THE QUARTERLY

Dedicated to the industries financed by CoBank

January 2021

New Year Optimism Confronts the Pandemic

With difficult months still ahead, second half of the year should power the U.S. economy

Executive Summary

2021 has quickly altered the political and market landscape. And optimism, particularly about the second half of the year, is rising. But to get there, all of us must muddle through for a few months more.

For now, the pandemic is still very much impacting the U.S. economy and rural industries. But the dissemination of vaccines and dramatic improvement in commodity prices is enabling markets to look over the horizon to better days ahead. The shakeup in political power in Washington has boosted confidence that more fiscal spending is on its way, steepening the yield curve and raising GDP forecasts.

Without question, there are difficult months still ahead. COVID cases are still surging and the events of January 6 have rattled the country, raising the question as to whether more violence will erupt. But the second half of the year looks increasingly positive if vaccine uptake advances as hoped.

In the meantime, grain related industries are riding a wave of commodity price increases and profitability not seen in years. Corn and soybean prices have climbed more than 60% since August, turning margins for many from red to black. The reverse is true, however, for those in animal protein, dairy, and biofuels as they struggle with the sudden increase in cost.

Among infrastructure industries, the power sector continues to grapple with the transition away from coal, but a mild winter has moderated natural gas prices, limiting cost pressure on some generators for now. New action by the EPA will speed replacement of lead pipes in the water supply, and communications providers continue to benefit from high demand for better broadband.

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.

Topics In this Issue:

- *$5 Corn and Beans in the Teens*
- *Cable Broadband Soars, Video Dives*
- *Year-end Natural Gas Price Collapse Thwarts New Year Coal Recovery Plan*

Inside this issue

SPOTLIGHT

The Senate Flipped. What Changes?

By Dan Kowalski

The political calculus in Washington has changed again. With the Georgia runoff results flipping control of the Senate to the Democrats, new legislative possibilities have emerged. The 50-50 party split in the Senate and VP tie break vote, however, leave very little room for big things to get done. After all, the Senate still requires 60 votes for almost all legislation to pass, and partisan politics will likely be just as challenging in the next two years as they have been in the past two.

These realities notwithstanding, there are significant legislative changes that will result from the change in control. Democrats will now set the agenda in both houses of Congress, deciding which bills get consideration on the floor and in committee. The new Congress will likely first push for additional COVID relief, expecting a relatively easy win by asking legislators to make good on their support for similar measures proposed in December. But law making will likely get much harder from there.

After coronavirus relief, the next two priorities will likely be tax changes and green infrastructure. An infrastructure package has much better prospects for bipartisan support, particularly if a deal can be drafted to include sufficient conventional infrastructure such as roads, waterways, and rural broadband. For tax policy changes to have a chance, Democrats will look to the budget reconciliation process, which requires only a simple majority in the Senate for passage, rather than 60 votes. This was the vehicle used by the Senate to pass tax reform in 2017 by a 51-48 margin. The budget reconciliation process can be used only once per year, but this Senate could use it three times before the next Congress is sworn in in 2023 because a budget has not been established for 2021.

If passed, these two initiatives would be signature policy successes for a Biden administration. Tax policy could be taken up as soon as summer 2021, with motivation to roll out tax changes in 2022 as pandemic economic impacts subside. As with all legislation the next two years, the loss/gain of one or two Senate votes will mean everything. As such, Sens. Joe Manchin (D-WV) and Susan Collins (R-ME), two of the most centrist senators, will be courted regularly by both sides.

With Sen. Debbie Stabenow (D-MI) retaking the gavel of the Senate Ag Committee, she will align with the Biden and Vilsack agenda to prioritize the creation of an agricultural carbon market. And this will not be easy – ironing out details related to the science, logistics, economics, and equitability of a carbon market will require a lot of time and bipartisan cooperation.

1 **After COVID relief,** **Congress will likely prioritize tax changes** and **green infrastructure.**

2 **Democrats will rely on a couple key Senate votes and the budget reconciliation process** for **big legislative initiatives.**

3 **The Senate Agriculture Committee** will be **squarely focused on creating an agricultural carbon market.**

MACRO ECONOMIC OUTLOOK

Probable Boost in Fiscal Spending Lifts Outlook

By Dan Kowalski

The coronavirus still controls the economy. But with vaccines rolling out, the virus will slowly release its grip in 2021. Georgia runoff results increase the probability of more COVID aid and other fiscal spending, which is pushing up expectations for 2021 GDP growth. But given the current level of spread and the slower than expected dissemination of vaccines, it will likely be summer before the economy really begins to gain steam. Nevertheless, the second half of the year should power the economy to annual growth of roughly 4.5%-5.5%.

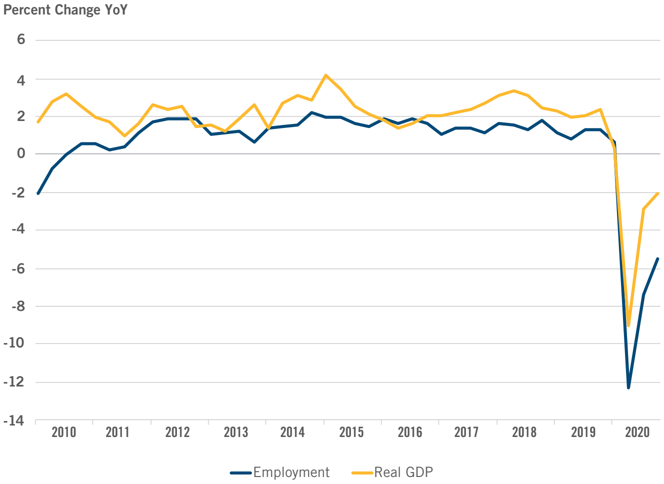
The financial markets are translating that optimism into higher long term interest rates and are reevaluating when Fed policy could change. Following the Georgia runoff, the yield curve has become the steepest it's been since 2017. The 10 year yield has jumped firmly above 1% and some forecasts are predicting it will reach 2% later in 2021. In turn, Federal Reserve officials are acknowledging that the central bank could begin tapering its $120 billion per month securities purchases later in 2021 if conditions warrant. And markets are now betting the Fed could move short term rates higher in 2022.

We still believe that 2023 is a much more reasonable timeframe for a Fed rate move. But tapering of Fed purchases could begin later this year, and if the yield curve steepens significantly, the Fed could shift its purchases to the longer end of the curve, similar to what it did during Operation Twist in 2011. This would tamp down long term rates in an attempt to encourage businesses and consumers to invest over the long run.

1 The **second half of the year** should **power the U.S. economy to annual growth of roughly 4.5% - 5.5%.**

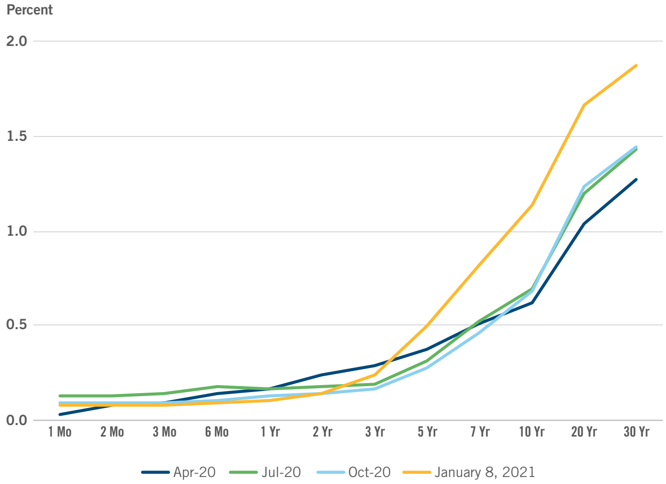
2 If the **yield curve steepens significantly, the Fed could shift its purchases to the longer end of the curve, similar to Operation Twist in 2011.**

EXHIBIT 1: Annual Change in Employment and Real GDP



Source: U.S. Bureau of Labor Statistics and Bureau of Economic Analysis

EXHIBIT 2: U.S. Treasury Yield Curve



Source: U.S. Department of Treasury

The U.S. dollar will also be impacted by these outlook changes. A better performing U.S. economy relative to the rest of the world is positive for the dollar. A rising 10-year Treasury yield portends a stronger economic recovery and attracts investment in the U.S., both increasing demand for dollars. Europe and the UK continue to struggle with the pandemic as we do, but they will also contend with Brexit readjustments and reinstated COVID shutdowns that will last through much of Q1, weighing on the Euro. We expect the dollar to remain well below the highs of 2020, but downside risk is more limited with a steepening yield curve and improved economic outlook.

