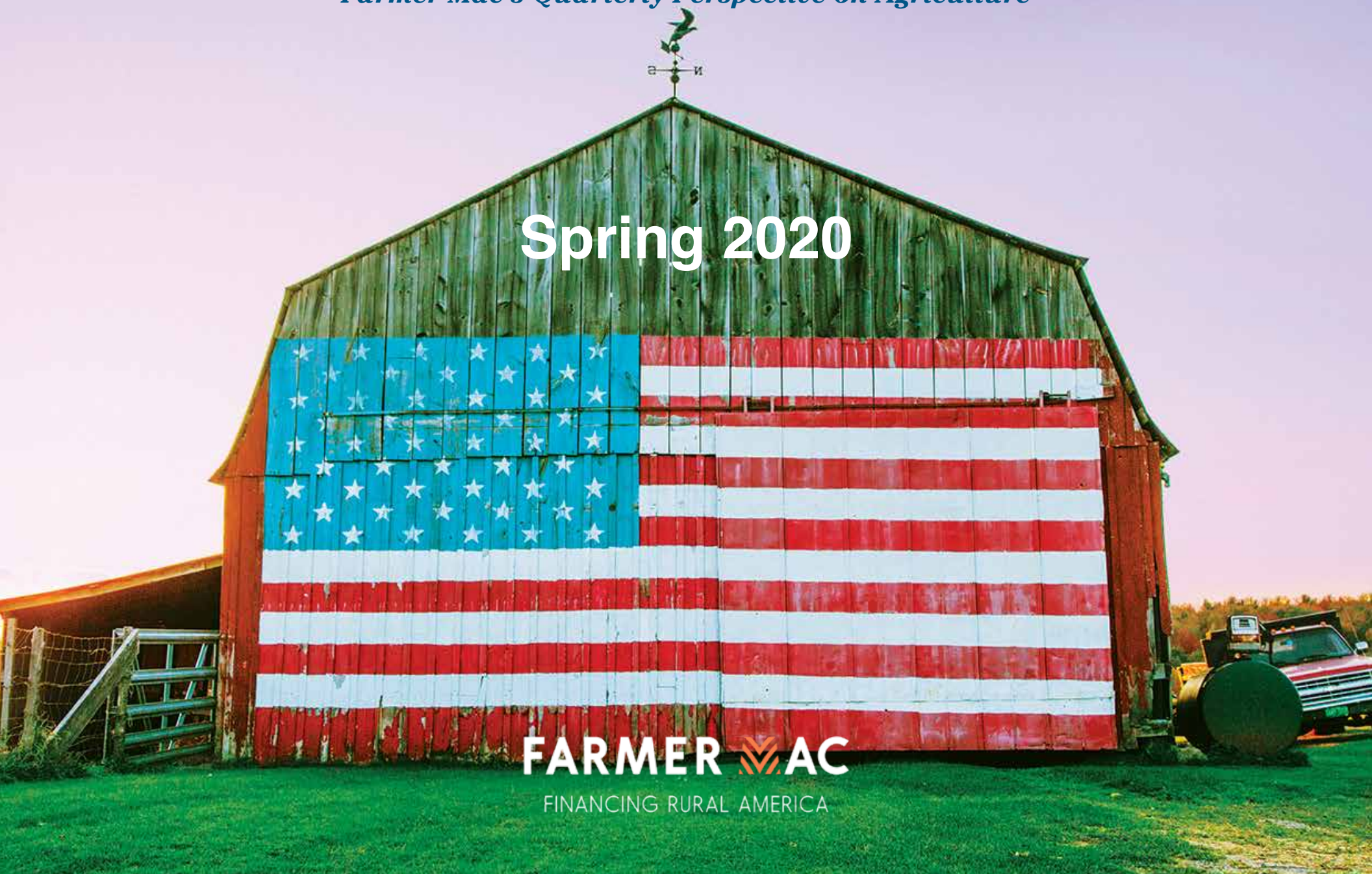
The Feed

Farmer Mac's Quarterly Perspective on Agriculture



Spring 2020

FARMER MAC

FINANCING RURAL AMERICA

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ABOUT THE FEED

The Feed is a quarterly economic outlook for current events and market conditions within agriculture. The report is broad-based, covers multiple regions and commodities and incorporates data and analysis from numerous sources to present a mosaic of the leading industry information, with a focus on the latest information from the United States Department of Agriculture and their Economic Research Service. There are several regularly included sections like weather and major industry segments, but the authors rotate through other industries and topics as they become relevant in the seasonal agricultural cycle. Where the report adds value to readers is through its unique synthesis of these multiple sources into a single succinct report. Please enjoy.

ABOUT FARMER MAC

Farmer Mac is a vital part of the agricultural credit markets and was created to increase access to and reduce the cost of capital for the benefit of American agricultural and rural communities. As the nation's premier secondary market for agricultural credit, we provide financial solutions to a broad spectrum of the agricultural community, including agricultural lenders, agribusinesses, and other institutions that can benefit from access to flexible, low-cost financing and risk management tools. Farmer Mac's customers benefit from our low cost of funds, low overhead costs, and high operational efficiency. In fact, we are often able to provide the lowest cost of borrowing to agricultural and rural borrowers. For more than a quarter-century, Farmer Mac has been delivering the capital and commitment rural America deserves.

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FROM THE DESK OF THE CHIEF ECONOMIST

For our agricultural economy, uncertainty is not just a fact; it is a lifestyle. In 2018, trade disputes and retaliatory tariffs disrupted export markets and commodity prices. Last spring, our industry navigated unprecedented flooding and delayed planting. Today, the U.S. and our global partners face an unparalleled modern pandemic that has stalled the world's economic engines. Each one of these challenges has been different in nature and potential impact, giving the entire industry a new set of challenges to overcome each year.

Thankfully, the American food supply chain is stalwart, with each link demonstrating simultaneous strength and agility during the COVID-19 pandemic. Farmers and ranchers are pivoting production as a result of rapidly evolving information. Food processors and agribusinesses are using their extensive food safety protocols to keep their workers healthy and their facilities whirring. Food wholesalers and distributors are rerouting food products in real-time as schools and restaurants temporarily shutter to prevent the spread of COVID-19. And lenders are staying in constant contact with their customers, ensuring that capital and cash flow are available where needed. That states have been labeling their food systems and workers essential businesses demonstrates the need for full pantries as well as the level of confidence placed behind each link in the chain.

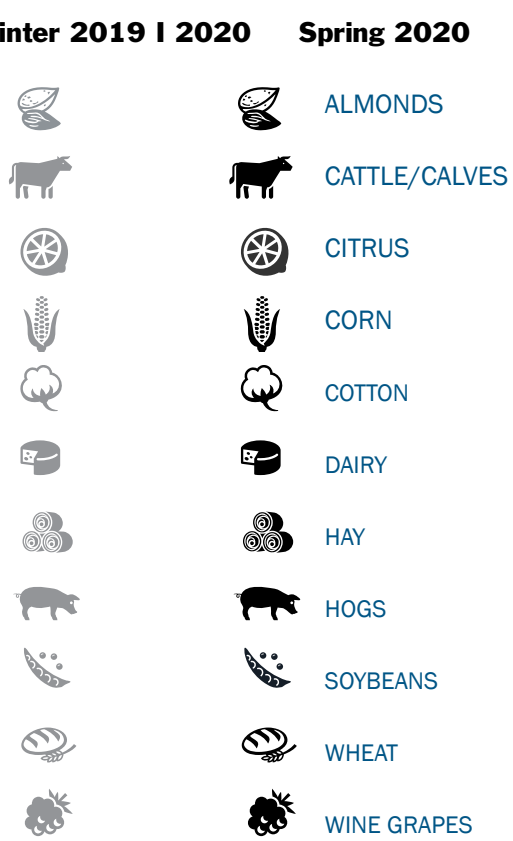
This issue of The Feed focuses squarely on the impacts on farmers, ranchers, and their lenders during this health safety crises. Many questions are swirling, and we will do our very best to clear some of the haze surrounding disease-related issues facing agriculture. From demand disruption to labor availability to considerations for farm income projections, we tried to weave in the impacts of COVID-19 throughout the issue. Undoubtedly, more analysis will follow in future releases as we learn more about the virus and its effects on our economic landscape.

Nothing is more important than the health and safety of the millions of Americans gathering around kitchen tables this spring or the billions of people around the globe whose lives have been upended by the COVID-19 pandemic. And while hope may not be a complete strategy on its own, it is something we must all maintain during challenging times like these. We at Farmer Mac sincerely hope you, your families, your customers, and their customers are safe, healthy, and ready to carry forward our shared mission of feeding the world. We'll get through this together – that's one thing of which we can be certain.

