

Agricultural and Food Policy Center
Texas A&M University

April 17, 2020

COVID-19 Impact on Texas Production Agriculture



AFPC

Department of Agricultural Economics
Texas A&M AgriLife Research
Texas A&M AgriLife Extension Service
Texas A&M University

TEXAS A&M
AGRI LIFE
RESEARCH | EXTENSION

College Station, Texas 77843-2124
Telephone: (979) 845-5913
Fax: (979) 845-3140
<http://www.afpc.tamu.edu> | @AFPCTAMU

© 2020 by the Agricultural and Food Policy Center

Research Report 20-01

Cover photos courtesy USDA.

Department of Agricultural Economics
2124 TAMU
College Station, TX 77843-2124
Web site: www.afpc.tamu.edu
Twitter: @AFPCTAMU

COVID-19 Impact on Texas Production Agriculture

**Joe L. Outlaw, Bart L. Fischer, David P. Anderson, Steven L. Klose,
Luis A. Ribera, J. Marc Raulston, George M. Knapek, Brian K. Herbst,
Justin R. Benavidez, Henry L. Bryant, and David P. Ernstes**



**Agricultural and Food Policy Center
The Texas A&M University System**

Agricultural & Food Policy Center
Department of Agricultural Economics
Texas A&M AgriLife Research
Texas A&M AgriLife Extension Service
Texas A&M University

Research Report 20-01

April 17, 2020

College Station, Texas 77843-2124
Telephone: 979.845.5913
Fax: 979.845.3140
Web site: <http://www.afpc.tamu.edu/>
Twitter: @AFPCTAMU

COVID-19 Impact on Texas Production Agriculture

Overview <i>Joe L. Outlaw and Bart L. Fischer</i>	3
Livestock <i>David P. Anderson and Justin R. Benavidez</i>	4
Crop Sector <i>Steven L. Klose, J. Marc Raulston, George M. Knapek, Brian K. Herbst and Henry L. Bryant</i>	11
Specialty Crop Sector <i>Luis A. Ribera</i>	20
Ethanol Plants <i>Joe L. Outlaw and Justin R. Benavidez</i>	22
Summary and Conclusions	23

Introduction

The COVID-19 pandemic has created tremendous economic upheaval around the world. The U.S. economy like many others has slowed considerably with a large amount of the population sheltering in place and/or practicing social distancing. Schools, restaurants and many other businesses closed that were not deemed essential. In the State of Texas, the agricultural industry has been recognized as essential by Governor Abbott. Texas is an important agricultural state, ranking only behind California and Iowa in terms of cash receipts from the sales of agricultural commodities, which totaled \$22 billion in 2018.¹ Despite the risks they face, everyone in the supply chain—from farmers and ranchers to cashiers at the grocery store—continue to do their part to make sure Americans have food on their tables and clothes on their backs.

In the U.S., consumers typically spend slightly less than half of their food expenditures for meals at home and the other half away from home. Shutting down schools and restaurants to dine-in customers has led to a dramatic shift in food purchasing and has affected agricultural supply chains for many food products, but thus far the effects have been particularly troublesome for producers of livestock, fruits and vegetables and dairy products, including milk. For example, when schools closed, the demand for milk in small, single-serving containers virtually disappeared. Beyond the food sector, many retail clothing outlets around the world have been closed as well, which has dramatically decreased the demand for cotton, the largest cash crop in the state of Texas.

The commodities that have been affected the most thus far are weaned calves, stocker calves, feeder steers, sheep and goats, fruits and vegetables and dairy products. That is, these commodities are currently selling at substantially lower prices than prior to the pandemic. Row crops in Texas are either planted and growing in most regions or are about to be planted in the northern part of the State. The only losses row crop farmers would currently be incurring are from the sale of 2019 crops from storage. While Texas producers typically do not store commodities this far into the marketing year, many continue to work through carryover stocks from the 2019 crop year.