We also believe that while the economic outlook has improved, significant risks still remain. They include the potential for more geopolitical crises, increased regulation, worsening conditions in commercial real estate and small business solvency, a slower than expected receding of the pandemic, and persistence in high rates of long term unemployment.

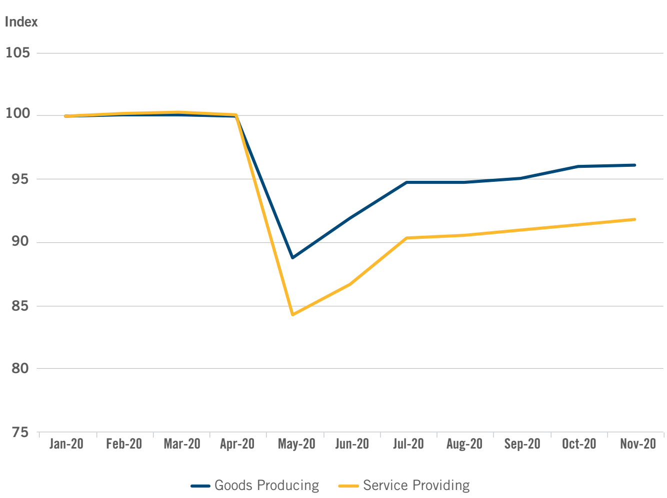
One concerning factor in the labor market is the acceleration of U.S. retail sales (now 7% above pre-pandemic levels) while employment in the "goods" sector still lags early 2020 levels by 4%. Some of these jobs have shifted to the warehouse and transportation sector to accommodate the increased demand for home deliveries, but not enough to offset the decline. This is reflected in the fact that GDP is recovering much more quickly than employment.

There will be scars and impediments to recovery this year. But in total, the U.S. economic outlook is brighter today than it was at the start of the year, and we can all be thankful for that.

3 We expect the **dollar to remain well below the highs of 2020,** but **downside risk is more limited.**

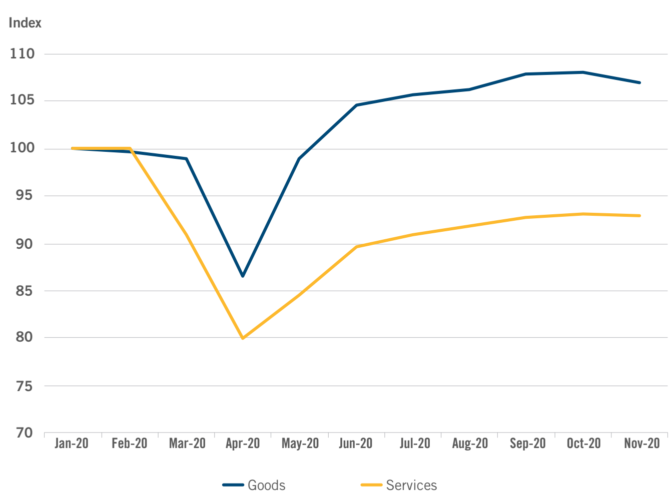
4 **Significant economic risks still remain,** including **slow COVID improvement, geopolitical crises, and business solvency.**

EXHIBIT 3: Index of Employment by Goods and Services Industries



Source: ADP

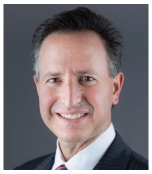
EXHIBIT 4: Index of Consumer Expenditures in Goods and Services



Source: U.S. Bureau of Economic Analysis

GRAINS

$5 Corn and Beans in the Teens



By Kenneth Scott Zuckerberg

The continuous climb in corn, soybean, and wheat prices during 2020's final quarter allowed both growers and the grain cooperatives serving them the opportunity to capture significant margins.

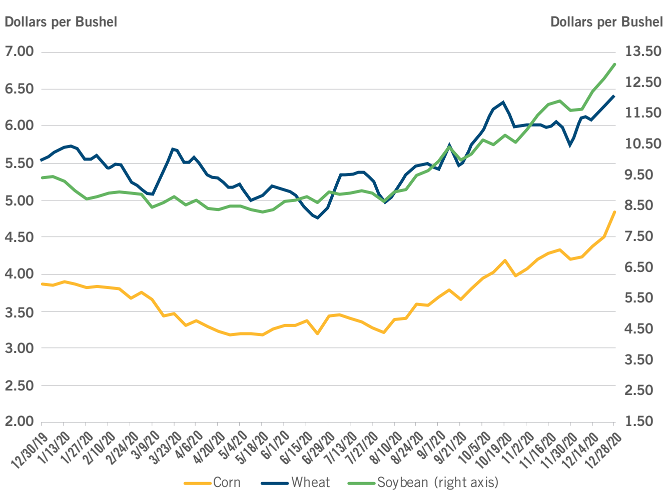
The adage "timing is everything" rang true for the grain and oilseed complex over the past three months, a period that saw corn prices rise 27% to $4.84/bushel and soybean prices rise by 28% to $13.11/bushel – levels not seen in over five years – while wheat prices delivered a respectable concurrent increase of 12%. Prices have continued to rise above these levels as we entered 2021.

The price rally resulted from a smaller-than-expected U.S. production; strong domestic food, feed, and fuel demand, including increased ethanol production; continued large purchases by China; and its follow-through on actual grain shipments. Combined, the result was tighter stocks. Prices were additionally supported by the psychological impact of potentially smaller crops in Argentina and Brazil amidst La Niña-related dryness pressure on fall plantings. The volatility in the Black Seas region – from Russia's tariffs on its wheat exports and a forthcoming grain export quota February 15 to June 30, 2021 – also supported prices.

1 **A strong counter-seasonal rally in grain prices in Q4** allowed grain cooperatives to **accelerate merchandising activity at substantial gross margins.**

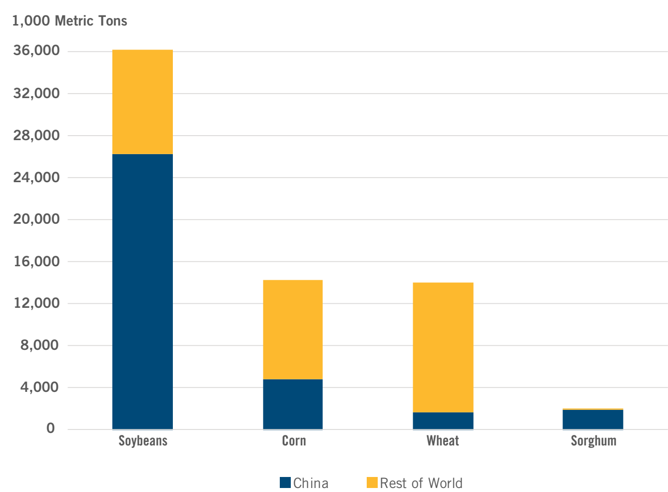
2 **A smaller harvest and stronger demand drove the rally,** which **sharply tightened ending stocks.**

EXHIBIT 1: Weekly Futures Prices



Source: BarChart.com
Uses March 21 futures contracts for all commodities.

EXHIBIT 2: Accumulated U.S. Grain Exports
For the Current Marketing Year



Source: USDA-AMS and KSU, as of December 24, 2020

Exports

Consistent with our observations last quarter, China continued to purchase U.S. corn, soybeans, wheat, and sorghum (the latter is used for production of the alcoholic beverage Baijiu). Accumulated U.S. grain exports ramped up substantially and finished the quarter ahead of our and consensus expectations. For the current marketing year beginning September 1, China accounted for 70% of corn, 30% of soybeans, and 97% of sorghum of the total grain per category exported. The continued purchase of corn and soybeans stemmed from China's efforts to rebuild and feed its hog herd as local grain stocks were drawn down and extensive flooding weakened local crop production. A 6% decline in the value of the U.S. dollar relative to the yuan allowed China to leverage its buying power despite rising commodity prices.