Thank you and best wishes,

Jackson Takach, Chief Economist

PRODUCTION AND MARKET PRICE PERCEPTUAL MAP



REVIEWING THE FEBRUARY USDA FORECASTS DURING COVID-19

(resource 1, 2)

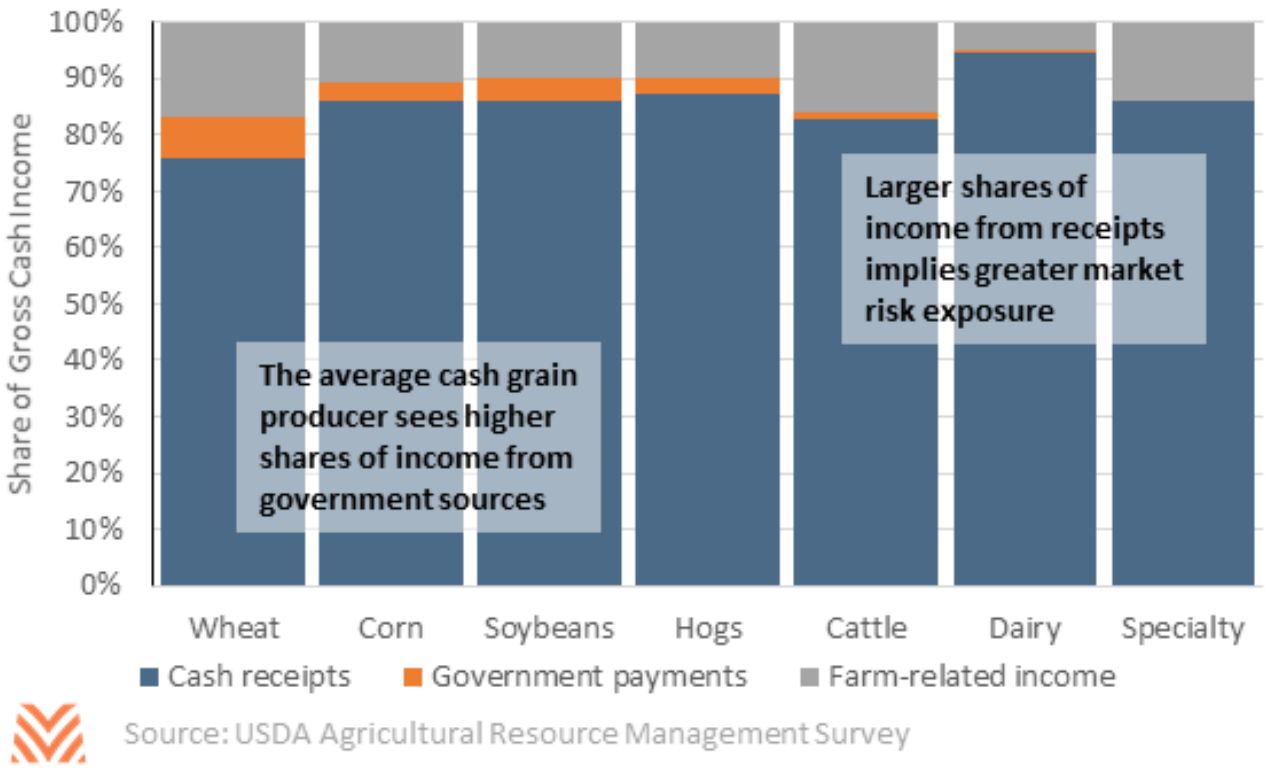
Key Highlights

Farm incomes in 2020 were forecast to be near 2018 levels, though COVID-19 will heavily impact the final total.

Cash receipts are likely to fall, while increases in farm-related payments and government payments are expected; exposure to market risk is highest among dairy and specialty producers.

Expenses will face differing pressures; labor-intensive specialty producers will see expenses rise, while cash grain producers could see expense declines due to lower fuel and interest costs.

Figure 1: Share of Farm Income By Source and Producer Specialty, 2014—2018



Source: USDA Agricultural Resource Management Survey

When the USDA released their first estimates for farm incomes in February, the sector looked on track to have a very similar year to 2018. The USDA estimated that net cash farm income (NCFI) would be $109.6 billion in 2020, below 2019 NCFI but the second-highest income level since the end of the commodity supercycle in 2014. With the rise of COVID-19 creating new uncertainties in agriculture, these projections are likely to differ significantly when the August forecast for 2020 is released.

INCOME. COVID-19 has significantly changed the income picture from cash receipts for producers heading into 2020. Corn prices have fallen, driven by large expected declines in corn use for ethanol. Animal and animal product futures fell precipitously before seeing a modest rebound as export fears waned. Some commodities, like wheat, even saw significant price increases driven by strong demand and concurrent complications in foreign production. Cash receipts also face some production risk, driven by potential labor shortages or increased difficulty in accessing inputs or machinery repairs during the outbreak.

While cash receipt income has the potential to fall, income from farm-related sources and total direct government payments could increase in 2020. The economic relief plan replenished $14 billion of borrowing authority of the Commodity Credit Corporation, which would allow for additional rounds of payments, similar to the Market Facilitation Program. An additional $9.5 billion was allocated to be an emergency fund for select commodities facing severe headwinds, like cattle, fruits, and dairy. Combined with a probable increase in indemnities paid, farm incomes from other sources are likely to see sharp increases in the next forecast, set to be released in August.

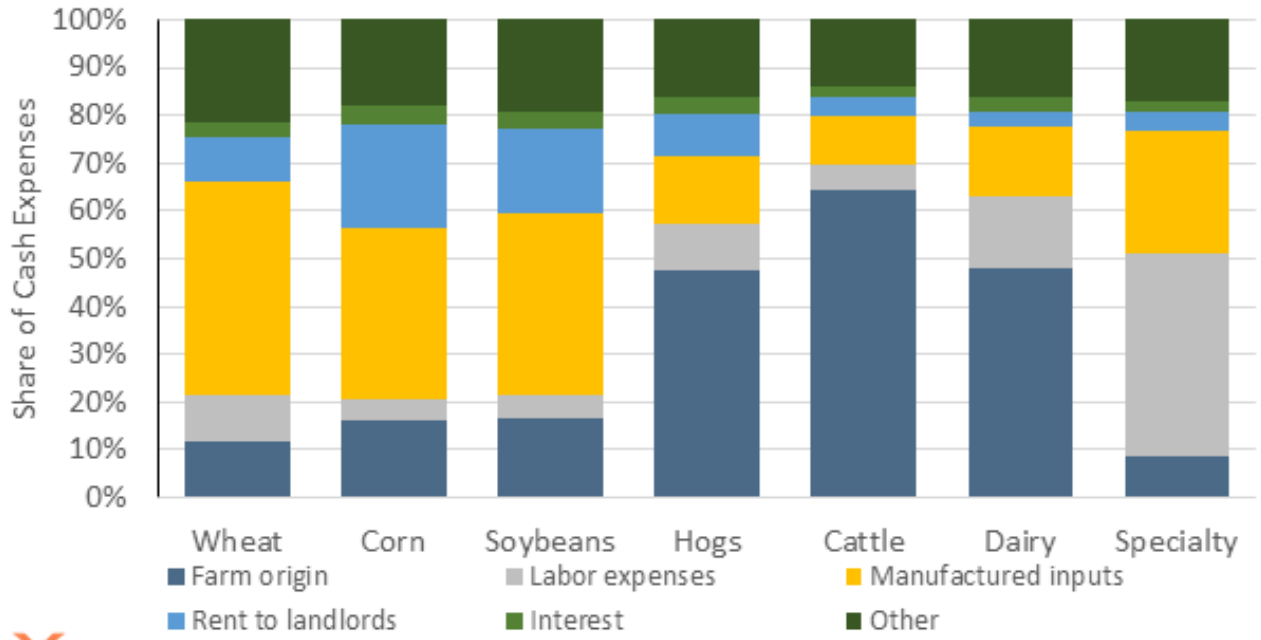
During the outbreak, different commodities will have varying exposure to the market risk that will stem from the pandemic. Between 2014 and 2018, the average wheat producer saw 8% of their gross incomes from government programs, and another 17% from other farm-related incomes, like insurance indemnities, income from farmland rentals, and royalties and leases on farmland. For typical dairy producers, incomes from government and farm-related incomes were 1% and 5%, respectively. In a year with significant changes to government programs or farm-related incomes, wheat producers could see more volatility in their incomes than could be explained through cash receipts alone. Conversely, because dairy producers receive a higher proportion of their income from cash receipts, they have a relatively higher exposure to market price risk compared to wheat producers (see Figure 1). Shares of income from farm-related payments largely follow the share of expenses each operation spends on insurance premiums.