The Federal Government has responded with a series of three legislative responses. In short, agricultural producers stand to benefit the most from the last of the three legislative responses—H.R. 748, the *Coronavirus Aid, Relief, and Economic Security Act (CARES Act)*. Beyond authorizing additional funding for the U.S. Department of Agriculture (USDA) to provide direct assistance to producers, the CARES Act established the Payroll Protection Program (PPP) and provided a direct cash infusion of \$1,200 to each American making \$75,000 a year or less. A detailed description of all three legislative responses can be found in a report by Fischer and Outlaw.²

This report attempts to frame the issues and to discuss how commodities have been uniquely impacted. Subsequent reports will estimate the size of the losses that have been experienced by Texas producers. Many commodity prices have declined by 20 to 30 percent since the pandemic began. While some producers are already experiencing losses, if prices do not recover soon for livestock and prior to harvest for row crops, Texas producers could easily see losses in the range of \$6 to \$8 billion relative to the \$22 billion in receipts earned in 2018, if not more.

In an effort to begin addressing agricultural losses, on April 17, 2020, President Trump announced the creation of the Coronavirus Food Assistance Program (CFAP). The \$19 billion in aid will be used for direct support to farmers and ranchers (\$16 billion) and commodity purchases and distribution (\$3 billion). Secretary

¹ USDA-ERS. Obtained at <https://data.ers.usda.gov/reports.aspx?ID=17844>

² Fischer, Bart L., and Joe L. Outlaw. *Initial COVID-19 Response for Agricultural Producers*. Agricultural and Food Policy Center, Texas A&M University, AFPC Briefing Paper 20-3, April 16, 2020. Available at <https://www.afpc.tamu.edu/research/publications/files/697/BP-20-03.pdf>

Perdue also acknowledged that additional support would be needed as the crisis unfolds—an assessment that is consistent with the analysis in this report. We will provide additional details on CFAP as they become available.

Livestock

The livestock and dairy industries are in uncharted waters due to country-wide demand effects induced by restaurant and event shutdowns. Packing and processing slowdowns and closings throughout the supply chain limit the ability to move supplies to other processors. But, the biological nature of livestock production means that the livestock, milk, and eggs have already been, or are being, produced.

The demand disruption is taking several forms:

- Consumers are changing their purchases from restaurants to grocery stores. Prior to the pandemic more than 50 percent of food expenditures were away from home; that has changed. People buy different quantities, cuts, and forms of meat and milk when shopping at stores versus restaurants. Much of the disruption is simply a result of stores purchasing more meat and dairy in excess of their previous orders. These adjustments inherently lead to supply chain, packaging, and other logistical issues. At the same time food service purchases have collapsed, cancelling current and future orders.
- Meat and dairy orders are changing due to the emerging recession. Consumers shift to less expensive cuts in a recession, for example buying more ground beef and fewer steaks. Retail outlets move to stock items that sell better in a recession.
- Slower processing speeds and plant closures because of increasing illness among employees has reduced the demand for livestock and milk by processors. This event has the effect of reducing prices to producers and, potentially raising prices to consumers by constricting supplies.

Cattle and Beef

While the number of beef cows in Texas and the U.S. peaked in 2019, beef production is set to peak in 2020. U.S. beef production was about 6 percent higher in the first quarter of 2020 compared to the first quarter in 2019 (Figure 1).

Both futures and cash prices of cattle, feeder cattle, and calf prices dropped dramatically as the societal impacts of COVID-19 took hold. Live cattle futures dropped from \$120.80/cwt on February 19, 2020, to \$83.82/cwt on April 6, 2020. Early price declines followed restaurant shuttering along with the cancellation of large gatherings like sporting events. The reality of packing plants going offline or slowing considerably in order to accommodate worker safety concerns introduced a second round of volatility. Cash fed cattle prices have experienced significant weekly volatility, falling to \$105/cwt, climbing to \$119/cwt, and then collapsing to \$95/cwt in the three weeks leading to April 13 (Figure 2). Calf and feeder cattle price declines have been more delayed but are starting to reflect much lower fed cattle prices.

Stocker cattle producers are facing significant price losses as calves purchased in the autumn, long before the COVID-19 pandemic, are selling now at much lower prices. The impacts of COVID-19 on individual ranches will depend on the production system but will eventually accrue to all cow-calf producers. Calves that were born this spring to be sold in the autumn have not realized losses yet; however, spring sold calves face significantly lower prices.

