CoBank Knowledge Exchange

THE QUARTERLY

Dedicated to the industries financed by CoBank

July 2020

Rural Industries Adapt to Coronavirus Reality

As pandemic persists, recovery conditions vary widely across sectors

Executive Summary

Over the past four months, every rural industry has grappled with how to adjust its business to remain relevant and sustainable in the face of the coronavirus pandemic. Agricultural supply chains have experienced massive disruption and revenue loss. Water and power suppliers have adapted to shifts in demand as commercial and industrial customers went dark and demand shifted to residential customers. Bill payment will be an ongoing concern for both sectors. And the communications industry is seizing a moment when home broadband access has become vividly essential, to help expand access to everyone, everywhere.

We know that more challenges lie ahead before we are free of the pandemic, and life can return to some new sense of normalcy. But what will that new sense of normalcy look like? We've significantly changed what and where we eat, and it becomes increasingly unlikely with each passing month that habits formed will completely fall away when the virus becomes dormant. As electricity demand dropped, coal power generating assets were the first to go offline. And setbacks on pipeline plans reveal a less certain future for natural gas. What changes lie ahead for the energy industry?

2020 will go down as a year when many American businesses were shaken. But we believe rural industries, bruised as they may be, will bounce back more resilient, wiser, and more efficient.

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

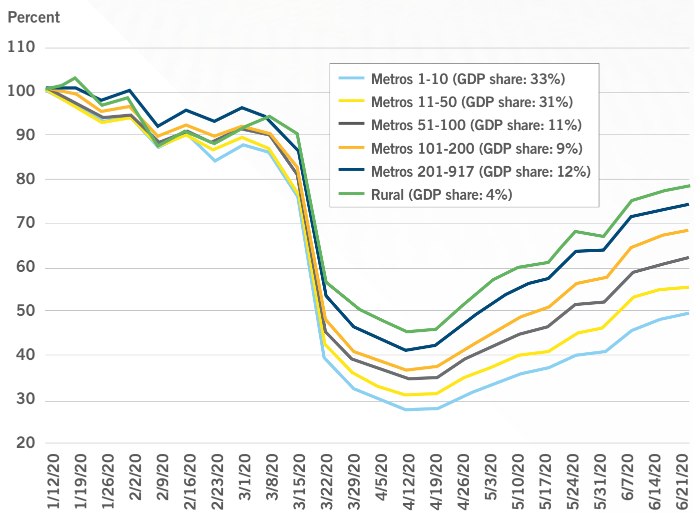
Rural Resilience in the Pandemic

By Dan Kowalski

Over the past two decades, the U.S. rural economy has trailed the urban economy in just about every measurable category, including GDP and employment. The rural-urban divide grew particularly wide during the years following the 2008-09 financial crisis. But that trend may be changing.

Rural areas have endured outmigration of people, companies, and jobs to more densely populated locales. Recessions accelerated these trends and rural recovery trailed that of urban counties. But unlike previous recessions, low population density is now vital for economic resilience in the face of COVID-19. Case rates per capita in rural areas have been roughly half that of urban areas. And many states structured recent lockdowns by county or clusters of counties, and population was a key factor in determining the severity of the shutdown. In many rural areas, shutdowns were shorter and the economic drag less dire. Survey data also indicates that regardless of the shutdowns, rural residents have felt comfortable venturing out in public sooner than their urban counterparts.

EXHIBIT 1: Current Level of Foot Traffic by Metro GDP Contribution Relative to Jan. 8-15, 2020



Source: AEI Housing Center, BEA, and Safegraph.com

A recent analysis of county-level jobs data by The Daily Yonder found that from May 2019 to May 2020, urban jobs declined by 14% compared to 9% of rural jobs. Rural counties not adjacent to urban counties fared the best, with only an 8% decline. High frequency data from American Enterprise Institute support this finding, showing that retail foot traffic declined 53% at its worst in rural areas, compared to more than 70% in the densest urban areas. Rural counties have been the least affected since March, with late June foot traffic down only 20% from January levels.

The coronavirus pandemic has dealt an economically devastating hand to nearly the whole country, metro and non-metro alike. But economic recovery may now favor rural communities for the first time in many years.

1 **Unlike previous recessions, low population density is now vital for economic resilience in the face of COVID-19.**

MACRO ECONOMIC OUTLOOK

The Bounce is Over. Now Comes the Grind.

By Dan Kowalski

The recent bounceback in the U.S. economy is real. It is also fragile and likely to moderate. Job gains in May and June collectively totaled 7.5 million, amounting to a recovery of 34% of the jobs lost since the March coronavirus shutdown. Manufacturing and service sector activity has also rebounded impressively, along with retail sales. All of this data point to a consistent, steady improvement in the U.S. economy, coinciding with business re-openings and stir-crazed Americans re-emerging from preventive quarantine.

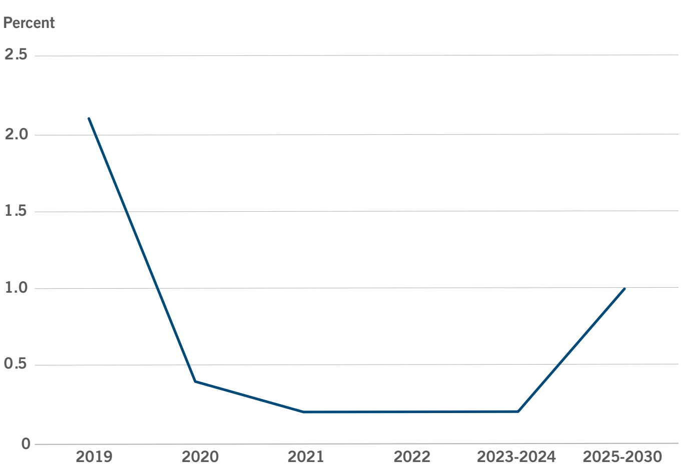
But all of this data also reflect conditions prior to the late June-early July resurgence of coronavirus cases. Traditional economic data can go stale remarkably fast in the COVID era, making high-frequency economic indicators an essential tool. And those indicators are signaling a plateau, followed by a possible downshift in the economy. Consumers are more fearful of venturing out and retail sales appear to have softened. Jobs will be at elevated risk in the weeks to come as some cities and states halt reopening phases or reinstitute partial lockdowns. If we can't control the virus, the economic recovery will be shallower than previously expected.

Looking under the hood of traditional data, we also see troubling signs. Roughly 20 million people have been on unemployment benefits since mid-May (total jobs have recovered to 2008 pre-financial crisis levels), and an increasing number of layoffs are permanent rather than temporary. The Congressional Budget Office has also reduced its GDP forecast for the second half of 2020. Over the long run, it predicts that short-term Treasury yields will remain below 0.2% until at least 2025, and projects that economic scars from COVID-19 will be with us until 2030.

1 If we **can't control the virus, the economic recovery will be shallower than previously expected.**

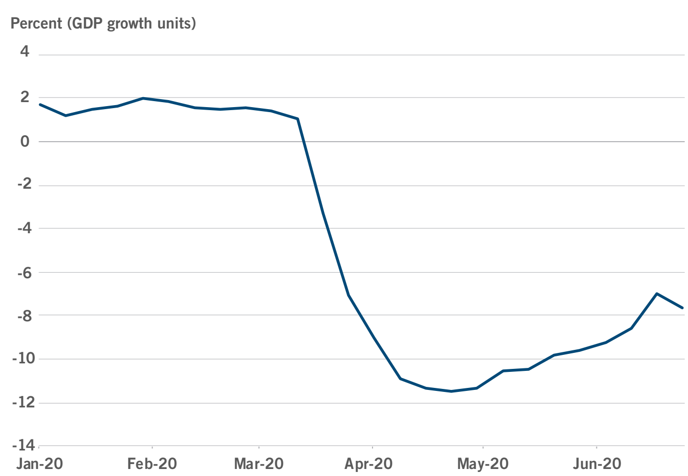
2 **The Federal Reserve** tells us that the **Fed funds rate will stay near zero** for the **next 18 months.**

EXHIBIT 1: CBO Forecast: Yields on 3-Month Treasury Bills



Source: Congressional Budget Office

EXHIBIT 2: NY Fed Weekly Economic Index



Source: New York Federal Reserve

The initial damage from the coronavirus shutdown was largely uniform across the country. Most states locked down for at least two months, many for longer. But as states have charted their own reopening paths, virus hot spots have emerged, and some local economies will continue to recover while others struggle. Regions slower to recover will, however, have an unavoidable impact on the whole country. Travel, tourism, advanced education, and other aspects of normal life will remain in the slow lane until the virus risk subsides broadly.