EXPENSES. Expenses are also likely to see significant volatility, though, as is the case with incomes, the direction of those changes will be mixed. While lower federal funds rates would imply lower interest expenses, short term debt use and initial higher credit spreads may delay the reduction. During the last two sharp reductions in rates in 2001 and 2008, interest expenses declined for three years before stabilizing at a lower level. Labor expenses are likely to increase, as risks to H2-A labor availability and general worker absenteeism place pressure on wages. Select inputs like feed may see declines if current low corn prices hold, while fuel costs are expected to plummet if current tensions between oil exporting nations continue.

While the exact magnitude of these changes is unknown, producers' specializations will impact their risk. Originally, the average fruit, nut, and vegetable producer was forecast to see 43% of their total expenses going to labor costs in 2020 (see Figure 2). Risks to agricultural labor could further erode profitability for specialty producers in 2020. Potential declines in fertilizer will disproportionately benefit major cash grain producers, and declines in cash rents could support corn and soybean producers. Decreases in feed costs could aid the profitability of cattle producers, who have seen rising incomes offset by higher expenses in recent years.

The final national total for net cash farm income in 2020 may be very close to the original projections laid out by the USDA. However, the components of net cash income are likely to see significant volatility. For both expenses and incomes, increases in select components could be offset by decreases in others. But the relative exposure select commodities have will change how they experience this pandemic. High market-exposure, labor intensive specialty commodities will see headwinds, while wheat producers could see higher net cash farm incomes in 2020 due to their expense makeup. While the economic damage from the COVID-19 outbreak will likely be severe, farm incomes should see far more stability than the general economy in 2020.

Figure 2: Share of Total Expenses By Source and Producer Specialty, 2020 Forecast



Source: USDA Agricultural Resource Management Survey and Farmer Mac estimates

PANDEMICS AND DEMAND
(resource 3, 4, 5, 6, 7, 8)

Key Highlights

Foreign and domestic markets will both see demand changes from the COVID-19 pandemic and its resulting economic damage.

Foreign demand will face headwinds from a stronger U.S. dollar, as well as lower incomes if a global recession takes hold.

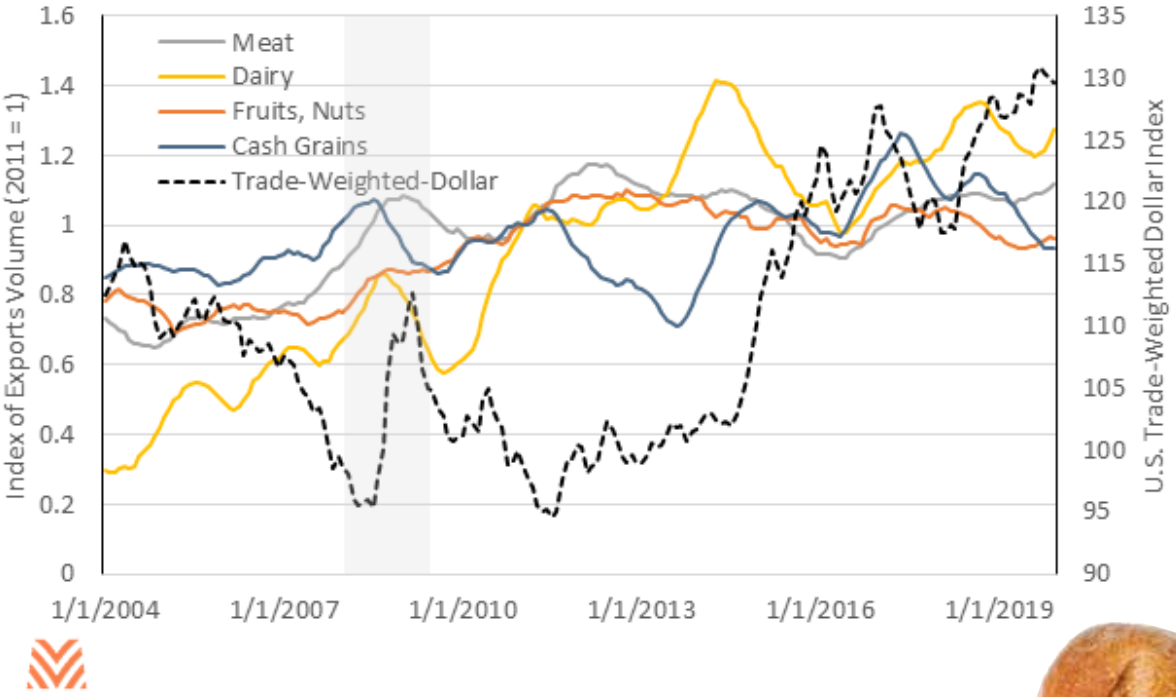
Domestic demand is more likely to change during recessions, and impacts animals and animal products more than cash grains.

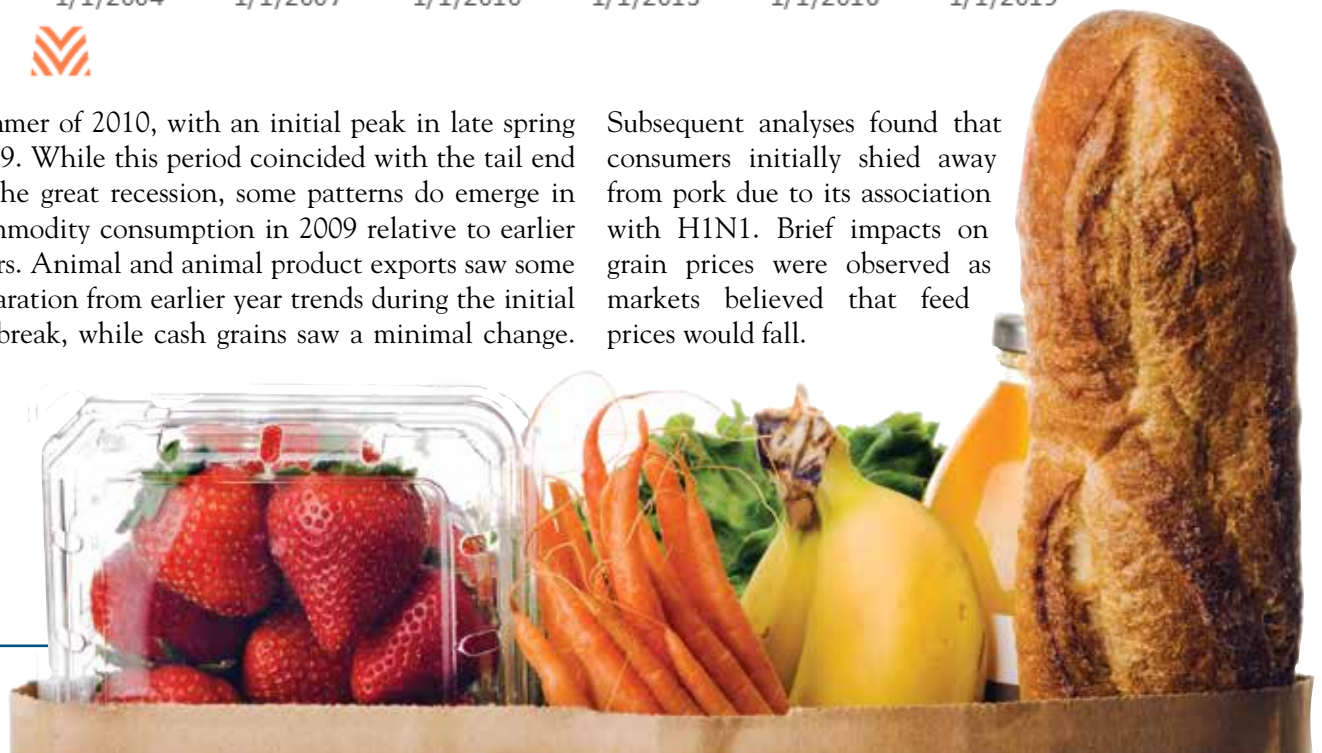
In late March, many Americans witnessed empty shelves in grocery stores for the first time in their lives. Hand sanitizer and toilet paper disappeared, and residents bought as much meat as their refrigerators would hold. Soup makers saw their stock prices rise to multi-year highs. These initial reactions to a pandemic are only the start of how a pandemic can ultimately influence global demand for agricultural products. Ultimately, declines in demand are more likely from the economic impact of a pandemic than from the virus itself.

FOREIGN DEMAND. One way of measuring the impact of an outbreak on foreign demand is through changes in exports over time. The initial H1N1 "swine flu" outbreak lasted roughly between April 2009 and the summer of 2010, with an initial peak in late spring 2009. While this period coincided with the tail end of the great recession, some patterns do emerge in commodity consumption in 2009 relative to earlier years. Animal and animal product exports saw some separation from earlier year trends during the initial outbreak, while cash grains saw a minimal change. Subsequent analyses found that consumers initially shied away from pork due to its association with H1N1. Brief impacts on grain prices were observed as markets believed that feed prices would fall.