Million Pounds

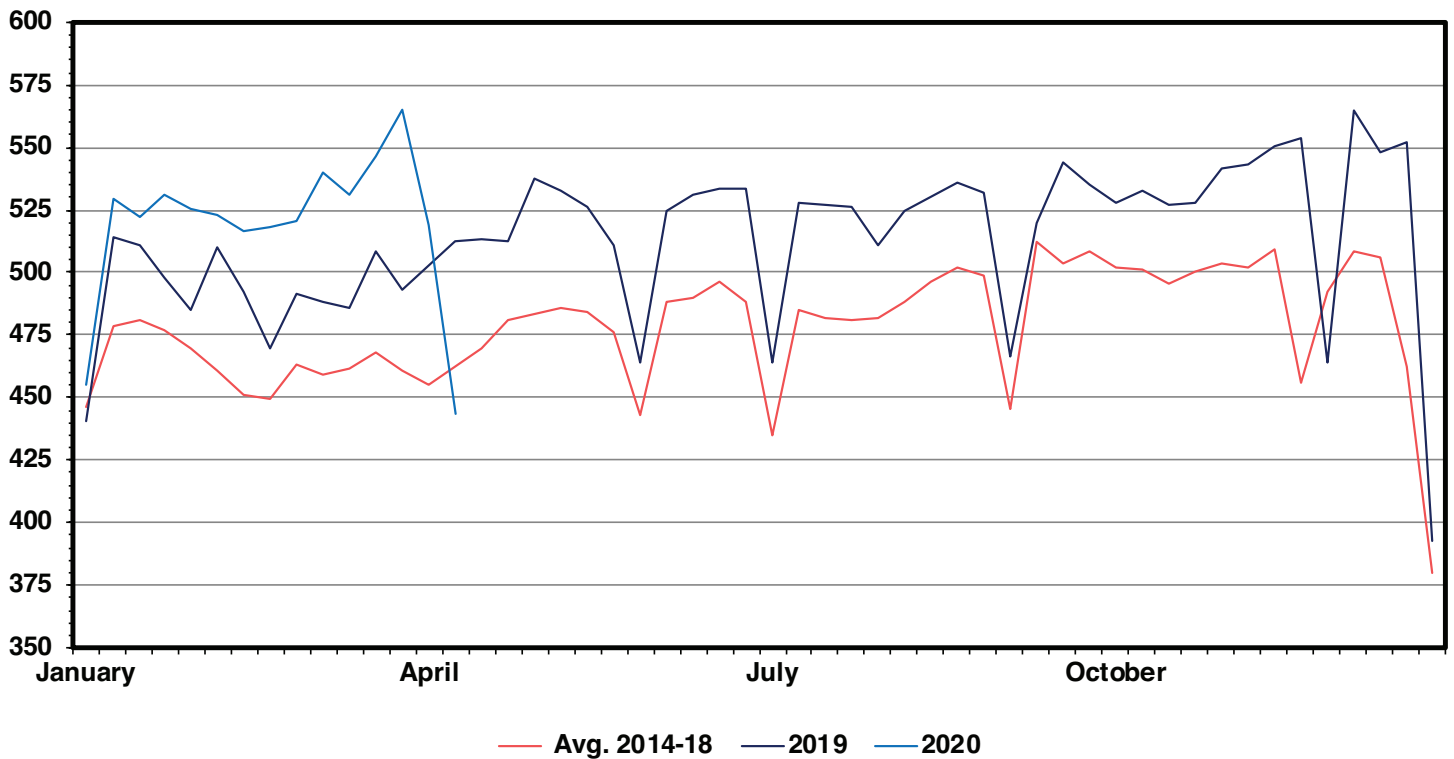


Figure 1. Beef Production Federally Inspected, Weekly.
Data Source: USDA/AMS, Livestock Marketing Information Center.

Dollars Per Cwt.