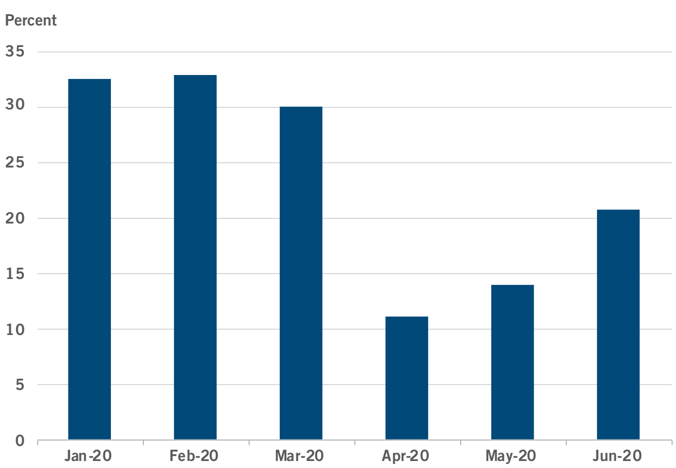
An upside is that while the second wave of the virus may change the trajectory of the economic recovery, it will not stop it. Economic prospects are likely to be much improved by the end of Q3 and even more so by year-end. The Federal Reserve will continue to supply the backstop needed to prevent a worsening of financial conditions, and Congress is likely to pass another fiscal relief package before the fall.

The Federal Reserve tells us that the Fed funds rate will stay near zero for the next 18 months. And its balance sheet will continue to grow to new record levels as it buys a wider range and larger sum of assets than at any point in its history. The White House and both chambers of Congress have shown interest in another fiscal package. Depending on the late summer mood, additional aid for agriculture and/or rural infrastructure could be in the final bill.

The much-debated shape of the recovery is yet unknown, and forecast ranges for everything from GDP to the unemployment rate are gapingly wide. But the "bounciest" post-shutdown economic gains are almost certainly behind us, and the grind awaits. As Richmond Fed President Richard Barkin recently said, "We took the elevator down, we'll need to take the stairs back up."

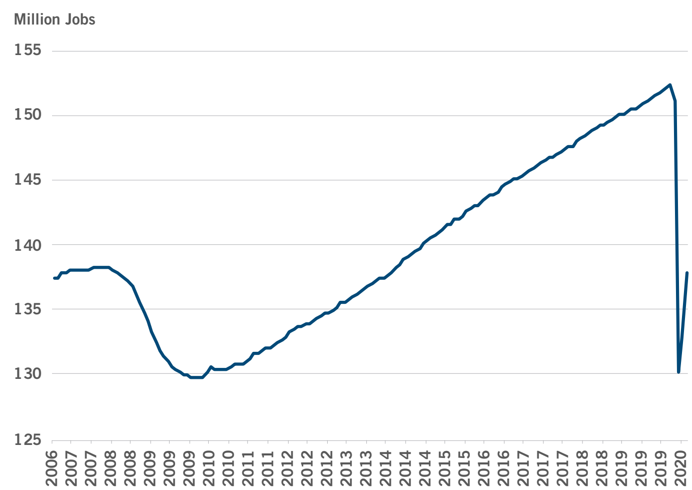
3 As **Richmond Fed President Richard Barkin** recently said, **"We took the elevator down, we'll need to take the stairs back up."**

EXHIBIT 3: Percent of U.S. Unemployed Not on Temporary Layoff



Source: Bureau of Labor Statistics

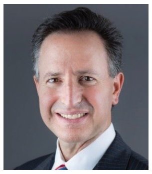
EXHIBIT 4: U.S. Nonfarm Payrolls



Source: Bureau of Labor Statistics

GRAINS

Grain is Flowing and Basis Has Tightened



By Kenneth Scott Zuckerberg

Despite COVID-19, grain has been moving and basis has generally tightened since April 1. With both positive and negative volatility depending on the month and specific grain, the second quarter was eventful for the U.S. complex. And while futures prices for corn, soybeans, and wheat are lower year-to-date, basis is generally stable or improving. Corn basis has tightened as U.S. fuel ethanol production began to recover following the demand shock of COVID-19 in mid-March. Interestingly, corn basis is somewhat disconnected across certain regions of the Midwest Corn Belt as more corn purchases are cost-effectively transported by barge.

Wheat basis tightened meaningfully in late January and February due to increased demand by U.S. millers as consumers began baking and eating more packaged and self-prepared food at home. Basis leveled off as production increased and elevators moved grain out of storage to satisfy both domestic and export demand, and to make room for the new wheat crop. A new issue that surfaced late in the quarter may impact wheat prices and basis in the future: Wheat weights in certain parts of Kansas tested below average vs. above-average just a few weeks prior, presumably the result of hot, dry temperatures and high winds earlier in the growing season. It remains unclear how much of the state's crop is of low weight and quality and what percentage will be sold into the feed market or blended.

1 **Corn basis**, which **had widened** during March following the **economic shutdown**, has tightened as **ethanol demand has begun to recover**.

2 **Wheat export activity** has been **strong** and **domestic demand has been healthy**, as **home-bound consumers bake more and buy more packaged food.**

EXHIBIT 1: Corn Basis Regional Comparison

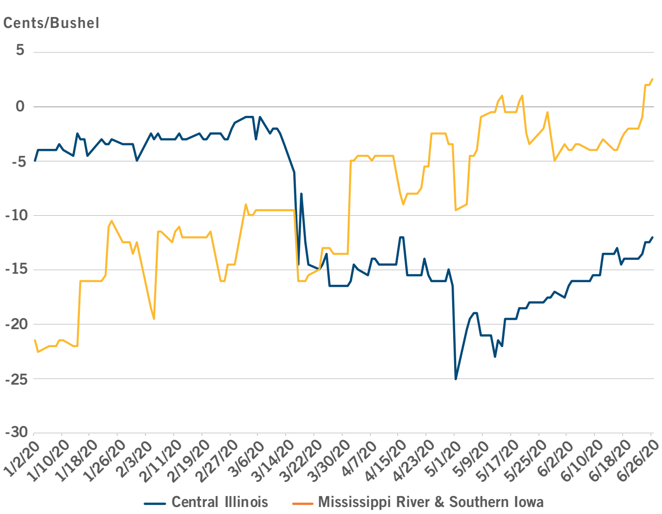
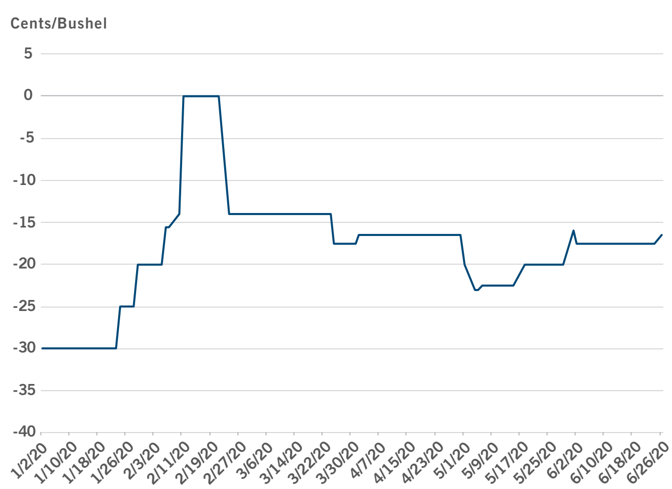


EXHIBIT 2: Central Kansas Hard Red Winter Wheat Basis



Source, all charts this page: USDA-AMS

Exports to China have been a major area of focus since COVID-19 was classified as a global pandemic soon after the signing of phase one of the United States-China trade agreement on January 15, 2020. Since that time, China has been buying U.S. agricultural products, including soybeans and pork, although the run-rate of purchases is well below the $36.5 billion commitment. Notably, China has been purchasing a substantial amount of U.S. grain sorghum. In response, central Kansas sorghum basis has tightened materially, from -$0.48 per bushel to +$0.32 per bushel between early January and late June.