Figure 3: Index of U.S. Total Agricultural Export Volume for Commodity Groups and the Trade-Weighted Dollar

Source: U.S. Census Bureau, USA Trade Online; Federal Reserve Bank of St. Louis FRED Database



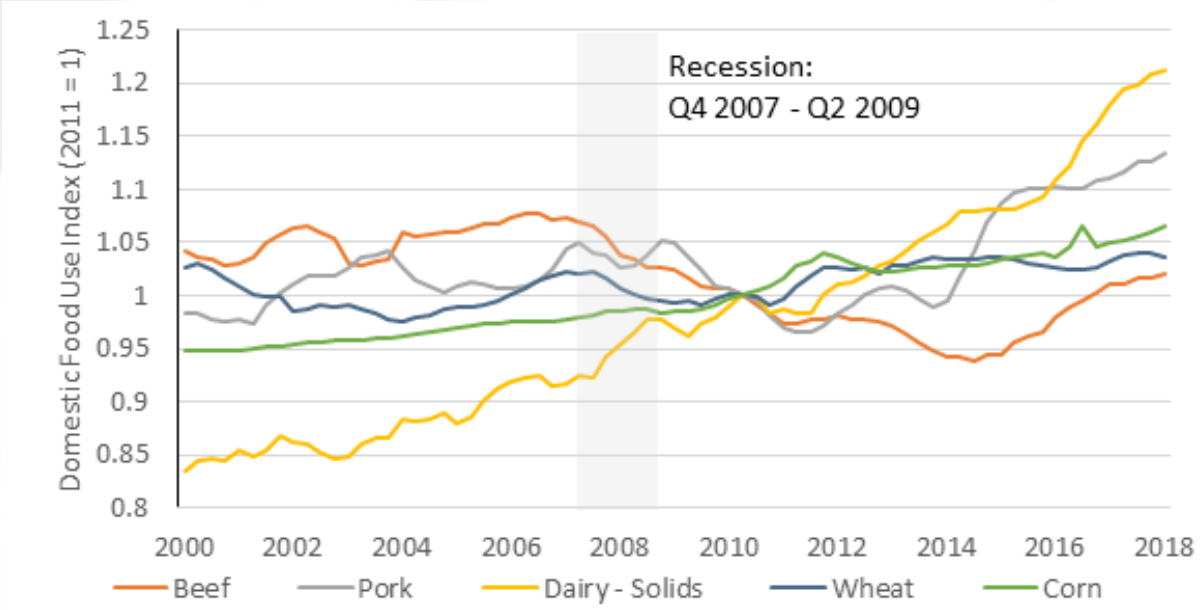


While pandemics can impact foreign demand, the resulting economic slowdowns can have a more significant impact. A stronger U.S. dollar, driven up by the flight to safety during a recession, reduces the competitiveness of American commodities on the global market. In addition, foreign import demand for many commodities also falls during recessions, and the impacts vary by commodity. During the financial crisis, exports of dairy products fell by 39%, while many staple goods saw little to no change. The basic nature of food and agricultural products has historically meant that agricultural exports are less sensitive to changes in real foreign disposable income than other export goods.

DOMESTIC DEMAND. In prior outbreaks, changes in domestic consumption were somewhat muted. Sales of items like orange juice, tea, and soup did increase during the second wave of the H1N1 outbreak in late 2009. The only decline came from pork, which suffered due to its association with the virus. However, the COVID-19 impact will differ in both its length and on changes to durable goods. Limits on Americans' travel is likely to show up specifically around corn use for ethanol. Industry estimates are that gasoline consumption could decline by 15-20% during the impacted period. If the decline is experienced for two months, the net effect on corn use for ethanol would be a more than 100-million-bushel decline.

Some changes in domestic consumption have also been observed in recessions, implying that the aftermath of a pandemic could see similar impacts. During the financial crisis, consumption of meat products like beef and pork fell. Select dairy products saw increases in consumption, though this was likely driven by steep price drops in dairy through mid-2009. Like foreign markets, cash grains saw relatively little change in domestic consumption through the recession.

Figure 4: Domestic Disappearance and Food Use of Select Commodities, 2000—2018



Source: U.S. Economic Research Service, Dairy Data and Feed Grains Database

Agricultural products will see impacts from the pandemic and resulting economic damage, even if those impacts are far less than what other sectors are likely to see. Animals and animal products will likely face more headwinds from a resulting recession than from the pandemic itself. The basic nature of many cash grains like wheat implies some stability, though commodities like corn can see more influence from changes in industrial or feed use. In short, we are likely to see demand changes. The severity of those changes will be a function of how long it takes to get COVID-19 under control, and how much economic damage it causes before it is contained.

PRODUCTION RISK STEMMING FROM COVID-19

(resource 9, 10, 11, 12)

Key Highlights

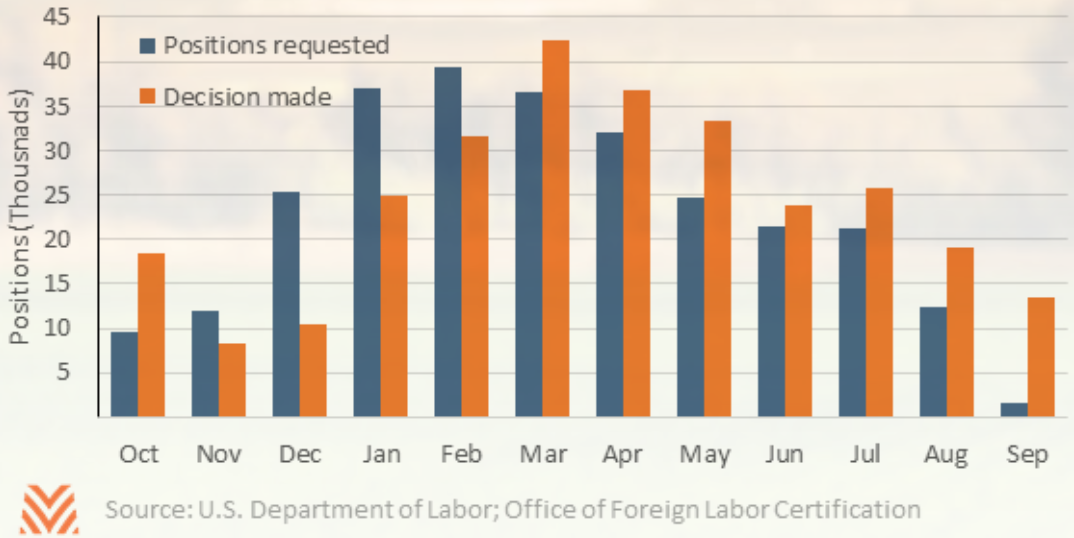
Travel bans can have significant impacts on H2-A labor; near-term disruptions would have the largest effects on tobacco and fruit producers.

Agricultural labor is more susceptible to viral outbreaks than the general population due to a lack of insurance and migrant-specific concerns.

Producers are more at risk than the general population due to age and specific respiratory concerns, but low population densities help mitigate these risks.

The outbreak of the 2019 novel coronavirus (COVID-19) has introduced a level of uncertainty into the agricultural sector that rivals some of the trade uncertainties of the past few years. In addition to market risk stemming from uncertainty around foreign production and demand, producers will face production risks stemming from the pandemic, largely in the form of agricultural labor risks. As the outbreak spreads, worker absenteeism is expected to climb. Theoretical simulations have found that widespread pandemics could cause American food system worker absenteeism rates of 20% to 40%, though far lower rates could exist if the spread of the virus was significantly slowed.

Figure 5: H2-A Position Requests and Decisions By Month, FY2019



The risk will vary significantly across the sector, depending largely on labor needs. On average, fruit and tree nut producers spend almost 40% of all operating expenditures on labor, while oilseed and grain farmers spend less than 5%. Even before the COVID-19 outbreak, labor shortages were anticipated. The average real wages for nonsupervisory farmworkers have increased relative to nonfarm workers steadily since 2011.

POTENTIAL H2-A VISA IMPACTS. One result of the tightening labor pool has been the increased use of the H2-A visa program. This increase is noteworthy given the additional costs associated with the program: growers must pay application, visa, transportation, and housing costs in addition to wages. Between the 2017 and 2019 fiscal years, the number of positions certified through the H2-A program increased by 28%, rising to 277,000. Critically, the largest share of decisions on H2-A programs comes between March and April. The requested start date for these workers is typically two months after the submission date.

The challenge for producers is that recent administration actions have restricted the ability of other visa applicants to travel to the United States from countries such as China. If these travel bans are extended to countries that supply significant H2-A labor, current labor shortages could grow worse. If a ban was put in place on the countries H2-A entrants are from between April and May, almost 80,000 workers would be unable to report to their operations. This would impact producers very differently: tobacco producers could see a labor shortage of 12,000 workers, while fruit producers could see a decline of between 3,000 and 6,000 available workers depending on their commodity. Commodities impacted by these bans would depend on the months that a ban was in place. The U.S. Embassy in Mexico closed effective March 18, 2020, creating uncertainty around the future of H2-A visa processing for Mexican immigrant labor, though subsequent comments indicated that H2-A visas would continue to be processed.