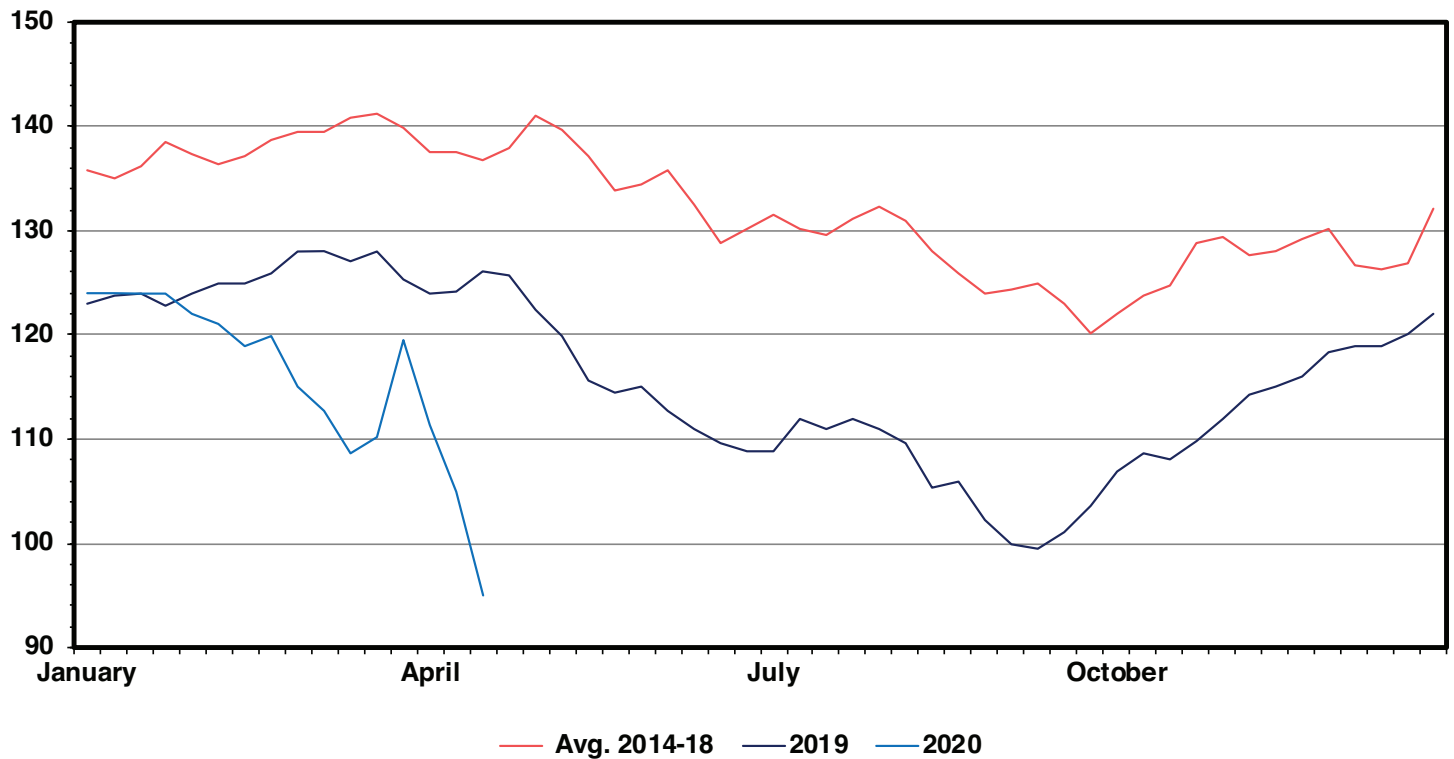


Figure 2. Slaughter Steer Prices, Southern Plains, Weekly.
Data Source: USDA/AMS, Livestock Marketing Information Center.

On the meat side, wholesale boxed beef cutout values experienced a surge as consumers stampeded grocery stores. Choice boxed beef cutout values increased from \$205/cwt to \$257/cwt in a matter of days. Values have moderated as supply chains have adjusted, but processing disruptions across the country are preventing further erosion in wholesale beef values. Individual primal cut values are clearly showing the move away from restaurants to grocers and from high value cuts toward recession expectations. High value cuts like ribeyes, and the middle meats in general, are seeing drastically lower prices while chucks, for example, are increasing (Figure 3).

Broilers

Texas is the 6th largest broiler producing state. Most production occurs in the eastern half of the state. The industry has been heavily impacted by restaurant closures. Practically every restaurant has some variation of chicken breast on the menu. The lack of any sporting events accompanied by closed restaurants have crushed chicken wing sales (Figure 4). Sharply lower breast and wing prices have eliminated profits and are already leading to reduced egg sets for broilers and chicks placed for growout. For the week of April 15, 2020, Texas egg sets are down 14 percent from the same week a year ago, and chicks placed for broiler growout are down 9 percent (Figure 5). Broiler growers will be pressured by fewer birds and changing growout timetables due to changing final bird weights.