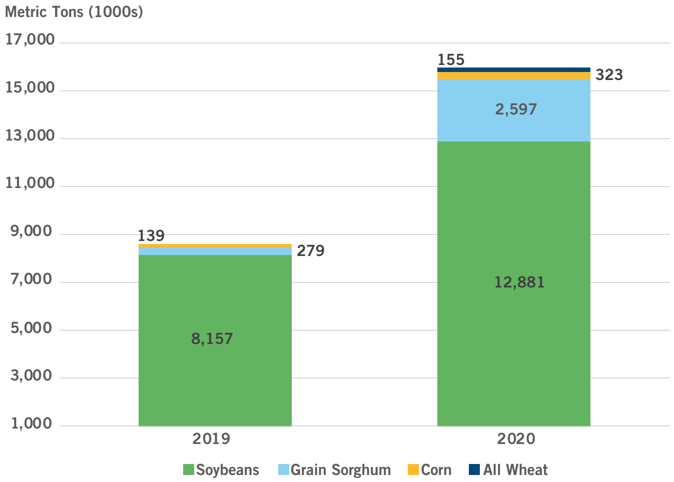
In the coming months, we will focus on factors impacting the U.S. grain market, cooperatives and elevators:

- Domestic weather – Continued favorable weather would drive above-average yields, adding to existing (and rising) corn stocks, and likely pressuring futures prices and basis.
- Brazilian crop production – Brazil has exported record amounts of soybeans over the past four months according to trade reports. Corn acreage in Brazil's largest corn-producing state increased 11%, boosting expectations for its second corn crop of the year (safrinha). The relative attractiveness of U.S. grain exports is crowded out by Brazil's large crop production and currency exchange advantage.
- China / U.S. relations – Blame about the origin of COVID-19 and allegations that China intentionally downplayed its severity have inflamed tensions between the two countries.
- Other trade issues – Ongoing negotiations between the U.S., European Union, and UK could result in volatility and/or delayed exports until the disputes are settled.

3 **China has been buying U.S. grain** though the **run rate is below the levels agreed upon** in **phase one of the trade deal.**

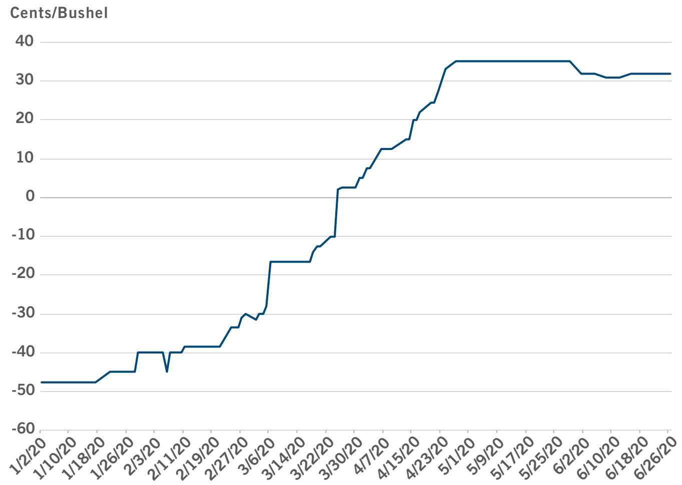
4 **Sorghum exports to China** have been **especially robust; sorghum basis has tightened meaningfully in response to the strong export demand.**

EXHIBIT 3: U.S. Accumulated Exports to China, YTD Sales



Source: USDA-FAS U.S. Export Sales Report, as of June 25, 2020

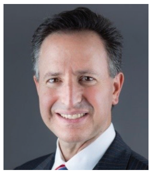
EXHIBIT 4: Central Kansas Sorghum Basis



Source: USDA-AMS

FARM SUPPLY

Retailers Delivered Value with Minimal COVID Disruptions



By Kenneth Scott Zuckerberg

Farm supply retailers have served customers well during an active spring agronomy season and are well-positioned for the remaining growing season. In contrast to 2019, this spring saw orderly planting and generally above-average crop progress. Favorable weather played a key role, allowing farmers to overcome soggy fields in portions of the Corn Belt and unharvested grain in parts of North Dakota. As of its June 29, 2020 report, USDA rated around 70% of corn, soybean, and spring wheat crop as good-to-excellent. USDA's latest plantings report estimates 92 million acres of corn, 5 million less than expected in the USDA March 30 report, presumably due to the ethanol demand shock and greater prevent plant in North Dakota. Soybeans came in at 83.8 million acres (300,000 more than expected) and wheat at 44.2 million acres (500,000 less than expected).

In surprise developments for the herbicide dicamba, the 9th Circuit Court of Appeals recently vacated registrations of three products, effectively banning its in-season use. The court ruled that the EPA unlawfully approved those products by failing to properly consider dicamba's environmental impact. Several subsequent legal actions, however, will allow farmers to use dicamba until July 31, reducing disruptions during the 2020 season.

The court decision complicates the battle against herbicide-resistant weeds, as dicamba is widely used on U.S. soybean and cotton fields. Interestingly, several states' existing rules limit dicamba's use to the early weeks of the growing season. Applied nationally, such restrictions could help balance all stakeholder interests without criminalizing this highly effective weed-killer.

1 **Retailers enjoyed an active agronomy season**, providing **products and services** to growers farming considerably **more acres on average than in 2019.**

2 **Crop progress** has thus been **above-average amidst favorable weather**; **COVID-19 had little if any impact on field activities.**

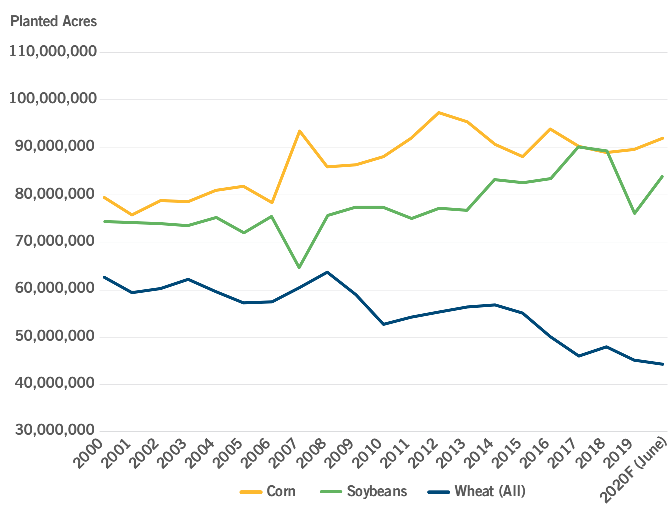
3 **A surprise ruling against dicamba**, an **alternative herbicide to glyphosate** that overcomes weed resistance, **could have long-term implications** for **crop protection sales and advice.**

EXHIBIT 1: Current U.S. Crop Condition

	CORN	SOYBEAN	SPRING WHEAT
Excellent	16%	13%	9%
Good	57%	58%	60%
Subtotal	**73%**	**71%**	**69%**
Fair	22%	24%	25%
Poor / Very Poor	5%	5%	6%
Total	**100%**	**100%**	**100%**

Source: USDA-NASS Crop Progress Report for Week Ended June 29, 2020

EXHIBIT 2: USDA Acres Planted



Source: USDA-NASS June 30, 2020

BIOFUELS

Ethanol Begins to Recover As Economies Reopen

By Kenneth Scott Zuckerberg

Ethanol production started the second quarter on unstable footing but recovered later in the quarter.

The U.S. ethanol sector experienced a major demand shock from mid-March to mid-April as stay-home orders led to lower demand for motor gasoline and fuel ethanol. Producers responded by reducing output, emphasizing plant maintenance over production, lengthening fermentation, and idling staff temporarily. Margins rebounded; as economies began to reopen, ethanol production has begun to recover. Overall industry margins have improved, with high-quality, technically efficient operators showing meaningful margin expansion. On the latter, returns over operating costs (but before capital costs) for a representative Iowa dry milling fuel ethanol plant have recovered to near $0.22 per gallon in June vs. a $0.03 loss in March (both averages).

However, looking out three months, the industry faces both challenges and opportunities. Coronavirus is resurging in several states and renewed activity restrictions will arguably reduce driving and fuel demand. As for opportunities, road trips and family vacations during the summer months typically means increased fuel consumption but resurgence of COVID-19 could dampen travel plans.

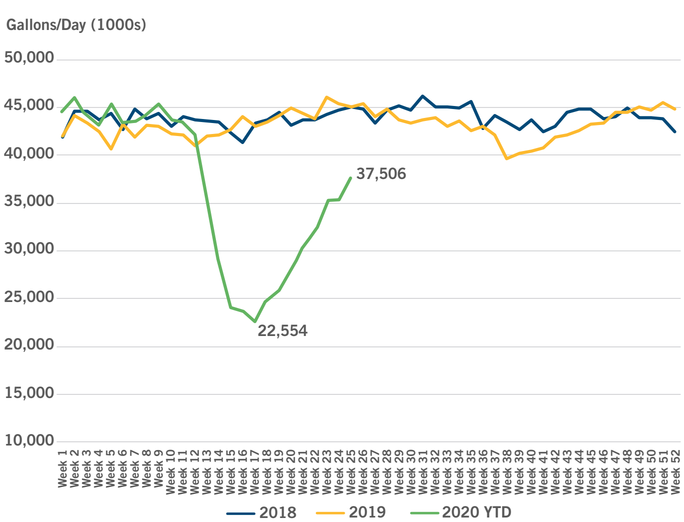
Looking out to 2021, we believe that ethanol fuel demand may recover to only 85%-90% of pre-COVID levels. We conclude that the industry will transform and rationalize excess capacity, and continue diversifying into higher-margin co-products. For more information about our long-term outlook for the U.S. ethanol sector, please see our recently released report, *Readjustment Today, Rationalization Tomorrow,* available on CoBank.com.