Figure 6: Number of Farming Operations and Population Density By County

Source: U.S. Census Bureau, USDA Census of Agriculture

GENERAL LABOR AND HEALTHCARE USE. In addition to potential changes in labor flows, agricultural laborers are also more susceptible to viral outbreaks than the general population. In the most recent data available from the National Agricultural Workers Survey, just 47% of agricultural workers reported having health insurance, compared with 90% of the general population. Under two-thirds of agricultural workers have visited any form of healthcare provider in the prior two years, and a plurality of payments are made out of pocket. Uninsured adults are less likely than covered adults to receive preventative and screening services and are less likely to receive those services on a timely basis.

The agricultural labor pool faces additional pressures, as it contains a large share of migrant workers. In addition to coverage issues, migrants are less likely to use healthcare services due to discrimination, deportation, communication, and documentation concerns. These risks could mean that agricultural labor is more susceptible to widespread viral outbreaks than the population at large.

PRIMARY OPERATORS AND HEALTHCARE. Unlike the broader agricultural labor pool, primary farm operators are roughly as likely to have health insurance as the general population, with 89.3% of producers having access to some form of health insurance. Some variability exists: cash grain producers are the most likely to have coverage at 94.5%, while dairy operators were least likely at 59.6%. The most common form of coverage is through an employer-based plan, either from a working spouse or as part of an off-farm job.

However, the population of farm operators may be more susceptible than the general population due to their age and other factors. The latest census data found that principal operators were 57.5 years old on average, and more than a third were over 65. Farmers are also susceptible to certain medical concerns like hypersensitivity pneumonitis, or farmer's lung.

Mitigating factors do exist. Operations are typically in low-density counties, and prior pandemics have shown clear links between population density and impact. While more than two-thirds of the total population lives in counties with 200 or more people per square mile, just 17% of operations do. Nearly half of all operations are in the bottom half of counties by density. And many farms, especially the large and very large farms that generate more than 90% of agricultural returns, are run by two or more operators. A quarter of large operations have multiple generations of principal operators, giving these operations significant resiliency in case of any viral impacts.

Ultimately, the impact of the novel coronavirus on the U.S. agricultural economy is unknown. A small change in the spread of the virus can mean the difference between a nationwide epidemic and a brief disruption that is in the rearview mirror by summer. But even if the virus spread is largely contained, it is likely that some disruptions to agricultural labor will happen, especially those producers who have high labor needs in late spring.

COVID-19 AND THE MACRO ECONOMY
(resource 13, 14, 15, 16)

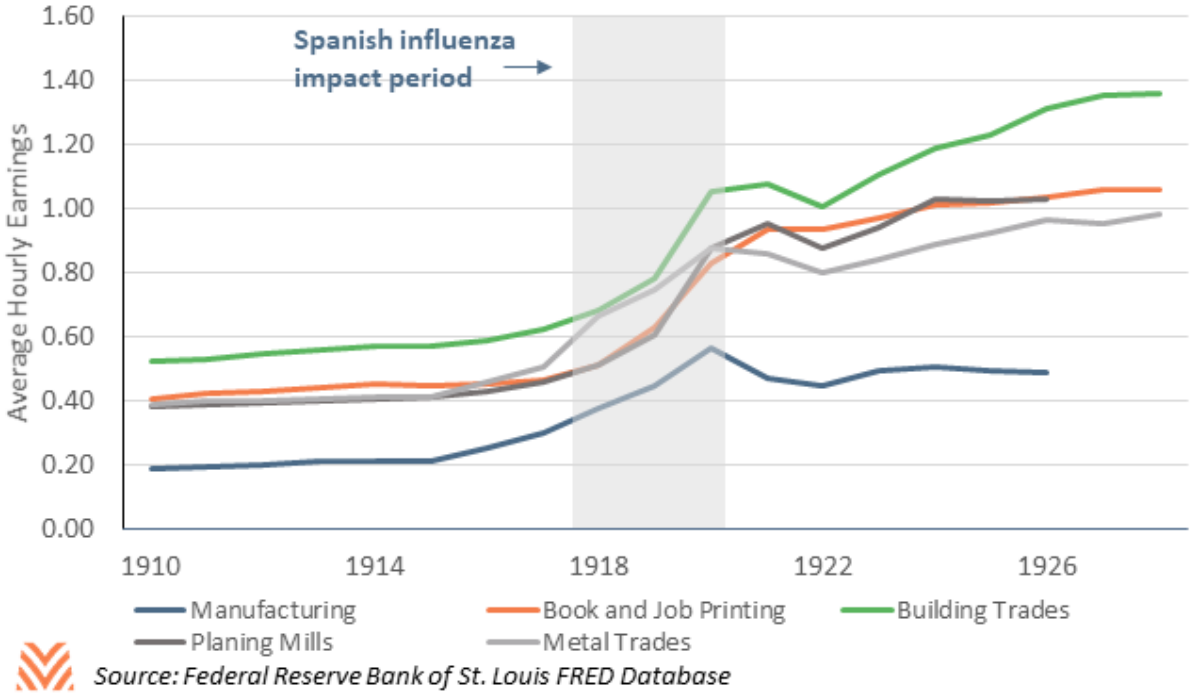
Key Highlights

Labor costs rose during the last major pandemic in the U.S., driven by worker absenteeism.

Rising unemployment will harm off-farm income for producers, but may be a greater concern for metro-adjacent operators or farmers in recreation-dependent counties.

Recessions typically lead to a stronger U.S. dollar, decreasing foreign demand for U.S. commodities.

Figure 7: Average Hourly Earnings for Select Professions During Spanish Influenza, 1910—1930



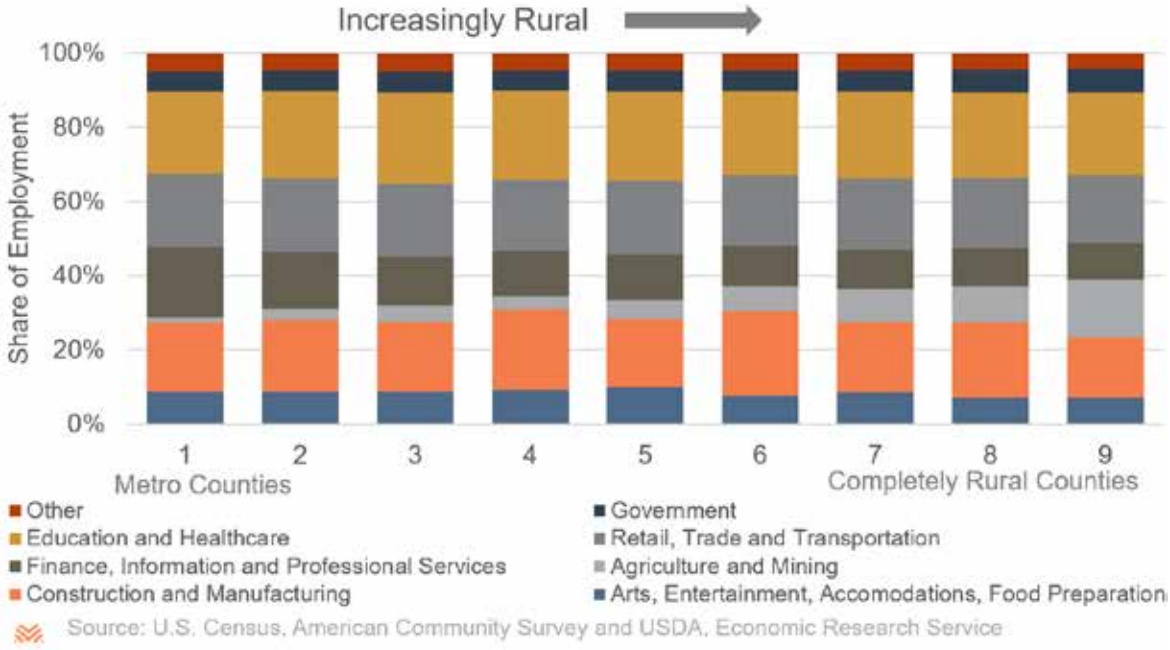
Source: Federal Reserve Bank of St. Louis FRED Database

Biological impacts can have severe consequences on the global economy, even if the infection rate is relatively low. A prior coronavirus strain, SARS, is estimated to have caused $40 billion in economic damages despite infecting only 8,000 people. The Commission on Global Health Risk has estimated that pandemics could cost the global economy $6 trillion through the 21st century, based on an expectation of two or three pandemic events. Twentieth-century pandemics are estimated to have caused an economic loss of 0.7-4.8%. Prior pandemics also had lagging impacts, with damages extending out as far as four years.