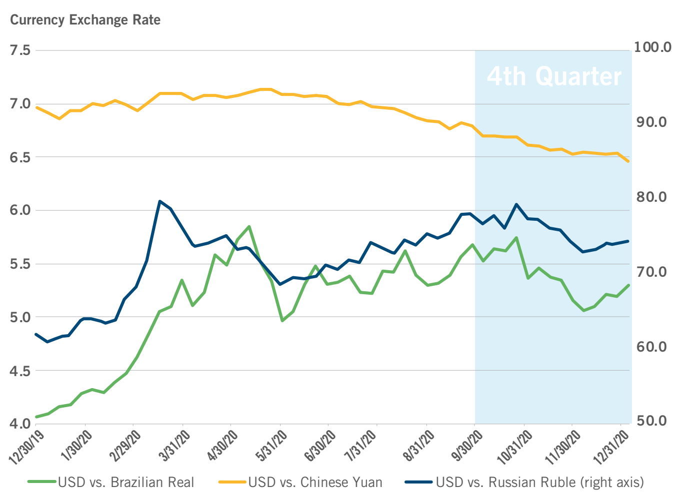
Basis

Trends were mixed and somewhat volatile overall during the quarter: Corn basis tightened from a low of -$0.25 in early October to -$0.09 in mid-December, while soybean and hard red wheat basis were unchanged during the quarter at -$0.35 and -$0.32 respectively.

3 High local prices on China's Dalian Commodity Exchange and a weak U.S. dollar **made U.S. grain attractive, on both a relative and absolute basis.**

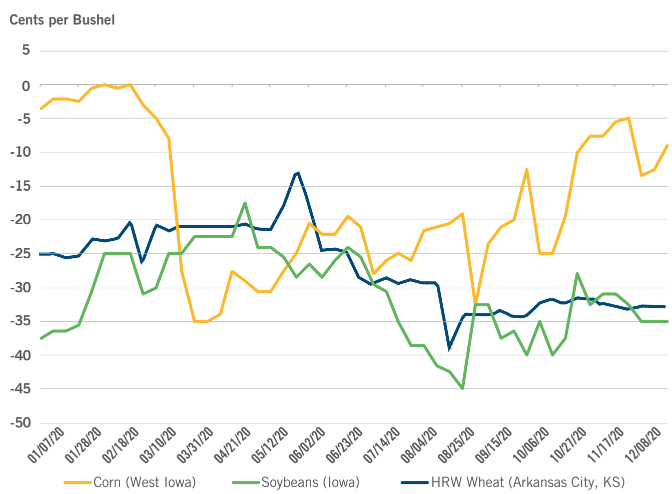
4 The strong trading margins more than offset elevators' inability to buy basis cheap and capture carry, **resulting from a sharp inversion in futures prices.**

EXHIBIT 3: Exchange Rate Comparison



Source: Barchart.com

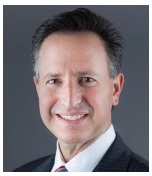
EXHIBIT 4: 2020 Basis for Corn, Soybeans and Wheat



Source: USDA and KSU-Ag Manager.info

FARM SUPPLY

Recovery Portends a Favorable Spring Season



By Kenneth Scott Zuckerberg

In contrast to fall 2019, the row crop sector concluded 2020 on firm financial footing which – weather aside – sets up a favorable spring agronomy season.

What a difference a year makes! Farmer income will likely finish the year exceeding USDA estimates given the positive effects of the price rally in grain prices on grower field margins and pretax income. On the former, U.S. corn and soybean margins are likely to show double-digit increases – ranging from 35% to 50% – relative to trailing three year average levels. Rising commodity prices and farmer income, coupled with China demand for both corn and soybeans, will likely lead to a meaningful increase in total U.S. planted grain acres during 2021. This provides a positive backdrop for agronomic activity as we head into the spring planting season.

Also in contrast to the year-ago quarter, fertilizer prices, as measured by the benchmark Green Markets North America Fertilizer Index, have risen by 35% since June including a 15% increase during Q4 driven by higher grain prices and fall application demand. The price move allows farm supply retailers that bought fertilizer earlier in the year to capture positive carry, an opportunity that had been unavailable in recent years.

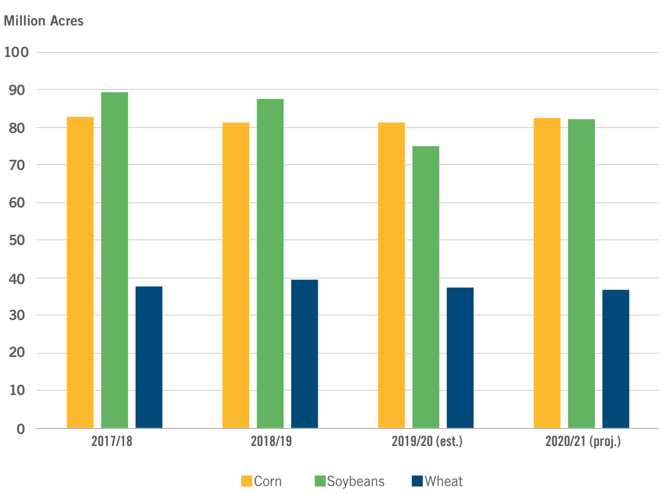
Of note, *Farm Journal* magazine found that 15% of farmers responding to its annual crop input purchasing survey now buy a portion of their crop inputs on-line, up from 11% in 2019 and 8% in 2018. Adjuvants, herbicides, and insecticides ranked highest while fertilizer and seed – key products supplied by ag retailers – ranked lowest. While not an immediate threat to farm supply cooperatives, it is critical to note this growth. Farm supply cooperatives continue to be pressured to develop omni- or multiple-channel distribution strategies to maintain market share.

1 **Rising commodity prices and robust government support drove a sharp increase in crop margins and farmer income** during the **final quarter of 2020.**

2 **Armed with liquidity, growers took advantage of generally favorable weather** to **conduct post-harvest fall fertilizer applications** and **other field activities.**

3 We expect that as **farmers sought to mitigate tax liabilities by year-end, they increased prepayments to cooperatives, providing ag retailers with additional working capital.**

EXHIBIT 1: U.S. Acres Harvested



Source: USDA WASDE January 12, 2021

EXHIBIT 2: Green Markets North America Fertilizer Index

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

BIOFUELS

Ethanol Production Up, But Margins Down

By Kenneth Scott Zuckerberg

Despite increased COVID-19 cases and new strains, the U.S. ethanol sector powered through Q4. Average daily production reached 14.7 billion gallons in Q4 or 90% of pre-COVID supply and demand vs. 14.2 billion gallons and 87%, respectively, in Q3. Average daily operating margins for a representative Iowa dry milling fuel ethanol plant fell by a dime to $0.11 per gallon in Q4. Input costs increased dramatically: The price of corn, the key raw material in ethanol fuel and high protein distillers' grain animal feed, increased 26% and average natural gas prices increased 19%.

Technology has long driven the ethanol sector's operational excellence and productivity improvement and this quarter included two enzyme technology-related platform announcements: Lallemand Biofuel's new yeast processing platform to facilitate more efficient ethanol fermentation and Novozymes' new platform to enable corn oil production.

The Biden administration's sense of urgency in addressing climate change through its recommitment to the Clean Air Act of 1970 is a positive for ethanol in the near-term. Although electric vehicles threaten ethanol demand over the long-term (15+ years), fuel ethanol reduces air pollution from automobiles. For perspective, a 2019 USDA study found 39% less greenhouse gas emissions from corn-derived fuel ethanol compared to non-ethanol blended gasoline.