1 **Ethanol production** and **margins began to recover** during the second quarter **as U.S. economies began to reopen.**

2 **Ethanol demand is seasonally higher during the summer months;** however, the **recent resurgence in coronavirus** cases **could dampen that** for 2020.

3 Our base case, as outlined in our **new Ethanol Sector Outlook report**, calls for **demand to recover to 85-90% of pre-COVID-19 levels.**

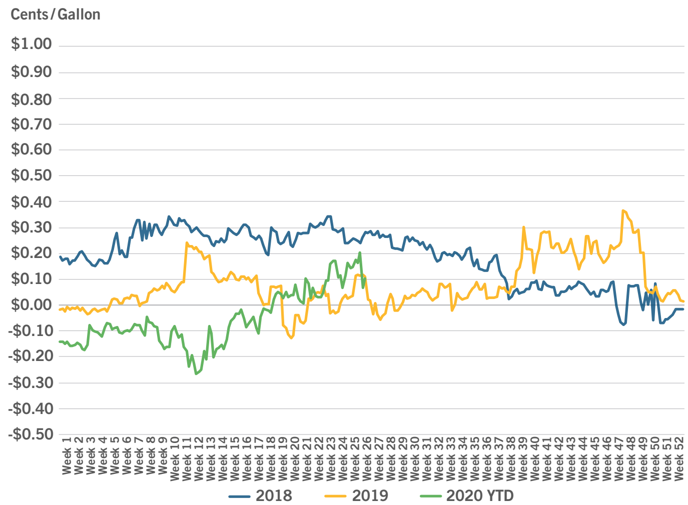
EXHIBIT 1: Weekly Ethanol Production



Source: U.S. Energy Information Administration

EXHIBIT 2: Return Over Operating Costs

Data for Representative Iowa Dry-Mill Fuel Ethanol Plant



Source: Center for Agricultural and Rural Development, Iowa State University

CHICKEN

Chicken Maintains Steady Production, Rolls with Volatile Demand

By Will Sawyer

U.S. chicken plants endured far less COVID-19 disruption in the second quarter than either beef or pork. In fact, we expect chicken production to be down only 1% in the quarter relative to a nearly 10% decline in red meat production. While chicken producers have been able to manage through their production disruptions, demand has been volatile. The chicken sector swiftly filled retail meat cases when demand shifted from foodservice and the red meat supply dropped. This dynamic put chicken prices on a rollercoaster ride for the last few months.

Largely driven by new plants that opened last year, chicken supply increased by 8% in the first quarter of 2020, which pressured industry margins. Spot chicken margins fell to multi-year levels once consumers stopped stockpiling food in April and the reality of absent foodservice demand hit the animal protein and food sector at large. When prices bottomed in mid-April, composite chicken prices were 35% below year-ago levels and margins were worse than what the industry experienced during the Great Recession. Chicken prices have improved since then, in sync with red meat prices.

Today, chicken prices are still below year-ago levels but industry margins are far better than the lows of April. We continue to expect around 3% industry growth for the U.S. chicken sector in 2020 as its value-proposition may appeal to U.S. consumers facing a difficult economic outlook the rest of the year.

1. The chicken sector **swiftly filled retail meat cases** when **demand shifted from foodservice** and **the red meat supply dropped.**

2. Largely driven by **new plants that opened** last year, **chicken supply increased by 8%** in the **first quarter of 2020.**

3. **We continue to expect** around **3% industry growth** for the **U.S. chicken sector in 2020.**

EXHIBIT 1: Weekly U.S. Chicken Production

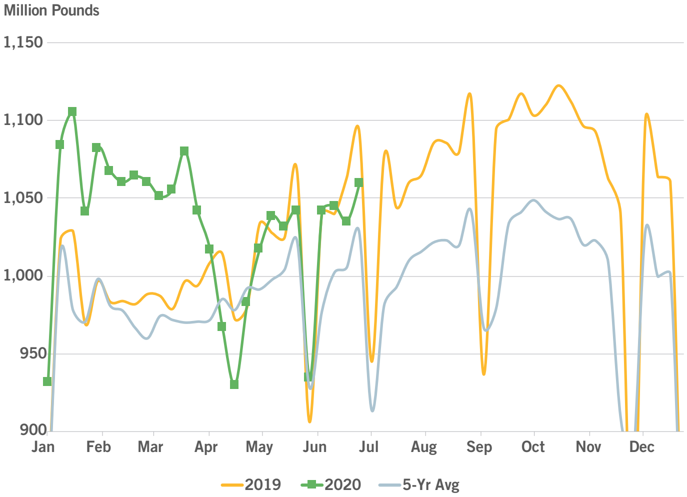
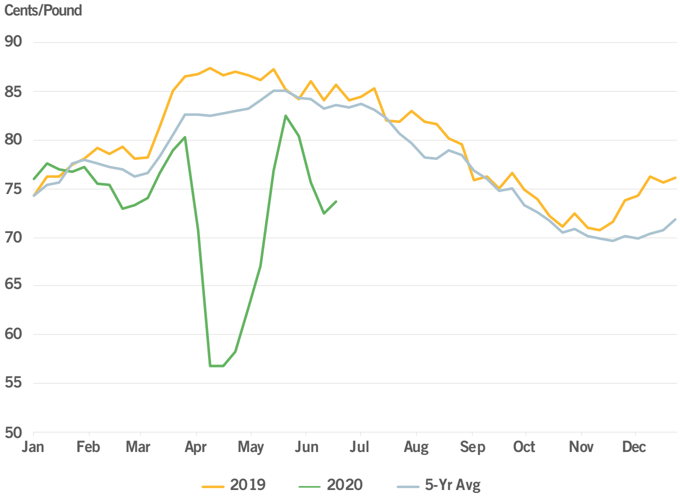


EXHIBIT 2: Composite Chicken Prices



Source, all charts this page: USDA AMS

BEEF

Beef Sector's Pandemic Worries Shift from Supply to Demand

By Will Sawyer

After beef packing plant capacity fell to historic lows in late April – spiking the cutout value to record highs – beef production and prices have returned to pre-pandemic levels. Beef cutout started March just above $200 per cwt. As plant capacity shrank and shortage fears set in, however, the cutout climbed to a record $475 per cwt in mid-May, driving beef packing margins to historic highs along with it. The limited packing capacity in U.S. beef has put increased pressure on cash cattle feeding margins, creating losses for those feeders who didn't hedge before the volatility and price shocks of recent months.

All beef plants are now back online and industry plant capacity has been operating around 95% of pre-COVID levels. Concern is now shifting from supply to demand. Food service traffic improved as most U.S. states started easing "stay home" orders but many social distancing restrictions remain. This means ongoing challenges for the dine-in, full-service sector, which especially hurts the beef complex. With tens of millions of Americans losing jobs during COVID-19 and government payments appearing to decline in the coming months, beef prices will likely be further tested this summer.

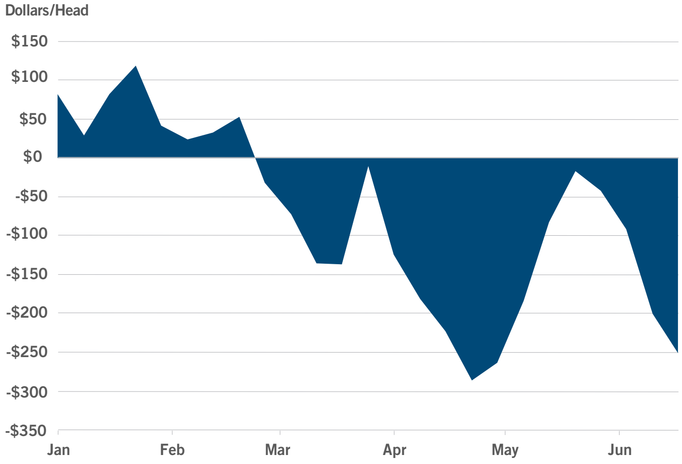
Though beef production fell more than 10% in the second quarter, we still expect modest supply growth in 2020. Fed cattle weights have hovered 5% to 6% above prior-year levels in May and June and will likely continue well above normal through the summer. We now expect U.S. beef production to grow 1% in 2020, down from previous estimates of 2% growth.

1 **The cutout climbed to a record $475 per cwt** in mid-May, **driving beef packing margins** to **historic highs** along with it.