Dairy

Texas is the 5th largest milk producing state in the United States. The nation's dairy industry struggled over the last few years from low profits driven by large production. The shift from restaurants to grocery store sales has hit the industry especially hard. School closings across the country have reduced the estimated 7 percent of fluid milk that ordinarily moves through school lunches. While those students may be at home and

Cents Per Pound

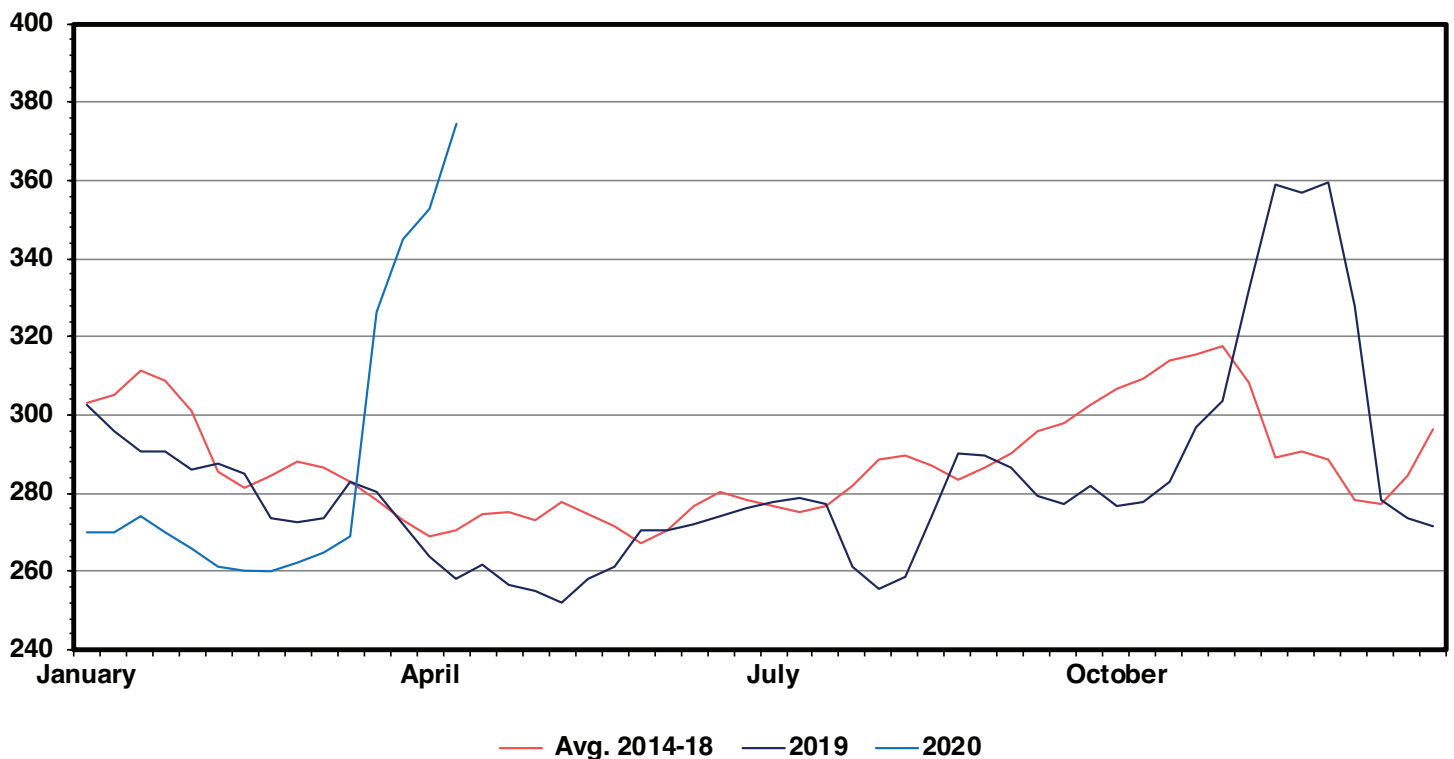


Figure 3. Wholesale Beef Chuck Prices, Chuck Roll 1x1 Neck Off, Weekly.

Data Source: USDA/AMS, Livestock Marketing Information Center.