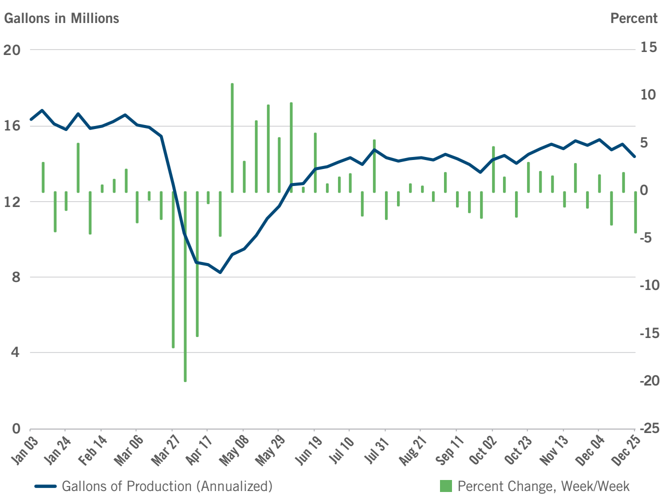
We are closely monitoring industry operating margins given the risk that ethanol fuel prices could stagnate relative to increasing corn input prices. Interestingly, ethanol operators also producing co-products like distillers dried grains (DDGs) may continue to see margin expansion should DDG values remain elevated relative to corn.

1 **Ethanol production continued to recover** with **average Q4 production reaching 14.7 billion gallons or 3.5% higher than Q3.**

2 **Operating margins retreated** however to **$0.11 per gallon in Q4 from $0.21 in Q3 principally due to a dramatic +26% increase in corn input costs.**

3 **Fuel ethanol's production outlook could improve somewhat in 2021 if COVID-19 vaccine deployment fosters a return to workplaces;** however, a **continued rise in corn prices will compress operating margins.**

EXHIBIT 1: Weekly U.S. Fuel Ethanol Production During 2020



Source: EIA

EXHIBIT 2: Average Quarterly Prices and Returns in 2020

Source: Center for Agricultural and Rural Development (CARD), Iowa State University. Data as of December 24, 2020

CHICKEN

Continued Supply Contraction in Q4 Helps Offset Rising Feed Costs

By Will Sawyer

The final quarter of the year is not normally the most profitable for U.S. chicken producers. Profit margins for Q4 2020 were generally below break-even, but a pullback in supply of 2% helped average industry margins end the quarter better than it started. What makes this margin improvement noteworthy is it occurred in the midst of rising feed costs, but contraction in chicken supply helped prices of leg quarters, wings, and whole birds climb through year-end.

Higher corn and soybean meal prices are increasingly being felt in U.S. poultry production costs. Feed cost inflation during Q4 was approximately 15% on a cash basis and given the current futures curve for corn and meal, we expect a feed cost inflation rate of 25% in 2021, the highest the industry has experienced since 2011.

Despite the challenging and volatile domestic demand environment, international demand for U.S. chicken has been under pressure this year as evidenced by the weakness in leg quarter prices. While still below prior-year levels, leg quarter prices have been improving since September and increased 12% during the fourth quarter. We attribute some of this improvement to the devaluation in the U.S. dollar but also improved international demand.

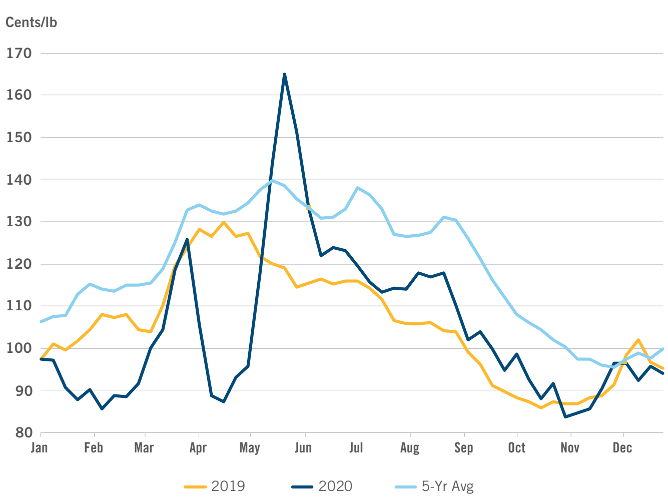
The outlook for the U.S. poultry sector in 2021 depends on the industry's ability to pass on the increase in feed costs. Many foodservice outlets the poultry industry serves have fared far better during the pandemic than the sit-down restaurants that impact beef and pork, and may be able to absorb higher chicken prices. Chicken pricing will need to climb to above pre-pandemic levels if average industry margins can be expected to return to profitability.

1 U.S. chicken production **declined by nearly 2% during Q4.**

2 Smaller Thanksgiving and holiday celebrations **helped to improve whole bird prices.**

3 **The weakening of the U.S. dollar** has **lifted leg quarter prices** and **international demand for U.S. chicken.**

EXHIBIT 1: Boneless Skinless Chicken Breast



Source: USDA AMS

EXHIBIT 2: Leg Quarter Prices

Source: USDA AMS

BEEF

U.S. Beef Demand Holds Despite Challenging Foodservice Environment

By Will Sawyer

Beef demand performed well in Q4 despite rising COVID-19 cases and continued restaurant closures.

The beef cutout made a strong rally in November into the Thanksgiving holiday as consumers switched to beef for smaller family gatherings. With limited available industry capacity and a challenging labor environment, beef packers continue to see strong margins while producers and feeders manage rising feed costs.

Following a very volatile year, the beef cutout had a strong finish to 2020. However, brisket and short plate prices were down 18% YoY and 24% respectively, while the chuck and round are up 4% and 2%, respectively. The recovery in demand in the U.S. and global food service sector may not occur until the back-half of 2021 following the successful deployment of COVID-19 vaccines.

Weather conditions both domestically and globally have pressured the outlook for the U.S. cattle and beef complex. The drought monitor has worsened during the quarter to where now over 40% of the U.S. is experiencing some type of drought, which is especially being felt in the in the Rocky Mountain region. Hay continues to be available but corn prices have skyrocketed in recent months. We expect feed costs for feeders to climb 29% during 2021 and begin impacting cost of grain in Q1. Cash-to-cash cattle feeding margins remain under pressure, stressing feeder prices.

However, cattle weights continue to come off the pandemic highs of 2020, which should tighten supplies and offer price support through the challenging feed cost environment ahead.

1 **U.S. beef consumers lifted prices** in the **unusual 2020 holiday season.**

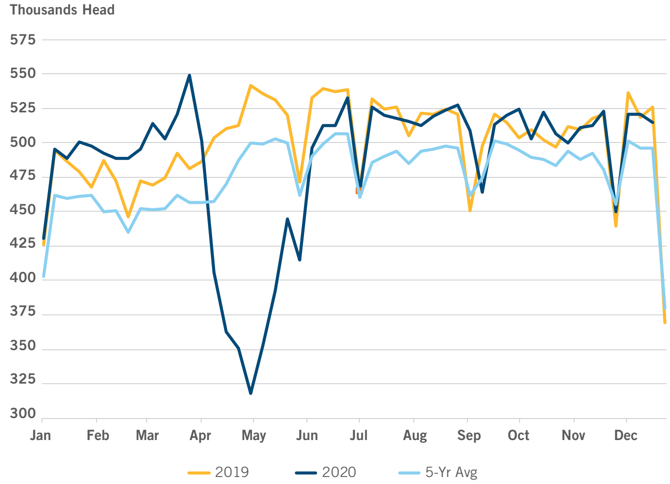
2 **Drought conditions in many parts of the U.S.** and **skyrocketing feed costs** are **chief concerns for 2021.**

3 **A return to normal in foodservice is critical for the back-half of 2021.**

EXHIBIT 1: Cash Kansas Steer Prices

Source: USDA ERS

EXHIBIT 2: Steer and Heifer Slaughter



Source: USDA-NASS

PORK

Pork Outlook Hinges on Trade as Supply Plateaus

By Will Sawyer

The U.S. pork sector worked through the backlog of hogs over the summer and started Q4 relatively current in most parts of the country. That, along with the boost in trade expectations following the discovery of African Swine Fever (ASF) in Germany in early September, delivered the best spot producer margins for the year in October. Producer and packer margins, though, eroded as fears of capacity issues and higher feed costs began to take their toll.

Slaughter levels accelerated after Thanksgiving, peaking at 2.8 million head just before Christmas week, compared to 2.7 million in October and most of November. While slaughter levels are still below prior year levels, the boost signals that the industry is managing its way through a difficult labor and demand environment.

Feed costs in Q4 were largely in line with prior-year levels, but that will change meaningfully as feed cost inflation returns. Hog producers face 28% higher feed costs in 2021, peaking in the summer at nearly 40%. This is the highest level of feed cost inflation in over a decade. Producer profitability largely hinges on rational hog supplies and exports. The current futures curve for feed and hogs indicate producer margins slightly above break-even.