2 The **continued challenges for full-service restaurants especially hurts the beef complex.**

3 **Though beef production was down more than 10%** in the second quarter, we continue to **expect to see modest supply growth in 2020.**

EXHIBIT 1: 2020 Cash Cattle Feeding Margins



Source: USDA ERS, CoBank Estimates

EXHIBIT 2: U.S. Steer Dressed Weights

Source: USDA-AMS

PORK

Pork Production Shows What a Comeback Looks Like

By Will Sawyer

Before April, few could imagine a supply chain shock where U.S. pork production could fall by nearly half yet climb back to above prior-year levels two months later. In fact, pork production in the last week of the quarter was up more than 10% above the same week a year ago as the industry is beginning to work through the backlog of hogs.

We estimate that nearly 3 million pigs that were supposed to come to market in the second quarter did not, as plants trimmed capacity amid coronavirus shutdowns and slowdowns. Unfortunately, we know that some of the pigs were euthanized, but pork producers found ways to hold back some of their livestock. How many of those "under-processed" pigs will come to market this summer is still anyone's guess, but we know that the second quarter's supply chain disruptions will affect pork supplies later in 2020 and create long-term implications for producers beyond that.

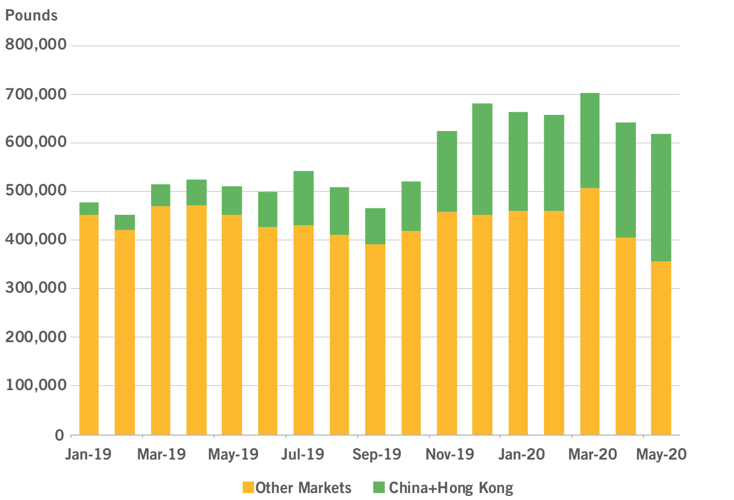
Second quarter pork exports remained strong even though the shipment pace slowed somewhat from the first quarter. We estimate U.S. pork exports were up 20% in the quarter, an increase driven almost entirely by shipments to China. China is in the midst of rebuilding its hog herd after African Swine Fever wiped out more than half of its pork supply in 2018 and 2019 and animal protein shortages in China and Southeast Asia continue.

1 **Pork producers stretched the supply chain**, finding ways to **avoid euthanizing at least some of their pigs.**

2 **Supply chain disruptions** will still **affect pork supplies** later in 2020 **and create long-term implications for producers beyond that.**

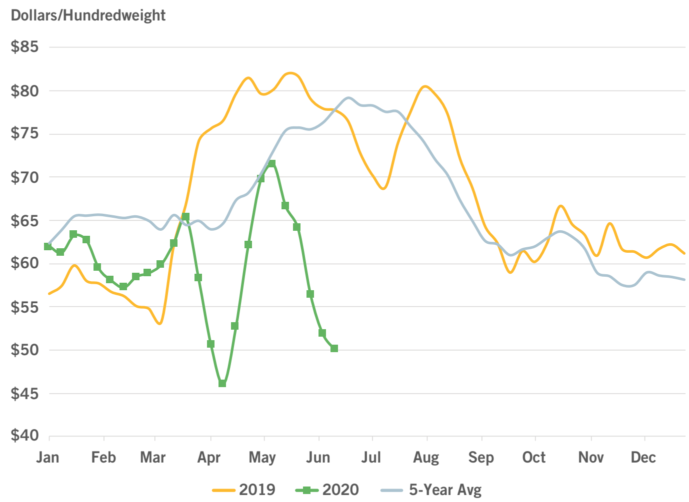
3 **The 20% second quarter increase** in **U.S. pork exports** came almost **entirely from shipments to China.**

EXHIBIT 1: U.S. Pork Exports to Greater China and Other Markets



Source: USDA-ERS

EXHIBIT 2: IA-MN Hog Carcass Prices



Source: USDA AMS

DAIRY

Dairy Producers and Processors Struggle through Extreme Market Volatility

By Tanner Ehmke

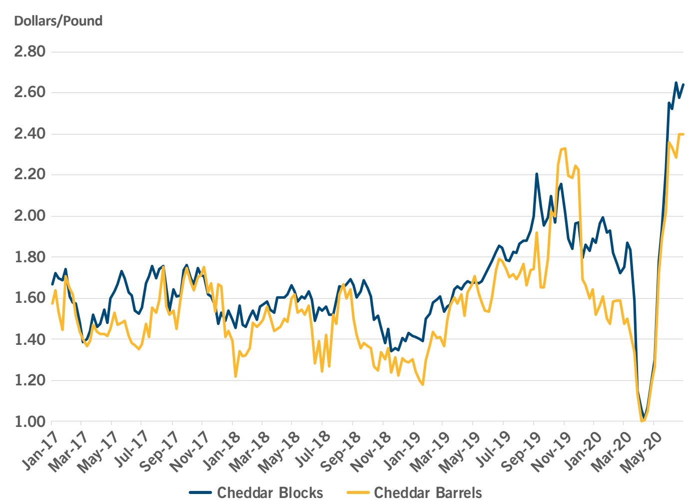
The dairy industry experienced unprecedented volatility last quarter amid the COVID-19 pandemonium. Dairy prices plunged from the loss of food service demand and then rebounded as restaurants restocked, pizza sales skyrocketed, and the government increased dairy purchases through USDA's food box program. The pandemic also created logistical issues in the middle of spring flush, forcing producers to dump an unprecedented level of milk and many cooperatives to set base production levels for producers.

1 **Milk, cheese, and butter prices fell to decade lows** on **steep losses in food service demand** amid **COVID-19 lockdowns** and **record milk production.**

The volatility started in late March when milk, cheese, and butter prices initially fell to multi-year lows as processors slowed production and reduced the SKUs (stock keeping units) to meet the sudden shift in demand to grocery sales. Processors with heavier focus on brands and grocery sales fared better in the last quarter than processors with greater exposure to food service. Sales of fluid milk and commodity cheese at grocery stores skyrocketed as price-conscious consumers eschewed higher-priced niche dairy products for basics.

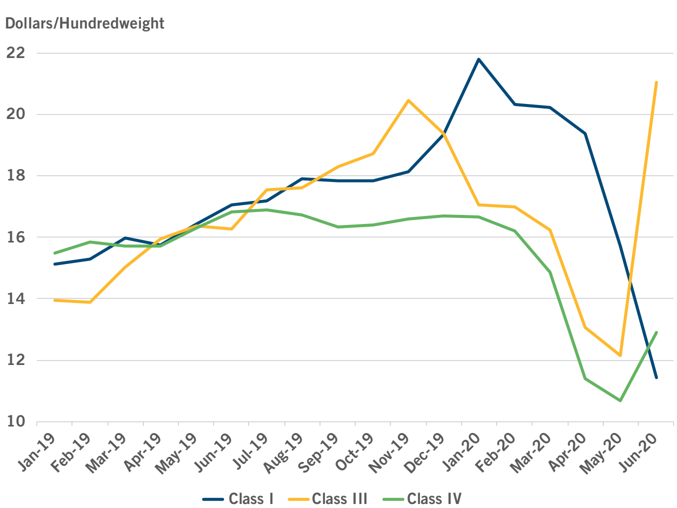
As the food service sector prepared to reopen later in the spring, milk and dairy product prices rebounded. Dairy processors with retail products or quick serve food service exposure struggled to keep up with orders through the quarter. In June, block cheese prices set a record high with

EXHIBIT 2: Cheese Prices



Source: CME Group; Barchart.com

EXHIBIT 1: Milk Prices



Source: USDA-AMS

EXHIBIT 3: Butter Prices

Source: CME Group; Barchart.com

May seeing the biggest drop in cheese inventories in cold storage on record for the month. Despite the decline, natural cheese stocks were 5% greater than they were in May 2019, according to USDA's Cold Storage report. The block/barrel spread neared a record at 44 cents per pound last quarter with barrel cheese prices held down by lower whey prices. Butter prices have also recovered from multi-year lows and a return of food service demand, but at a milder pace than cheese prices. Milk prices surged on the rebound in cheese prices and increased fluid milk sales at grocery stores.

However, dairy processors are experiencing a financial strain on working capital as inventory is marked-to-market on higher prices and increased margin calls on futures hedges amid spikes in market volatility.