Cents Per Pound

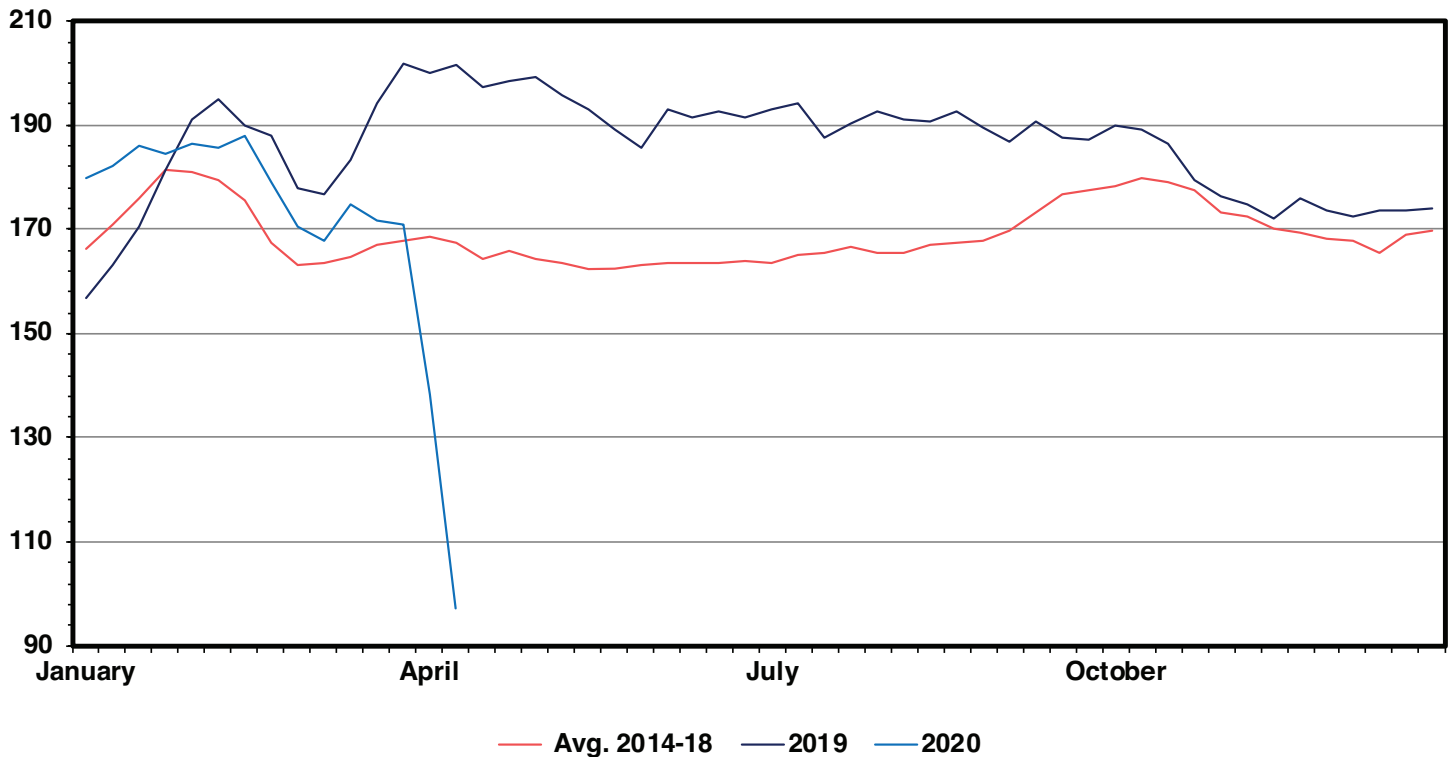


Figure 4. Wholesale Chicken Wing Prices, Northeast, Truckload, Weekly.
Data Source: USDA/AMS, Livestock Marketing Information Center.