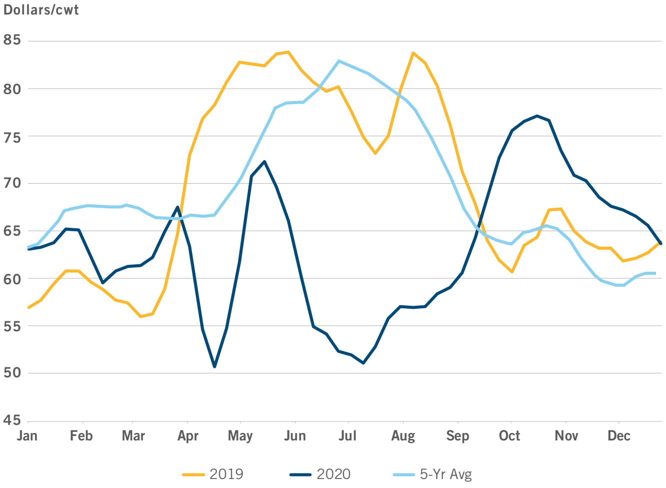
With a significant level of sow slaughter this year resulting from difficult margins tied to plant shutdowns and slowdowns in the spring, we expect far less pork supply growth in 2021. USDA expects just 0.6% growth in pork supply in 2021, which would be the lowest level of growth since the PED virus outbreak of 2013 and 2014.

1 **Industry capacity climbed during Q4** in **time for the fall hog run.**

2 **Higher feed costs eroded producer profitability** and **the outlook for 2021.**

3 **China hog prices have climbed due to COVID-19 fears** and **inspections in China's ports.**

EXHIBIT 1: Hog Prices



Source: USDA-AMS

EXHIBIT 2: U.S. Hog Slaughter per Week

Source: USDA-AMS

DAIRY

Dairy Inventories Ample, But Food Box Program Provides Release Valve

By Tanner Ehmke

Milk and dairy products ended 2020 in ample supply despite the seasonal spike in holiday demand, albeit significantly less than prior years – portending even greater surplus supply issues for dairy producers and processors leading into the 2021 spring flush.

U.S. dairy farmers increased milk production in November by 3.0% YoY following a 2.3% increase in the prior two months – signaling an accelerating pace of increasing production. Cow numbers and milk per cow both showed YoY improvements with milk per cow rising 1.3% YoY while the U.S. dairy cow herd inched higher to 9.407 million head, up 0.7%. Most of the expansion in U.S. milk production continues to occur in the Midwest and West, with some states showing phenomenal growth. Production in South Dakota jumped 13% YoY, Indiana was up 11%, and Texas rose 9.8%. Wisconsin and California saw production in November rise 2.7% and 2.6%, respectively.

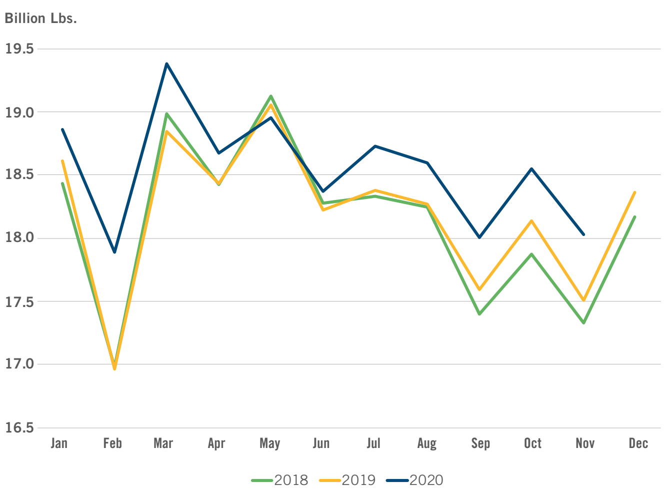
The broad-based rise in milk production across the U.S. hints at strong industry-wide momentum carrying over into the critical spring flush months in March and April despite rising feed prices and a drop in milk prices. Heading into a potential oversupply situation this spring, processors may be faced with imposing production limits on producers in some regions.

Dairy products are also carrying supply momentum into 2021 with butter in particular in large surplus. Butter inventories in cold storage were up 39.4% YoY in November which is largely expected to be commercial 40-lb pound blocks. Grocery retailers

1 **Milk and dairy products remain in ample supply at the start of 2021.**

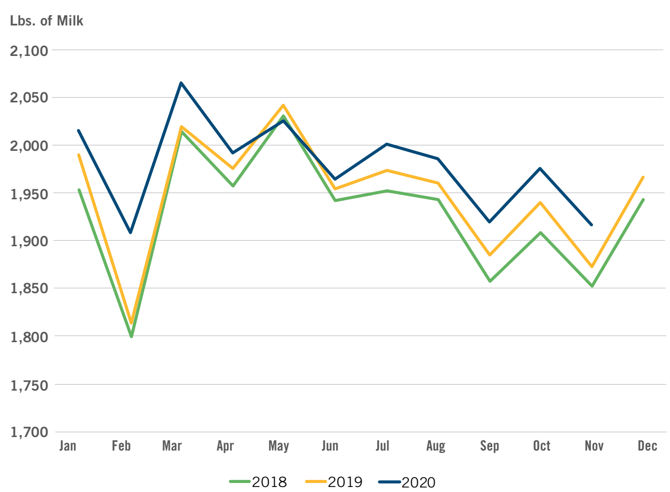
2 **Rising milk production** may result in **handlers imposing supply controls on dairy producers heading into this year's spring flush** in some regions.

EXHIBIT 1: U.S. Milk Production



Source: USDA-NASS

EXHIBIT 2: U.S. Milk Production/Head



Source: USDA-NASS

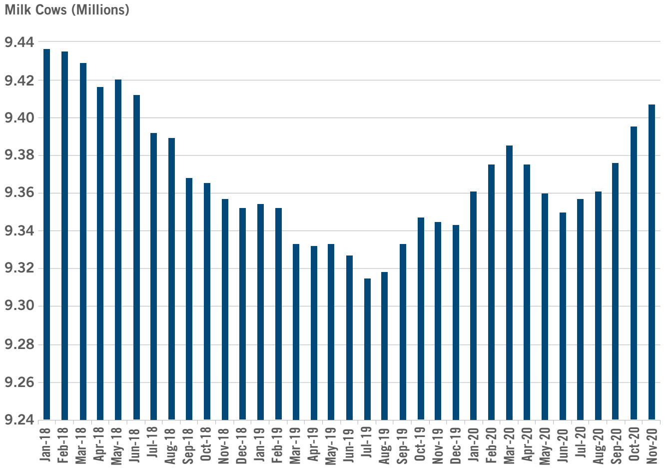
note that butter has led the growth in all dairy products throughout the pandemic with consumers returning to cooking and baking at home, but this demand uptick appears to pace behind commercial disappearance from foodservice. Butter prices have remained constrained under the weight of supply. Cheese in cold storage in November was up 2.6% YoY following the month's 40% decline in cheese prices.

USDA's fifth round of food purchases under the Farmers to Families Food Box Program will be a needed short-term release valve for dairy products with the program expected to absorb significant quantities of cheese, butter, and other products in the opening months of 2021. USDA announced $1.5 billion to be spent through April with about $500 million allocated to dairy. Highground Dairy estimates the dairy purchases would total about 40 million gallons of milk, 150 million pounds of cheese, and 75 million pounds of other dairy products like butter and sour cream for an estimated total of about 3 billion pounds of milk taken off the market. In the second half of 2020, USDA's purchases for the Food Box Program helped send cheese prices to record highs and are expected to cause more price volatility in cheese markets again as purchases resume.

Food service demand continues to be hindered with the rollout of COVID-19 vaccines taking longer than expected. Restaurant demand continues to struggle through the cold-weather months, particularly in northern regions of the U.S. where restaurants struggle with outdoor dining. While cheese has been a major beneficiary from the pandemic with demand increasing from the substantial increase in delivered pizza and fast casual food demand, total consumer dairy demand remains hobbled until the food service sector is back firing on all cylinders.