LABOR COSTS. Prior pandemics have placed significant pressure on labor costs. Despite coinciding with World War I, the Spanish Influenza is found to have had an even greater impact on wages than the war. Over the short run, worker absenteeism diminishes the labor supply and places upwind pressure on labor costs. Longer-term impacts stemmed from labor shortages, a result of an overall mortality rate that exceeded 1 in 100 over the 1915 – 1919 period in which the flu was most active. Using the World Health Organization's most recent mortality rates, COVID-19 would have to infect more than 30% of the population to have the same impact. However, labor impacts are likely to differ. The 1918 influenza showed disproportionate impact on the working-age population, while COVID-19's impacts are most severe among the elderly.

UNEMPLOYMENT. COVID-19 had already caused considerable damage on the U.S. economy within the last weeks of March, but initial impacts will be disparate. In 2018, more than 10% of Americans were employed in occupations that will see collapses in their 2020 Q2 revenue: food preparation, travel and accommodations, arts and entertainment. Sales and related service occupations (like cashiers) made up an additional 10% of the workforce, and have

Figure 8: Share of Employment by Sector and County Urban-Rural Continuum Code, 2014–2018



also seen severe disruptions. Unemployment in these and related sectors has a high potential to lead to lower overall consumer demand, causing impacts in sectors with less direct exposure to pandemic-related shutdowns. This will lead to declines in off-farm incomes, which remain a significant source of income or health insurance, even for large operations. On average, operators will face more risk from off-farm income declines if they are in metro-adjacent counties or are in counties with high employment from recreational activities.

STRENGTH OF THE U.S. DOLLAR. The spread of COVID-19 has triggered a global flight to economic safety, which led to a strengthening of the U.S. dollar index. The consensus view is that the dollar will strengthen over the near term based on rising global uncertainties. While the influence of the exchange rate on U.S. trade balance has lessened with time, a positive relationship still exists between the strength of the dollar and exports. This is especially true for commodities, where the relative strength of the dollar was a key driver in the decline in American exports following the commodity supercycle.

HOUSING PRICE INDEX. The Housing Price Index (HPI) measures the trends in the average residential asset values. Historically, the HPI has continued to rise even during recession events, except for the financial crisis in 2008. Despite historic unemployment, the Federal Housing Finance Agency believes that broad downturns in home prices can be avoided if the U.S. returns to full economic activity late in Q2 or early Q3. However, they note that a protracted affair of six months or longer may cause financial strain in the mortgage market that would be equivalent to the housing crisis. Some research has found evidence that declines in general housing prices can reduce the urban premium of land for producers who are metro adjacent, with diminished impacts for producers in more rural counties.

The onset of COVID-19 will have a broad set of impacts in ways that impact the agricultural economy through the macro economy— though impacts will vary. Very-rural cash grain producers will see headwinds from a stronger U.S. dollar's impact on prices and foreign demand, but may see limited impacts otherwise. Conversely, coastal fruit or nut producers who typically have higher labor reliance, more off-farm income, and higher urban premiums on their land could face significant risk from a broad downturn in the general economy.

PRODUCER RISK AND THE AFRICAN SWINE FEVER

(resource 17, 18, 19)

Key Highlights

While 40% of Chinese hogs were lost to ASF, American production is far more resilient to spread.

Feral hog populations remain one of the largest outstanding risks to producers, though this risk is largest in southern and western states.

Robust inspection of pigs for slaughter at pork processing facilities and of feed and additive imports can reduce risk even further.

The significant spread of African swine fever (ASF) in 2018 introduced a level of uncertainty into meat production that has few historical parallels. Official estimates from the Chinese government indicate that annual October inventories were down 40%, while private data from feed and equipment sellers indicate that losses could be even higher. The most severe U.S. outbreaks from threats like the porcine epidemic diarrhea virus (PED) or porcine deltacoronavirus had comparatively modest impacts on inventories.

A large part of the reason for this disparity are the differences between the U.S. and Chinese pork production. Almost 85% of Chinese production prior to ASF occurred in traditional barns and backyards with limited controls against disease. These facilities allowed for significantly more interaction between wild pigs and domestic herds. Smaller facilities also have challenges disposing of dead pigs, and often resort to inferior methods that can increase spread. These risks, combined with a lack of reporting brought on by political considerations, meant that Chinese production may have seen more risks than U.S. producers would. However, select risks for American production remains. Feral hogs remain one of the largest outstanding risks to the U.S. herd. Since 1982, the wild population hasd spread from being largely concentrated in three states to having far-reaching spread across much of the south and west coast. More than half the feral hog population carry infectious diseases. However, actions from the National Feral Swine Damage Management Program, initiated in fiscal year 2014, have helped curb feral hog populations.

Figure 9: Total Funding for Feral Hog Programs and Aerial Support Hours, 2014—2018

Other areas of concern include processing plants and production interconnectedness. Indiana alone imported more than 3.5 million pigs for slaughter in 2015. These hogs came from more than a dozen states and Canada, but pigs for slaughter do not require specific permitting. Processing is also highly concentrated: just 49 plants are approved for hog slaughter by the USDA. The concentration and movement of these plants means that states with large numbers of processors like Indiana, Iowa, or Tennessee could see higher risk during outbreaks. The interconnectedness of production means that more animals are at risk. While 95% of the pork Americans are forecast to eat in 2020 will be raised and processed in the United States, these animals can also interact with the global market. One of the theorized causes of the 2014 PED outbreak was through contaminated feed that came through southeast Asia. Pork production also uses many additives, many of which are produced abroad.

Despite these risks, it is unlikely that the U.S. herd will face the same challenges that Chinese and certain European hog producers have, even if an ASF outbreak were to occur. Our existing controls have helped mitigate damage from prior outbreaks, and while a few additional improvements may be made, animal production in the U.S. does not face nearly as many concerns as some foreign producers.

THE USDA'S FORECAST FOR WORKING CAPITAL AND CURRENT DEBTS

(resource 20, 21)

Key Highlights

Despite higher than average net cash farm incomes in 2019, working capital is forecast to decline in 2019.

Increases in cash and cash equivalents held by producers are forecast to be offset by inventory value decline in 2019, driven by soybeans.

Current debt volumes may be declining less rapidly than USDA forecasts project, though total working capital is still likely to have fallen between 2018 and 2019.

Figure 10: Change in Sector Working Capital components, 2018—2019

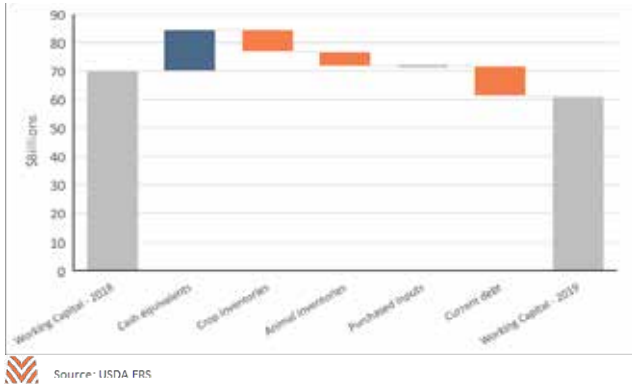


Figure 11: Growth in Real Estate, Non-Real Estate and Current Volumes, 2013—2019F

In 2019, American farmers faced considerable headwinds from trade uncertainties and unprecedented weather events. However, a combination of robust government support and a few brief favorable price environments has led the USDA to forecast net cash farm income in 2019 at its highest point since the end of the commodity supercycle. Despite these higher incomes, the USDA initially projected working capital to continue to deteriorate through 2019 and 2020. While the USDA projects that producers will have more cash on hand, increases in current debt and inventory value declines are assumed to outweigh this increase.

CURRENT LIABILITIES. Current debt can refer to short-term debts, the current portion of term debt, accrued interest, or other accounts payable. The USDA's forecast for current debts takes the ratio of current to noncurrent debt over the prior five years and then applies that ratio to their total debt forecast. While this methodology is serviceable, it has the potential to bias results if debt increases are seen predominantly in real estate or production loan volumes. This is the case in years like 2019, when increases in real estate loan volumes outpaced increases in non-real estate loan volumes.

While most production loans are current, the lengthy terms of most real estate debts mean that most of those volumes are noncurrent. Over the past five years, 64% of all non-real estate debt has been current, while just over 5% of real estate debt has been. If these shares are applied to the USDA's 2019 forecasts for real estate and non-real estate loans, the increase to current debt would be $5.7 billion in 2019, rather than the current estimate of $10.7 billion. Carried through to working capital, this would imply a relatively modest decline in working capital of 6%, as opposed to the current projections of a 13% decline.

