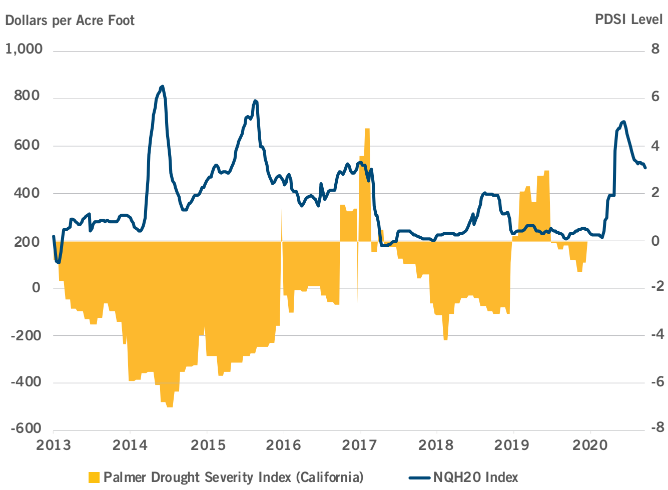
Sources used

Earth's Future, Volume 7 Issue 3, "Adaptation to Future Water Shortages in the United States Caused by Population Growth and Climate Change," Thomas C. Brown Vinod Mahat Jorge A. Ramirez, 28 February 2019.

3 **New groundwater regulations and rising supply concerns in California** have **prompted market response.**

4 **A new benchmark** signals **just how acute water scarcity is,** and **California's largest consumers** will soon **be able to hedge their financial exposure to it.**

EXHIBIT 1: Nasdaq Veles Water Index Benchmark Comparison



Source: Nasdaq

COMMUNICATIONS

Rural Telecom is Attracting Record Attention

By Jeff Johnston

Satellite Broadband Passes Key Milestone

Amazon (Kuiper) recently secured FCC approval to deploy 3,236 Low Earth Orbiting (LEO) satellites. Amazon has pledged to invest $10 billion in the satellite network with plans to offer broadband services to underserved and unserved areas with fiber-like speeds. Theoretically, LEO satellite networks would be a silver bullet solution to bridge the digital divide as they will provide ubiquitous coverage across the county. However, as with most new technologies, the devil is in the details and it remains to be seen if the company will be able to profitably build and manage the network. In addition to Amazon, SpaceX – an Elon Musk backed company – is also building a LEO satellite network.

Wireless Tower Industry Standing Tall

The wireless industry is about to experience an influx of new operators, thanks to the recent CBRS spectrum auction and the Sprint/T-Mobile merger, which will be tailwinds for the industry. The shared nature of the CBRS band, and the small spectrum licenses that were sold, will enable a wide range of unconventional companies to build wireless networks. And as these new market entrants build networks, they will need to lease space from tower operators. The CBRS spectrum will also be deployed – on a large scale – by the likes of Verizon, Comcast, Charter Communications, and Dish Network. The lion's share of these deployments are revenue opportunities for tower companies. Lastly, now that T-Mobile owns Sprint, the company is expected to aggressively build its network coverage and capacity, another positive trend for tower companies.

Broadband Valuations and M&A Activity Remains Hot

The broadband operator market remains an attractive one for institutional investors with no signs of weakness anytime soon. In fact, investor interest could increase given the unexpected and abrupt shift to remote working and learning. This shift has also highlighted the vulnerability for those who lack broadband access and as a result, Democratic lawmakers have proposed an $80 billion program to connect the unconnected. Should lawmakers appropriate new funds for broadband networks, it would likely increase investor interest given the predictable nature of future cash flows and reduced network costs.

1 **Amazon secured FCC approval** to **deploy 3,236 LEO satellites it plans to use to offer broadband services in rural America.**

2 **The wireless tower industry** is **enjoying multiple tailwinds** that **should last for the next several years.**

3 **Valuations for broadband operators remains high** and **will likely stay that way for the foreseeable future.**

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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