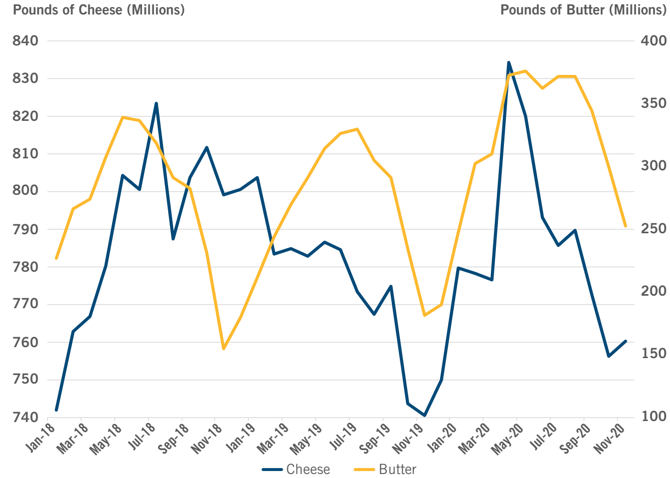
3 **USDA's Farmers to Families Food Box Program is expected to drive more volatility in cheese prices through Q1.**

EXHIBIT 3: U.S. Milk Cow Inventory



Source: USDA-NASS

EXHIBIT 4: U.S. Cheese and Butter in Cold Storage



Source: USDA-NASS

COTTON, RICE AND SUGAR

Tight South American Rice Stocks Support U.S. Exports

By Tanner Ehmke

Rice

Extreme tightness in South American rice supplies continues to support global rice prices heading into 2021, with the U.S. benefiting as the nearby rice exporter into the region. Brazil, the leading rice producer and exporter in South America, aggressively exported local supplies earlier in 2020 that drew down local supplies, spurred by the weakness in the real. However, Brazil's new rice crop will not be harvested until the beginning of Q2, leaving open the possibility of more long grain rice exports from the U.S. to Brazil in Q1.

Brazilian rice harvest traditionally peaks by April and May, at which point Brazil will likely cease aggressive imports and return as a rice seller on the world market. Dryness from La Niña delayed planting, though, which raises questions over Brazil's crop size, maturity, and time of delivery to market. The global container shortage has also delayed imports of rice into Brazil, exacerbating supply tightness. Hurricane damage to the Central American rice crops that begin harvest in mid-January and February may also translate into increased rice shipments for the U.S. later in Q1 and Q2.

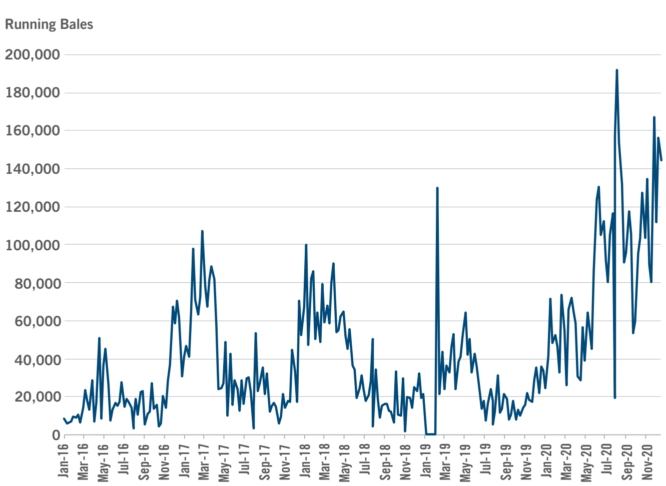
Cotton

China remains the central figure behind the rally in U.S. cotton prices that ended the year up nearly 9% on the year, while recoveries in crude oil and other commodities have helped cotton return to the highest level in two years. Export sales of U.S. upland cotton continue to be driven by China with the total exports leading last year's pace by a third.

1 **U.S. is positioned to export rice into Central and South America until the Brazilian rice harvest peaks in April/May.**

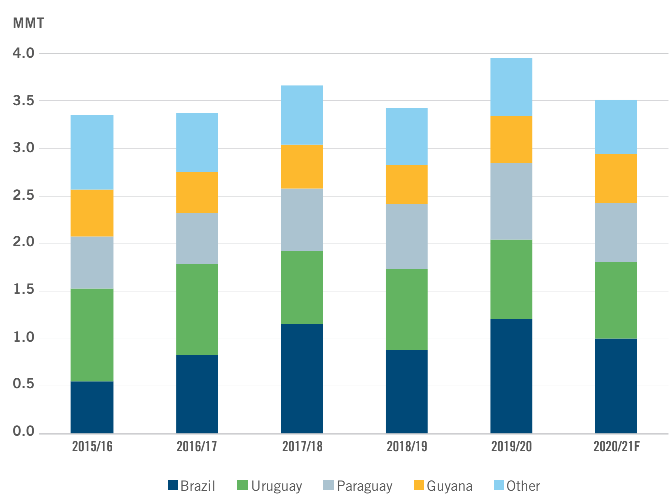
2 **China remains the chief export destination for U.S. cotton as the Chinese economy rebounds from COVID-19.**

EXHIBIT 1: Weekly Exports of U.S. Upland Cotton to China



Source: USDA-FAS, Export Sales Query System

EXHIBIT 2: South American Rice Exports



Source: USDA-FAS

As China's economy continues to rebound from the coronavirus while the U.S. economy struggles, Chinese buyers are taking advantage of the weak U.S. currency to buy U.S. cotton and meet growing consumer demand. Pakistan has also boosted imports after harvesting a smaller crop. Brazil, which is the second-largest cotton exporter, has struggled with dry growing conditions associated with La Niña, thereby opening the door for U.S. exports to fill the void.

Ahead of the spring planting season, cotton will be caught in an acreage battle with corn, soybeans, and grain sorghum that continue to chart multi-year highs on price. If cotton does not continue to compete on price, a shift in acres is likely as farmers make their planting decisions for this spring.

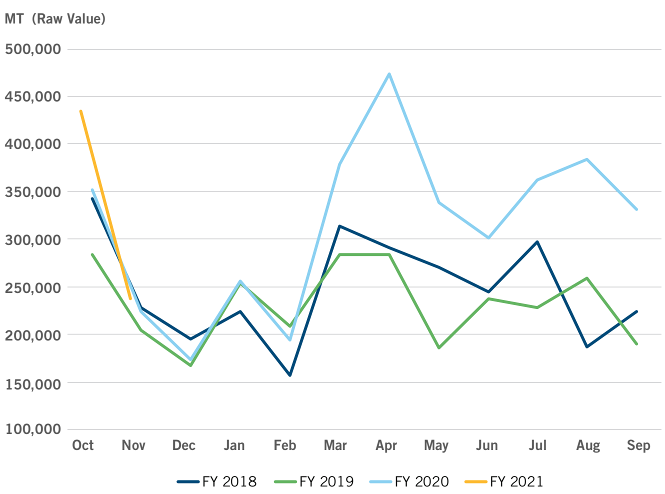
Sugar

Sugar imports into the U.S. continued to hold above prior year levels last quarter, but slowed significantly as the harvest of the U.S. beet sugar crop commenced. With a much-improved beet harvest last fall compared to the prior year, USDA cut its forecast on total sugar imports for the 2020-21 marketing year to 3.428 million short tons raw value (STRV), down 17.5% YoY. U.S. beet production rebounded this year. USDA's estimated extraction rate from slice of 14.51% for the new crop exceeds the 5-year average of 14.48% – a positive factor for processors with the new crop.

Although cane sugar harvesting and processing in Florida was delayed by hurricanes in the fall, Florida cane sugar production was up 1.4% YoY, with total U.S. production up 8% YoY. While U.S. sugar prices remain under pressure from improved domestic supplies, world sugar prices are holding at elevated levels from the drop in Brazilian production. The disparity will further discourage end-users from importing into the U.S. in the year ahead.