Creating the set of estimates and forecasts that the USDA does is a significant undertaking, and the data they produce is essential. However, their current methodology for estimating current debts has the potential to overstate movements in producer liquidity. This concept is supported by the Federal Reserve's estimates suggesting that the use of short-term farm debt has waned. While last year was a very challenging year for American farmers and ranchers, higher incomes may have replenished some cash assets that had been sapped during down income years. With the new uncertainties brought on by COVID-19, these assets could provide valuable liquidity over the next 12 to 18 months.

Key Highlights

Midwest and Southeast expected to remain wet.

Lower irrigation water allocations expected in California.

Spring has gotten off to an early start throughout much of the United States, as mild temperatures have eliminated most of the snow cover across the country. While not as severe as spring 2019, river flooding will be possible in some of the major tributaries of the Mississippi River in the Midwest. Soil moisture levels across the Midwest and Northern Plains remain high, which could delay some fieldwork, particularly in lower-lying fields. Temperatures are anticipated to remain relatively close to average over the spring across this region, accompanied by above-normal precipitation.

Portions of the southern Plains and eastward through much of the Southeast have had elevated precipitation during the winter, which has increased soil moisture and river levels. This trend is likely to continue into the spring, as-milder-than-average temperatures and above-normal precipitation are anticipated.

The 2019-2020 rain season in the West proved to be somewhat less robust than that of 2018-2019. In California, for example, snowpack water equivalents are approximately 55% of normal. The good news is that despite the drier than normal conditions, many reservoirs remain close to average in terms of water stored as a result of prior years of above-average precipitation. Nevertheless, irrigation water allocations are expected to be lower than in recent years.

Figure 12: Seasonal Drought Outlook

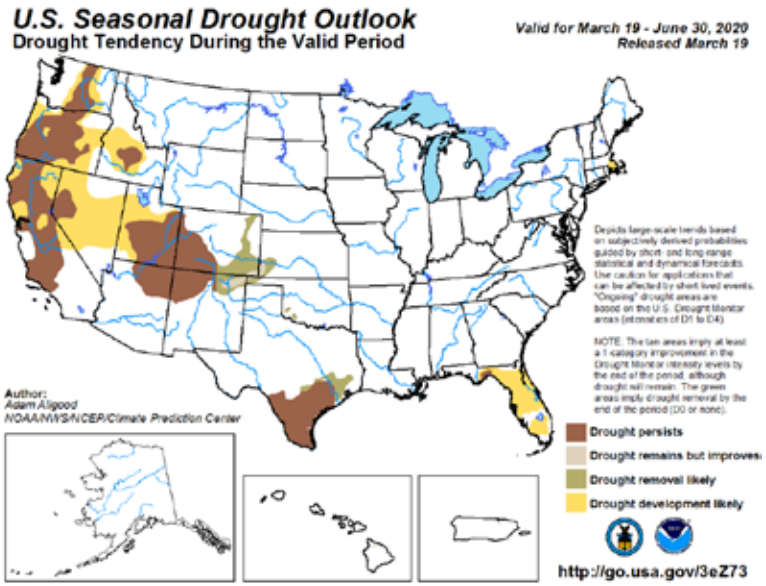
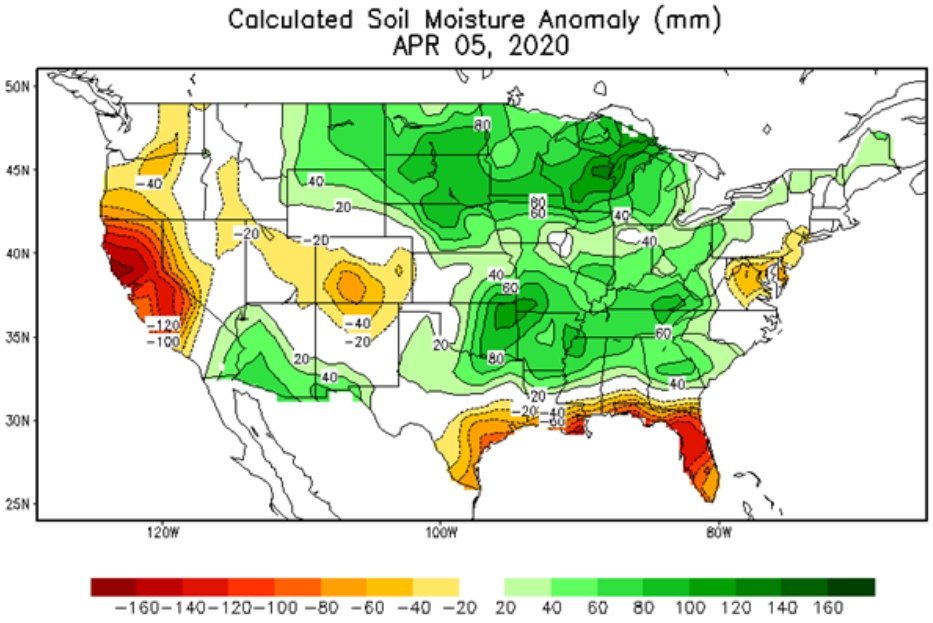


Figure 13: Drought Monitor Change



CORN AND SOYBEANS

(resource 24, 25, 26, 27)

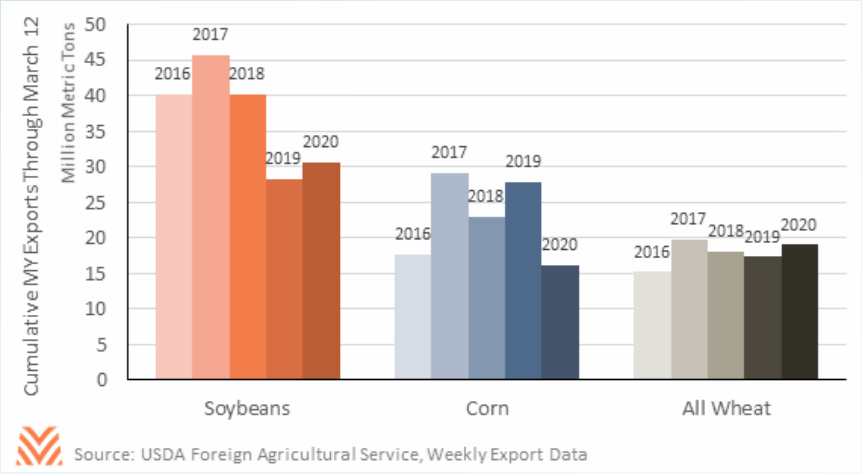
Key Highlights

Corn and soybean supplies may increase in 2020, with expanded acreage projected by the USDA.

Decreases in ethanol production and a decline in corn and soybeans exports due to the COVID-19 pandemic may decrease grain demand during the market disruptions.

Lower market prices reflect the economic uncertainty around grains, but wheat presents a bright spot in 2020.

Figure 14: Cumulative Grain Export Sales Through Early March by Marketing Year



Global supplies for the two largest bulk grain crops remain robust in 2020. Corn and soybean production fell this year in the U.S., a result of poor weather conditions at both planting and harvesting in many parts of the country. However, expanding production in South America has partially offset the U.S. interruption. Currency weakness in Argentina and Brazil continue to incent additional acreage planted to soybeans and second-crop corn. The USDA estimates that ending stocks of corn will rise sharply in 2021 due to increased U.S. acreage and production. Similarly, the February USDA projections for 2021 showed a rebound in soybean production due to expanded acreage in 2020. Supply may adjust significantly given shifting price signals between corn, soybeans, and wheat during March. South American producers grappled with supply-chain disruptions in March, as the spread of COVID-19 forced states in Brazil and Argentina into some form of quarantine. Wheat remains an interesting grain to watch with a spike in demand for bread across the globe combined with drought and insect concerns in several wheat-producing-regions.

Grain demand could be somewhat choppy in 2020. Initial USDA projections put the demand for corn and soybeans significantly up due to increased use for feed, ethanol feedstocks, and exports. Unfortunately, the COVID-19 outbreak in the U.S. has dramatically curtailed gasoline consumption as more Americans shelter-in-place or remain on travel restrictions. U.S. ethanol producers generate approximately 44 million gallons of ethanol per day, which uses 17.6 million bushels of corn per day. Every percentage point decline in ethanol production equates to a drop in corn demand of roughly 176 thousand bushels. Export demand for soybeans has also disappointed in light of the COVID-19 pandemic, notably in a slower trajectory for soybean sales to China. Export quantity through mid-March was up in 2020 compared to the tariff-impacted lows of 2019, but levels have not returned to 2018 levels, as was expected by many agricultural economists. Furthermore, Chinese hog production has not yet recovered from their widescale outbreak of African swine fever, so the demand for soybean meal remains muted.

Given the volatility in the financial and commodity markets, and the economic condition uncertainty driven by the COVID-19 pandemic, predicting seasonal grain prices will be a steep challenge this year. Global demand for food at home spiked in early 2020, but that has offset food demand at schools and restaurants. The supply picture will firm in April and May with more survey data coming from the USDA, and as the course of the pandemic comes into a clearer focus. Corn and soybean prices fell sharply in March, with cash prices falling $0.40 per bushel corn and $0.60 per bushel soybeans during the month. Wheat prices rebounded during March, which may incent more producers to push acreage into spring wheat.