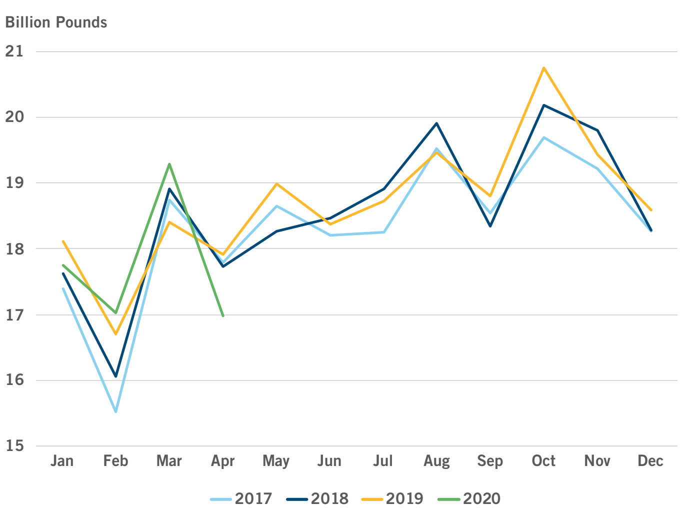
Dairy producers also continue to struggle in the volatility. Kinks in supply chain logistics prompted dairy cooperatives and other processors to impose milk production controls and many producers dumped milk. Dumped or diverted milk totaled 350 million pounds in April – a ten-fold increase YoY. Dairy cooperatives and processors also sold excess milk at steep discounts resulting in additional "COVID-19 deductions" in producer milk checks.

Producer price differentials, or PPDs, will be negative for June production, resulting in smaller milk checks for most producers despite the rally in product prices. The oddity was caused by the large volume of milk depooled from FMMOs and component prices of commodities like cheese and whey exceeding the value of the fluid milk, resulting in negative proceeds on pooled milk that temporarily caused a negative PPD. The PPD deduction is estimated to exceed $8 per cwt for June and continues to be negative through the third quarter.

2 **Cheddar block prices** bounced to **record highs in June** on **restaurant restocking, high demand from pizza chains, and government purchases.** Milk and butter prices also recovered.

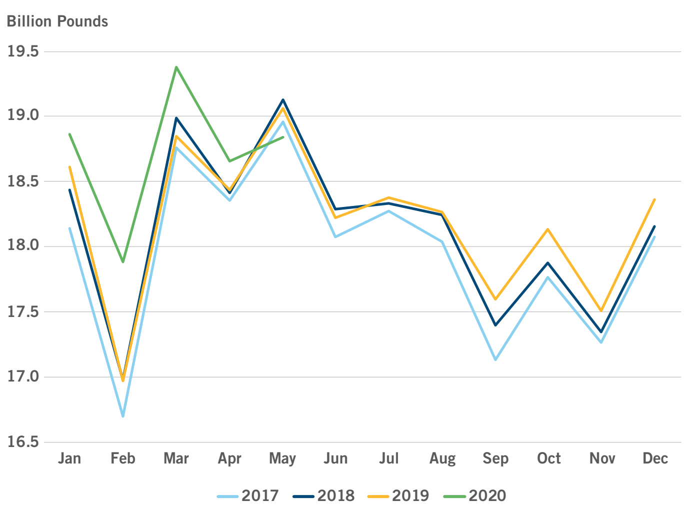
3 **April and May milk checks** will be the **lowest mailbox prices since 2009** and **many included additional COVID-19 deductions.** Most dairy producers **will not immediately benefit from the higher cheese prices due to FMMO pricing structure.**

EXHIBIT 4: U.S. Milk Total Commercial Disappearance



Source: USDA-ERS

EXHIBIT 5: U.S. Milk Production



Source: USDA-ERS

COTTON, RICE AND SUGAR

Chinese Cotton Purchases Defy Global Economic Uncertainty

By Tanner Ehmke

Cotton

China took the headlines in cotton as the standout overseas buyer for the quarter, helping lift cotton prices from the multi-year lows dredged in March and early April. China's imports of U.S. upland cotton at the end of June were up 50% over last year's pace while outstanding sales of unshipped cotton were up nearly 450% YoY as China makes progress in fulfilling the phase one trade agreement with the U.S.

The high volume of purchases still on the books and yet to be exported to China puts even greater importance on U.S.-China relations. China's state-owned enterprises made most of the recent cotton purchases, which raises questions about the level of China cotton inventory. Lack of strong demand from other major importing countries like Vietnam signals that the economic strains of the pandemic are dampening global market demand. Political tensions between the U.S. and China raise questions such as whether the purchase pace is sustainable and if China could switch unshipped purchases of U.S. cotton to other destinations. Markets will remain fixated on U.S.-China relations and crop conditions in the U.S. – particularly in the important West Texas region – in the next quarter. USDA estimates U.S. cotton plantings at 12.2 million acres, down from 13.7 million last year.

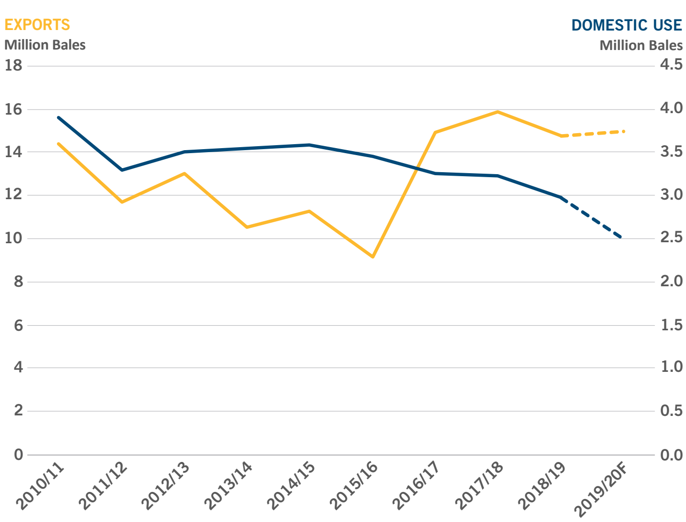
Rice

Extreme volatility gripped rice markets last quarter as pandemic fears pushed consumers and governments around the globe to hoard supplies. The strength in

1 As **outstanding sales of unshipped cotton have quadrupled, China is cotton's top – and most contentious – export customer.**

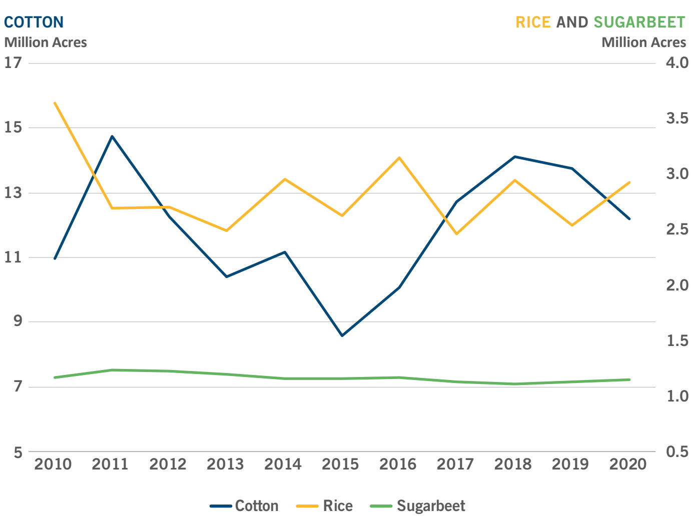
2 **Global rice stocks** are **getting a boost** from the **ideal growing conditions in India** and **increased plantings in the U.S.**

EXHIBIT 1: U.S. Cotton Exports and Domestic Use



Source: USDA-OCE

EXHIBIT 2: Cotton, Rice & Sugarbeet Planted Acreage



Source: USDA-NASS

the U.S. dollar, increased rice imports into the U.S., and expectations for an increase in global rice supplies pulled prices sharply off the highs late in the quarter. Ideal growing conditions in India, the world's largest rice producer, are expected to boost inventories and push global rice stocks to record highs. As supply hoarding has dissipated, so have concerns of global food security.

USDA-NASS estimates U.S. rice plantings at 2.921 million acres, up 15% YoY. Arkansas, the largest long-grain rice-producing state, alone is figured to have a 32% increase in planted acreage YoY. Growers responded to the spike in rough rice futures while enjoying considerably more favorable growing conditions this spring than last year.