3 Sugar imports slow amid ample sugar beet and cane sugar harvests in the U.S.

EXHIBIT 3: U.S. Sugar Imports
Fiscal Years 2018-2021



Source: USDA-ERS, Sugar and Sweeteners Yearbook Table 61, Dec. 17, 2020

SPECIALTY CROPS

Record Tree Nut Harvest Increases Focus on Exports

By Tanner Ehmke

U.S. tree nut growers are heading into 2021 with record inventories of almonds, pistachios, and walnuts following last fall's record tree nut harvest. The U.S. almond crop is estimated to be up 10% YoY at 3.0 billion pounds, pistachios up 40% YoY at 1.05 billion pounds, and walnuts up 19% YoY at 780,000 tons. Dry weather aided growers in harvesting and piling the crop this season, but multiple days of smoke from wild fires in California lowered temperatures and delayed the hulling and shelling of nuts, adding time and cost to processing. The hefty nut crop increases the importance on the export market in the marketing year ahead. While exporters are aided by weakness in the dollar and a recovery in the Chinese economy, the global container shortage is impeding shipments.

Citrus growers in Florida and California are in the opening stages of citrus harvest with growers reporting decent crop quality. Consumer demand for citrus remains high as consumers continue to reach for healthy foods high in Vitamin C amid the COVID-19 pandemic.

Chinese tariffs on Australian wine and new U.S. tariffs on French and German wines may be good news for U.S. wine grape growers and vintners. Table grape growers, meanwhile, are seeing higher prices from a smaller harvest last fall and increased demand from U.S. consumers – reversing the oversupply situation that had bogged the industry for years.

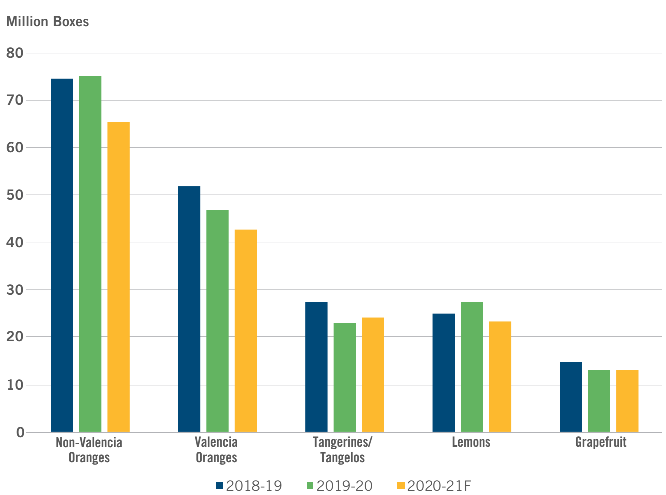
Water

Dryness continues to plague the western U.S. with the entire state of California struggling under varying degrees of drought stress. More than a third of the state

1 A record tree nut harvest has increased the need for exports, but **shippers are struggling with a global container shortage.**

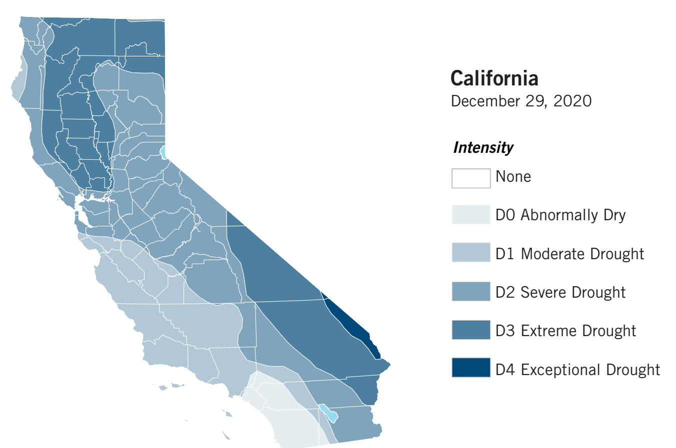
2 Drought continues to envelope California, **raising concerns for irrigators** in the upcoming growing season.

EXHIBIT 1: U.S. Citrus Production



Source: USDA-NASS, Citrus Forecast, December 2020

EXHIBIT 2: U.S. Drought Monitor



Source: droughtmonitor.unl.edu

is now experiencing extreme drought with snowpack at about half of average. In December, California's Department of Water Resources (DWR) announced a conservative water allocation of 10% from the State Water Project, the state's water storage and delivery system. While drought stress could potentially be relieved in January and February, which are the wettest months of the year, the DWR is advising preparations for extended dry conditions.

Agricultural producers in California are also anticipating groundwater constraints on irrigation from the Sustainable Groundwater Management Act (SGMA), which requires water users to recharge aquifers via deep wells and recharging ponds. The combination of potential ongoing drought and reduced irrigation availability from SGMA has growers making contingency plans for water shortages in the forthcoming growing season.

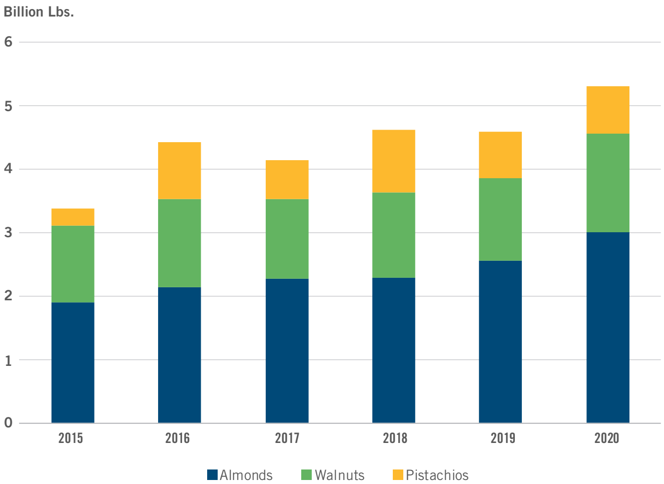
Labor

Mexico's National Minimum Wage Commission raised the general minimum daily wage for 2021 by 15% to $141.70 Mexican pesos, or about $7.12, while the minimum daily wage for the northern border was increased to $213.39 pesos, or $10.72/hour. Importantly, agricultural workers were added to the list of minimum wage jobs with a daily wage of $160.19 pesos, or $8.05. The wage increases were part of Mexico's membership in the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the United States-Mexico-Canada Agreement (USMCA) that both address minimum wage standards.

With Mexico typically accounting for more than 90% of H-2A visa workers in the U.S. annually, agricultural producers in the U.S. who rely on H-2A labor may face greater headwinds in sourcing workers from Mexico. Increasing reliance on the H-2A program will likely force growers in the U.S. to be more competitive on worker compensation in the year ahead.

3 **Mexico set minimum wages for agricultural workers in 2021, potentially tightening the supply of H-2A labor in the U.S.**

EXHIBIT 3: U.S. Tree Nut Production



Source: USDA-FAS, Tree Nuts: World Markets and Trade, October 2020

POWER, ENERGY AND WATER

Year-end Natural Gas Price Collapse Thwarts New Year Coal Recovery Plan

By Teri Viswanath

During the past decade-long fuel-switching cycle, the expectation was for a reversal of fortunes as natural gas plants became increasingly more economical to run than coal plants. The line of argument: Growing export demand for LNG and new producer discipline would eventually usher in higher natural gas prices, enabling a come-back for U.S. coal plants. And indeed, in the early 2000s, natural gas prices were very high when the large fleet of coal plants were readily dispatched ahead of gas-fired generation, buffering electricity consumers against much higher monthly bills.