HOGS

(resource 28, 29, 30, 31)

Key Highlights

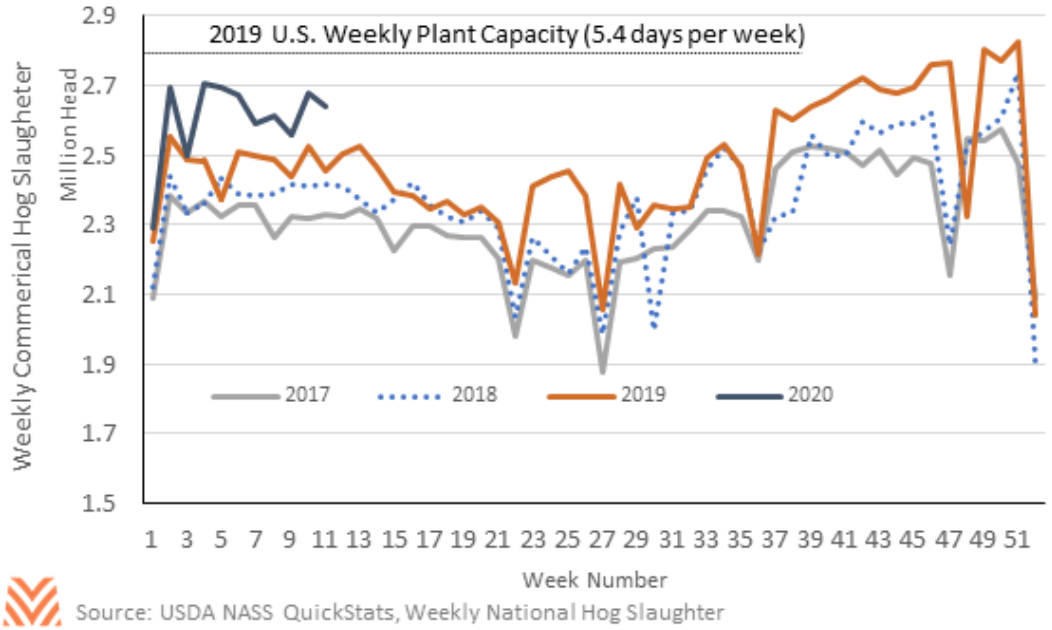
U.S. hog inventory is up in 2020, as producers expect increased export demand.

COVID-related plant closures in March and April caused severe price volatility and uncertainty on live hog demand from processors.

Operator profit margins were negative in February and March, but the increased retail demand could put upward pressure on returns in the third quarter.

Hog markets have been volatile in early 2020. U.S. producers expanded production throughout 2019 as the African swine fever (ASF) hit China, and there was speculation of growing Chinese imports. The USDA's March 2020 Quarterly Hogs and Pigs report revealed that hog inventory is up 4% over first-quarter 2019 levels, and is the third-highest on record. Roughly half of the annual increase is from operations in Iowa. Global hog inventory remains down from the spread of ASF, but pork production has edged up in the U.S., Canada, and China in early 2020.

Figure 15: Weekly Commercial Hog Slaughter by Week and Year



Source: USDA NASS QuickStats, Weekly National Hog Slaughter

The demand surge expected by producers started to materialize amid strong domestic consumer response from the COVID-19 pandemic and a slow recovery to China's export supply chain. Grocery meat cases across the U.S. have seen a remarkable pickup in demand, as consumers respond to stay-at-home orders and stock up on food items. As freezers fill up and extreme home food buying slows, the domestic demand should ease somewhat. Fortunately, the supply path to China is easing as more of their employees return to work. Weekly pork exports picked up in early March after slowing considerably in the first quarter. Pork exports are coming off a year that set records in both quantity and value shipped, and 2020 could maintain those high levels, even with a dip in the first quarter.

Due to the flux in supply and demand, hog operations will continue to see price volatility in 2020. Lean hog prices, like most commodities, fell precipitously in early March as markets reacted to the self-imposed economic slowdown to curb the spread of COVID-19. Futures and animal auction prices fell in February and early March, driven by hedgers pulling back. Prices rallied during the third week of March as commercial buyers returned to the markets while exports remained high, and processors worked overtime to move pork through the supply chain. Strong retail demand and the thawing of export shipments look to support prices in the last second or third quarter. Additionally, a drop in grain prices helps offset some of the pricing decline. However, prolonged or widespread slaughterhouse closures could swamp hog supplies, leaving producers nowhere to go with their animals.

WINE GRAPES

(resource 32, 33, 34, 35)

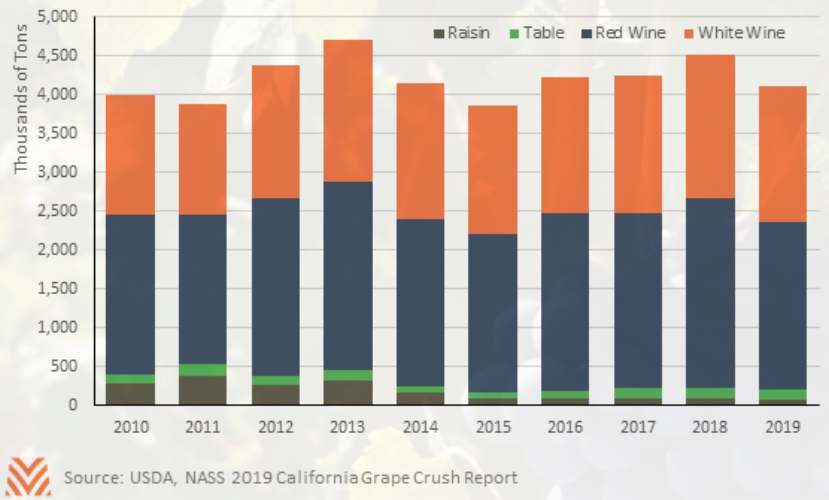
Key Highlights

There is currently an oversupply of wine in U.S. markets.

Sales are flat to decreasing as demographics continue to change.

Competition is increasing through the substitution of microbrews, spirits, seltzers, and even cannabis.

Figure 16: Tons of Grapes Crushed in California by Year



Source: USDA, NASS 2019 California Grape Crush Report

CURRENT OVERSUPPLY OF WINE. The 2018 wine crop arrived during a record year for yields, but consumption leveled off. Going into 2019, wineries were full, and no longer needing to purchase additional grapes outside of those that were under contract.

The final 2019 crush figure provided by the California Department of Food and Agriculture was 4.1 million tons, down 8.7% from the 2018 crush of 4.5 million tons. Red wine continues to make up the bulk of the grapes crushed. However, the 2019 report fails to account for acres of vines that went unharvested due to a lack of contract low-spot prices. Even with the decline in tons this year, there are reports of wineries giving notice that they will not be renewing some contracts.

Jeff Bitter, the president of Allied Grape Gowers, has stated that 30,000 acres of wine grapes need to be removed in order to reach a long-term balance in supply and demand. This does not take into account the acreage that is regularly taken out due to attrition. Depending on the location, older grapes and others that no longer make economic sense may not only be pulled but may be replaced with other crops. For example, those in the Central Valley may transition over to other permanent crops like almonds. Other land may not be replanted at all due to incremental profitability or water availability. Areas in Napa and Sonoma and along the Central Coast that are pulled, meanwhile, will still be replanted to grapes, but will have at least three years before they are back to producing a profitable crop. Hopefully, this will allow enough time for the current oversupply to work its way through.

ALWAYS TALKING ABOUT MILLENNIALS. The demand picture is starting to shift in the wine segment, with 2019 posting a volume loss of 0.9%, the first decrease in 25 years. Millennials have yet to embrace wine consumption as previous generations have. This is partly due to the damaged financial capacity of this generation, as well as the increasing popularity of craft beers, distilled spirits, and ready-to-drink products. The ready-to-drink market surged nearly 50% in 2019; they are convenient, flavorful, and lower in calories and sugars. On a small scale, analysts have noted that the increasing decriminalization and resulting greater accessibility of cannabis has also negatively affected wine consumption.

Even though the consumer demographic shift is a hindrance to wine sales, it can also be viewed as an opportunity for those wineries that can tailor their products and marketing to capture that next generation of wine drinkers. Currently, baby boomers control 70% of the discretionary income in the U.S. and half the net worth. This demographic embraced wine and has been a major driver of sales, evidenced by 24 years of increased sales and consumption. Yet, as they retire and age, baby boomer wine purchases and consumption may decline. This oversupply will take time to resolve as the volume works its way through the system. However, the oversupply presents opportunities for better quality wines at lower price points for consumers.

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Issue No. 18