Sugar

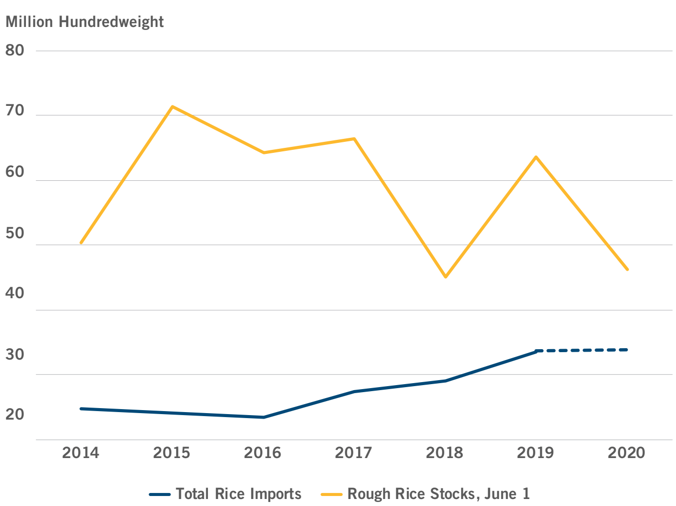
The bottleneck in U.S. raw processing capacity is helping U.S. refined sugar prices continue to maintain a strong premium over raw sugar. USDA estimates total U.S. sugar use at 12.2 million short tons raw value (STRV) for the 2019-20 marketing year, putting the U.S. stocks-use ratio at 13.4%, down from 14.5% last year – despite increased sugar imports. The shift in consumer demand in the U.S. from food service to at-home consumption continues to affect supply chain logistics as processors expect home sugar consumption to remain strong for the rest of 2020.

Planted sugarbeet acreage in the U.S. is figured to be slightly higher this year at 1.15 million acres, up 1.4% YoY based on USDA's latest June estimate. Sugar cane harvested acreage is also up slightly at 920,400 acres, up 0.7%. Crop conditions for both sugarbeet and sugarcane are reported to be good. Combined with expanded acreage, and barring unforeseen weather events, sugar supplies in the U.S. for the 2020-21 marketing year should rise substantially.

3 **Sugar consumption at home** and the **bottleneck in U.S. raw processing capacity** is **helping hold U.S. refined sugar prices over raw sugar prices.**

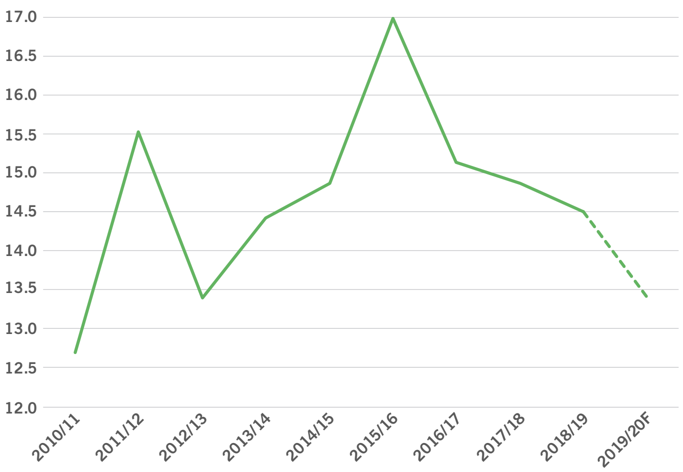
4 **Barring unforeseen weather events, we are expecting a good beet and cane crop** in the **next quarter.**

EXHIBIT 3: Rice Stocks and Imports



Source: USDA-NASS; USDA-OCE

EXHIBIT 4: U.S. Sugar Stocks-Use Ratio



Source: USDA-ERS

SPECIALTY CROPS

Record Almond Crop Arriving Amid Export Headwinds on Trade and COVID-19

By Tanner Ehmke

COVID-19 continues to snarl supply chain logistics as the pandemic resurges and specialty crops growers fear even more losses in food service demand. Growers and processors with contracts with grocers and retailers, however, have fared better. To support growers, USDA launched in April the $19 billion Coronavirus Food Assistance Program, which included $3 billion of food purchases. The program committed $100 million per month in purchases of fresh fruits and vegetables for distribution to food banks and other nonprofits.

Tree Nuts

Another record large almond crop is expected as harvest commences in the weeks ahead, putting greater focus on the U.S. tree nut export program.

Domestic demand for tree nuts like almonds, walnuts, and pistachios has been robust as consumers stockpile shelf-stable foods amid COVID-19 lockdowns. However, with two-thirds of the U.S. almond crop exported and one-third consumed domestically, headwinds from the export market are expected to have a greater impact on almond shipments and prices than the surge in U.S. demand.

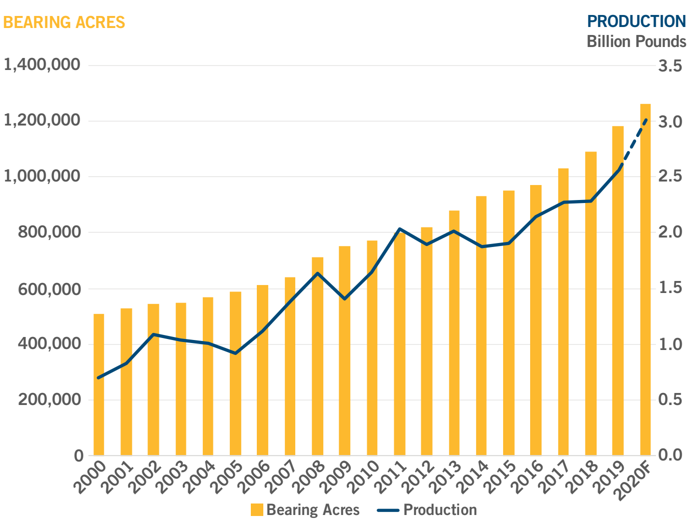
The record almond crop will arrive amid a depressed global economic outlook and ongoing trade issues with India and China. They are the two top export markets for U.S. almonds with retaliatory tariffs on U.S. almonds still in place. Logistical issues

1 In the coming weeks, **California will be harvesting** its **largest almond crop on record.**

2 A **smaller orange crop** and **spikes in demand for oranges are supporting orange juice prices.**

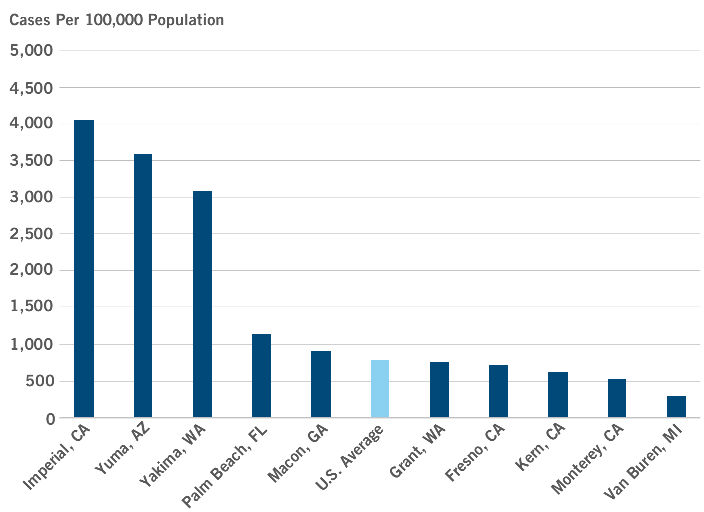
3 **The resurgence of COVID-19 could jeopardize farmworkers' health** and availability.

EXHIBIT 1: U.S. Almond Acreage and Production



Source: USDA-NASS

EXHIBIT 2: COVID-19 Incidence Rate for Selected Counties

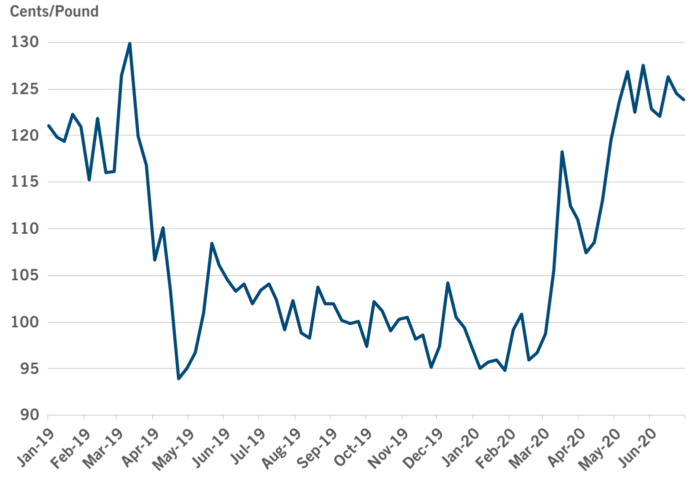


Source: Johns Hopkins Coronavirus Resource Center, as of July 8, 2020 from lockdowns and social-distancing around the world has also affected the supply chain and the ability for almonds to move into export markets. The current export pace is slightly ahead of last year but still lags the record pace set two years ago. With production estimated to be up 17% YoY, the export pace will need to accelerate to clear abundant almond inventories in the marketing year ahead.