More recently, even as excess summer stockpiling lifted natural gas inventories to record levels last fall, cursory evidence of rising exports and falling production led The Wall Street Journal, to discuss coal's impending "moment in the sun" in 2021.[1] EIA's Short-term Energy Outlook released last month made much the same argument, predicting that coal plants would roll back their market share losses by about 4% in 2021 (or roughly the same amount contributed in 2019) in response to a forecast increase in the price of natural gas. According to the agency, deliveries to electricity generators would spike this year, rising from an average of $2.44/MMBtu in 2020 to $3.38/MMBtu in 2021.[2]

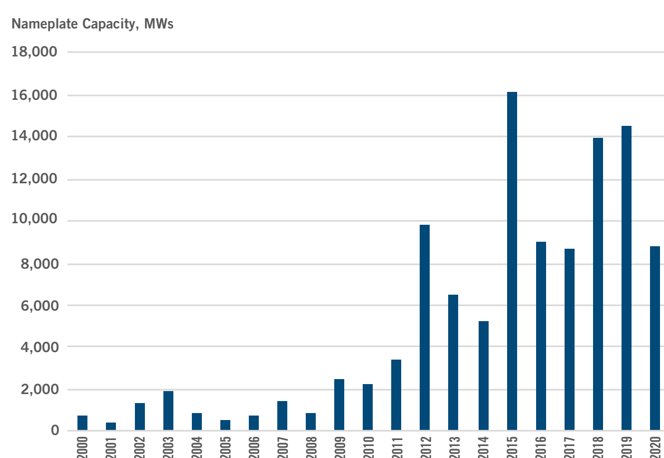
Yet, these predictions for the current year are simply not bearing out, with America's stockpile of about 100 years of really cheap fuel closing the door on a comeback for U.S. coal plants. Short-term price dislocations could happen, but without extreme cold weather, even a temporary reprieve will probably not occur. A sustained run-up in natural gas prices during Q4 (supported by extreme weather) is really the only leading indicator of strong prices ahead in the New Year. The year-end collapse in natural gas prices has once again thwarted such an outcome. At present, the balance of 2021 Henry Hub futures strip is trading around $2.75/MMBtu, much below the ~$3.15/MMBtu high watermark at the end of October, with current weather forecasts suggesting limited upside ahead this quarter.

What's more, we do not see current economics reversing in the near future. Based on our analysis, we expect the industry will look back on 2020 and refer to the current transition as "fuel-switched" instead the more transient "fuel switching" now employed. To date, the COVID-19 fallout has not altered plans to retire US coal-fired plants, with the pace of decommissioning

1 **America's stockpile of about 100 years of really cheap fuel is closing the door on a comeback for U.S. coal plants.**

2 We expect the industry will **look back on 2020 and refer to the current transition as "fuel-switched" instead the more transient "fuel switching."**

EXHIBIT 1: Coal Plant Retirements by Year



Source: U.S. EIA, ABB Ventyx Velocity Suite and CoBank estimates

likely to quicken in the next five years. While the past decade saw ~97 GWs of retirements, we think that same capacity could be shuttered by mid-decade. Now, the more interesting question to ponder is whether the argument of really cheap fuel is sufficient to extend the moment in the sun for U.S. natural gas plants.

3 **The EPA's update** to the **Lead and Copper Rule** suggests **new work ahead for water utilities in 2021.**

Water Utilities Handed a New Playbook for 2021

Late last month, the Environmental Protection Agency released its much-awaited 409-page update to the Lead and Copper Rule.[3] The updated guidance, which governs about 68,000 public water systems and affects the health of millions of Americans, was meant to spur greater action in lead pipe replacement.

According to EPA, "the old rule created so many loopholes that only 1% of utilities actually replaced lead pipes."[4] Indeed, when the lead and copper rule was first implemented in 1991, EPA estimated that about 10 million lead lines were in service nationwide. Now, even the most optimistic industry estimates suggest that half of these lines, or 6.1 million, are still in operation. The gloomier end of the estimate spectrum, aligning with EPA's own assessment, suggest as many as 9.3 million lead service lines continue to provide water to U.S. households. Either way, it is clear that insufficient progress has occurred over the past three decades.

In seeking to remedy this, the EPA will require water utilities to test for lead at schools and child-care facilities and establish a new "trigger level" for contamination and replacement. In statements made to the press, acting EPA administrator Andrew Wheeler highlights, "what I've tried to do…is set real numbers, real standards, real regulations that we can actually achieve that improve the environment."[5] Yet, by extending the time frame for replacing pipes with high levels of contamination, from 14 to about 33 years, the revised rule might run aground in the courts or by the new administration. Nevertheless, the new requirements suggests new work ahead for water utilities in 2021. ■

Sources used

[1] *The Wall Street Journal, "Coal's Moment in the Sun, Courtesy of Natural Gas – As natural gas prices continue to rise, coal's share of electricity generation is expected to tick up in 2021," 6 September 2020. The article clarifies, "those rallies weren't as sticky as analysts predict this one will be" and were never enough to shift the annual share of electricity away toward coal.*

[2] *See EIA Short-term Energy Outlook, 8 December 2020.*

[3] *See EPA, National Primary Drinking Water Regulations: Lead and Copper Rule Revisions, 40 CFR Parts 141 and 142, 21 December 2020.*

[4] *See EPA News Release, 22 December 2020.*

[5] *See Wall Street Journal, "EPA Adopts New Rules on Lead Contamination in Water," 22 December 2020.*

COMMUNICATIONS

Cable Broadband Soars, Video Dives

By Jeff Johnston

The COVID pandemic has produced "a tale of two cities": a group that has thrived and a group that has suffered.

Fortunately for cable broadband providers, they find themselves in the group that is thriving. Broadband subscriber growth from publicly-traded providers has been explosive, as people are forced to work and learn from home. The growth has been so strong that is has (presumably) given Comcast confidence to increase prices and introduce new data caps effective January 1, 2021. And given that broadband customers carry a much higher margin versus video and voice customers, providers saw a disproportionate increase in EBITDA margins relative to revenue. We believe that the trends observed by the publicly-traded operators are also being enjoyed by those in rural America.

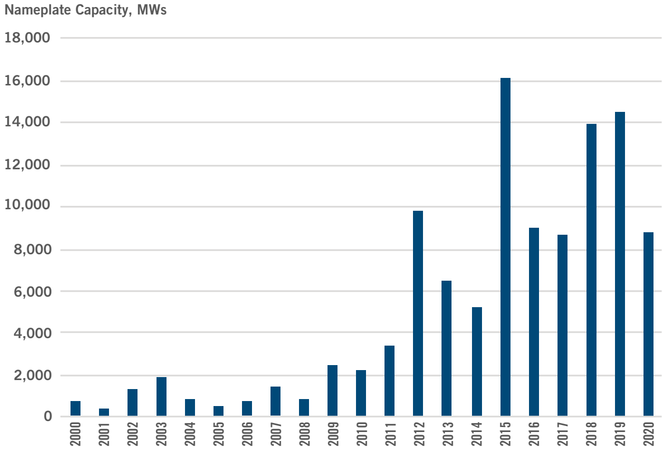
On the video front, the industry continues to experience cord cutting as consumers opt for over-the-top solutions from the likes of Amazon Fire TV, Roku, and Apple TV. In the third quarter, year-over-year video subscribers declined by 4.7% and 1% sequentially, according to S&P Global. Most operators have cut back their incentives to keep video subscribers, and are instead adopting a simple cost-plus model for the service. The reality is that video margins are so thin that spending large amounts of money to reduce churn is not a good use of company financial resources. We expect to see this trend continue for the foreseeable future as operators focus their capital and marketing efforts on growing their very profitable broadband business.

1 **The growth in broadband subscriptions led to a 7% year-over-year increase in EBITDA margins** for **cable service providers.**

2 **The increase in demand** has presumably **given Comcast the confidence to raise prices** and **introduce new data caps.**

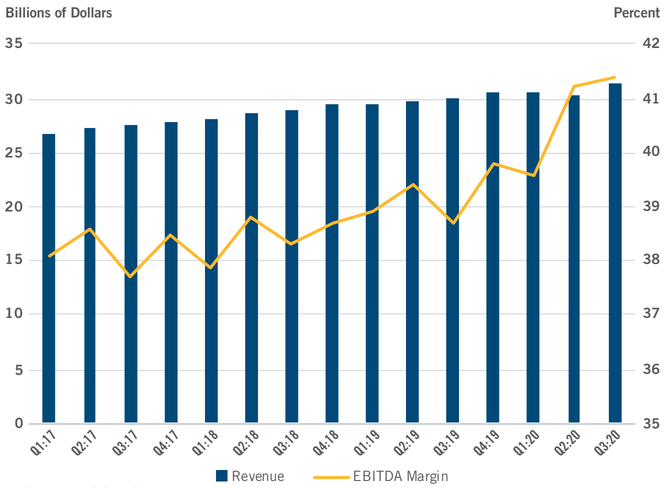
3 **Cable video losses continue to mount** as **more consumers opt for over-the-top services** such as **Roku and Amazon Fire TV.**

EXHIBIT 1: Highspeed Data Customer Additions



Source: Company Reports

EXHIBIT 2: Public MSOs' Revenue and EBITDA Margins



Source: S&P Global

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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