Citrus

Valencia orange harvest concluded last quarter with USDA pegging the U.S. Valencia crop at 47.0 million boxes, down 4% YoY as growers continue to struggle with HLB, or citrus greening, and weather extremes resulting in a smaller harvest. Total orange production nationwide was down 1.7% at 118.5 million boxes.

EXHIBIT 3: Frozen Concentrated Orange Juice (FCOJ) Prices



Source: ICE; Barchart.com

Positive news came last quarter as retail sales of orange juice jumped to the highest level in five years as COVID-19 lockdowns caused consumers to return to eating breakfast at home and seek foods high in vitamin C. Orange juice sales in April jumped nearly 50% YoY.

Surges in COVID-19 cases in South America are raising alarms over the ability to import citrus in the months ahead. Local restrictions in exporting countries may impact logistics of moving citrus abroad. In Brazil, which is the largest OJ exporter, orange production is figured to be down about 20%YoY due to drier than normal growing conditions. Frozen orange juice futures have rallied to the highest level in a year on production concerns and the rise in demand.

Labor

The resurgence of COVID-19 could jeopardize availability of field workers to pick and package produce as harvest operations move north in the weeks and months ahead. Major specialty-crop producing counties could become hot spots in the months ahead as the number of cases rise and farm workers travel, work and live in close proximity.

Recent restrictions on immigrant work visas by the Trump administration did not affect migrant farm workers, who were deemed essential workers during the pandemic. Some workers are reluctant to go to work for fear of contracting the virus, which may exacerbate already existing farm labor shortages. Unemployed workers from other sectors of the economy, though, could potentially help alleviate farmworker shortages.

POWER, ENERGY AND WATER

What the "New Normal" Signifies for Rural Energy and Water

By Teri Viswanath

Energy market participants are used to volatility in supply, but not pronounced, fast-moving changes in demand. The industry has evolved to accommodate renewable generation's rapid growth and output variability on a scale of seconds, hours, and days. But how should the industry respond to the demand losses associated with COVID-19? Even now, as stay-at-home orders begin to lift, it's clear that demand recovery to pre-pandemic levels will be slow. The longer this road to recovery, the more likely it is that structural change is inevitable.

Early in the crisis, New York City (the epicenter of the outbreak) saw peak morning loads plummet 22% below year-ago levels. For the first full month of the shut-in orders, U.S. April data shows electricity system peak demand levels hit 12-month record-setting lows, with net U.S. electricity generation decreasing 6.7% YoY.

Looking at the balance of the year, EIA predicts only marginal improvement, with 5.7% less U.S. electricity consumption in 2020 vs. 2019. Compared to the 17 months of the 2008-09 Great Recession – when power demand fell 5.1% from pre-recession levels – COVID-19's impact has been swifter and will likely take longer to correct. Next year, EIA envisions that U.S. electricity demand will recover by just 1%, notably remaining below pre-pandemic levels, in contrast to the 2010 V-shaped recovery.

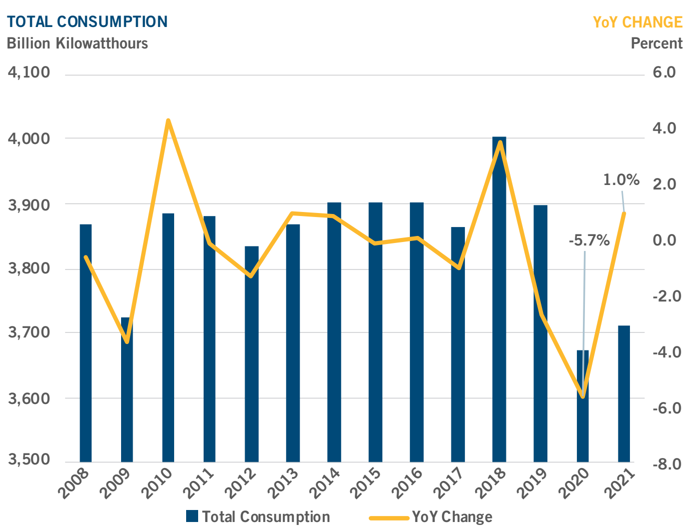
The most recent trend in the data reinforces EIA's forecast for a long, drawn-out recovery. New York's phased-in approach to reopen businesses has had little impact on electricity demand, which continues to average about 8% to 9% below expected levels. The broader reopening in the Midwest has seen demand recover at a faster clip, with system load for June tracking 5.1% below normal, compared to 10.6% in May.

Yet, widespread spikes in new coronavirus infections are forcing leaders to scale back or pause re-openings. This slower, uneven path of recovery means that revival in demand will be measured in years rather than months. After a decade of glacial growth, the prospect of a sustained drag on demand will ultimately redefine the "new normal" for supply.

1 Compared to the Great Recession, **the impact of COVID-19 on electricity demand** has been **swifter** and will likely **take longer to correct.**

2 **Despite the fact** that **more people are staying at home and increasing their water use,** the **decline from businesses** more than **offsets these gains.**

EXHIBIT 1: Total Consumption of Electricity in the U.S.



Source: U.S. Electricity Information Agency

Rural Water Systems

COVID-19 has widened the funding gap for water utilities, further delaying renewal and replacement of aging water and wastewater infrastructure. 2020's unanticipated liquidity crunch stems from lost revenues related to the pandemic – namely, reduced business consumption and growing residential delinquencies.

Despite the fact that more people are staying at home and increasing their water usage, the decline from businesses more than offsets these gains. Preliminary numbers suggest the residential usage increase of 5% to 10% this spring is more than offset by the 20% to 30% loss from commercial and industrial consumers. Moreover, as pandemic-related disconnection moratoriums end, there is a real concern on how the industry will address the growing stack of unpaid water bills from unemployed households.

The Rural Community Assistance Partnership recently released the results of its May 2020 survey of rural and tribal water systems on the financial impact of COVID-19 – the composite picture was sobering. One-third of respondents indicated they would not be able to continue to cover all costs for more than six months under current conditions. Echoing similar concerns, a report prepared for the American Water Works Association and the Association of Metropolitan Water Agencies showed total losses stemming from COVID-19 amount to a staggering $13.9 billion hit to the industry. The key take-away is that water utilities across the nation will likely delay and reduce capital expenditures by as much as $5 billion (annualized) to help manage cash flows due to the crisis.

3 **One-third of rural and tribal water systems** in a recent survey said they **would not be able to continue to cover all costs for more than six months under current conditions.**

Sources used

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Electricity Monthly Update for April 2020, June 24, 2020. U.S. Energy Information Agency.

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"The Impact of COVID-19 on Rural and Tribal Water and Wastewater Systems," May 2020. Rural Community Assistance Partnership.

COMMUNICATIONS

Rural Telecom Operators Support Communities Amid COVID-19 Fallout

By Jeff Johnston

COVID-19 is wreaking havoc on all Americans but has demonstrated the vulnerability of the underserved and unserved in rural America. It has also shown the deep level of commitment rural communication operators have to their communities. Many rural operators signed the FCC's Keep Americans Connected Pledge, which said until June 30, 2020, they would not cancel service for anyone who cannot pay their bill and would waive fees for late payments. The pledge has expired, and operators are now being asked to still keep everyone connected, and to work out payment plans and/or provide some forgiveness for delinquent accounts due to COVID-19.

For rural operators, living up to the FCC's pledge can disproportionately impact their cash flows. This could mean less network investment at a time when rural America desperately needs better and broader coverage. Rural operators have worked to ensure their community members stay or get connected. For example, when stay at home orders were issued, operators proactively reached out to school districts to locate and connect students who did not have internet access. These sacrifices are admirable, but they cannot go on forever.

The FCC recognizes this and sent a letter to Congress on June 19, 2020, asking it to appropriate funds to help cover costs operators incurred from not only honoring the pledge, but also the FCC's request that they extend payment terms and/or forgive some unpaid balances after June 30. Some members of Congress are listening. A Senate bill introduced on June 29 addresses future (not past) hardships for internet service providers that choose to continue in the spirit of the FCC's Keep Americans Connected pledge. The proposed Emergency Broadband Connections Act would provide $50 per month to pay for broadband for workers who have been laid off or furloughed during the COVID-19 pandemic. In addition, the bill would seek to provide devices such as laptops and tablets to eligible households.

1 **Most rural operators signed** the **Keep Americans Connected pledge** which includes **not disconnecting service for COVID-impacted customers.**

2 **Offering free service** has **strained rural operators' cash flow,** which **could impact future network build plans.**

3 The **FCC is calling on Congress** to **appropriate funds to cover costs incurred by telecom and cable operators.**

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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