Million Pounds

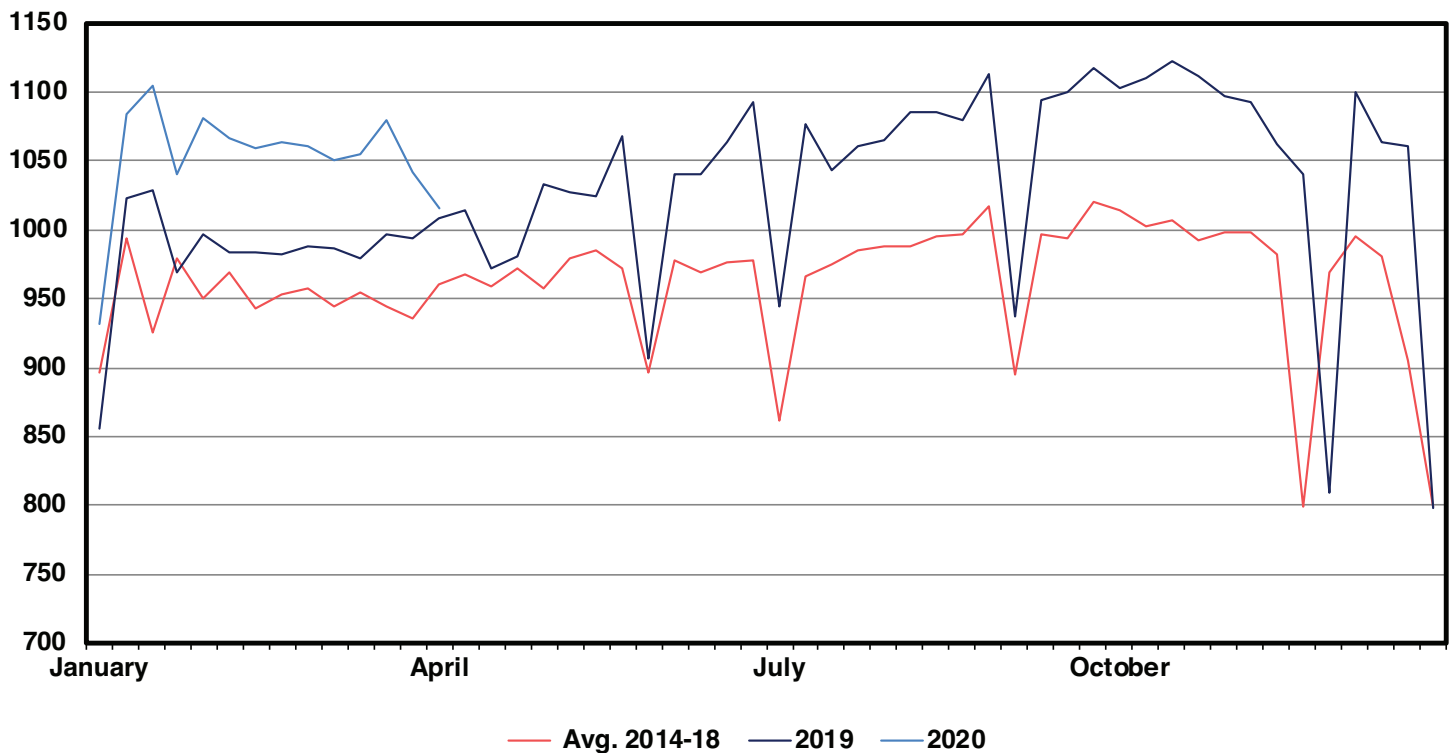


Figure 5. Broiler Production, Federally Inspected, Weekly.
Data Source: USDA/AMS, Livestock Marketing Information Center.

consuming milk, the container sizes are different, going from small, single-serving containers to half gallon and gallon containers. A large share of milk products, including cheese and butter and other products, goes through food service (e.g. pizzas). The loss of those orders means that milk processing plants have quickly found themselves with more milk than they can sell as finished products (Figure 6). Milk, being a highly perishable product, has been forced to be dumped after milking in some areas of the country. Falling product prices will be felt in coming months as lower prices are translated to lower Class prices in the federal milk marketing order system.

The dairy industry is the one area of livestock production that has farm program support. The Dairy Margin Coverage (DMC) program in the 2018 Farm Bill provided for the opportunity to purchase an insurance-like margin protection. The latest USDA data indicate that about 66 percent of Texas dairies are enrolled in DMC, representing about 84 percent of the state's production. It is likely that most of this enrollment is at the lowest level of coverage meaning that support payments will only begin at catastrophically low margin levels not seen since 2009.

Hogs and Pork

While not a large producer compared to Iowa or North Carolina, Texas does have hog production spread across the state with large integrated production in the Panhandle. Like the other livestock and meat sectors, the hog sector is being hit by the move away from restaurants. National average base hog prices have declined 19 percent over the last month while the wholesale cutout value has declined 32 percent (Figure 7). The majority of hams and pork bellies move through food service. Wholesale pork belly prices have declined 50 percent in the last month to \$0.50/lb (Figure 8). Wholesale ham prices have fallen 44 percent.

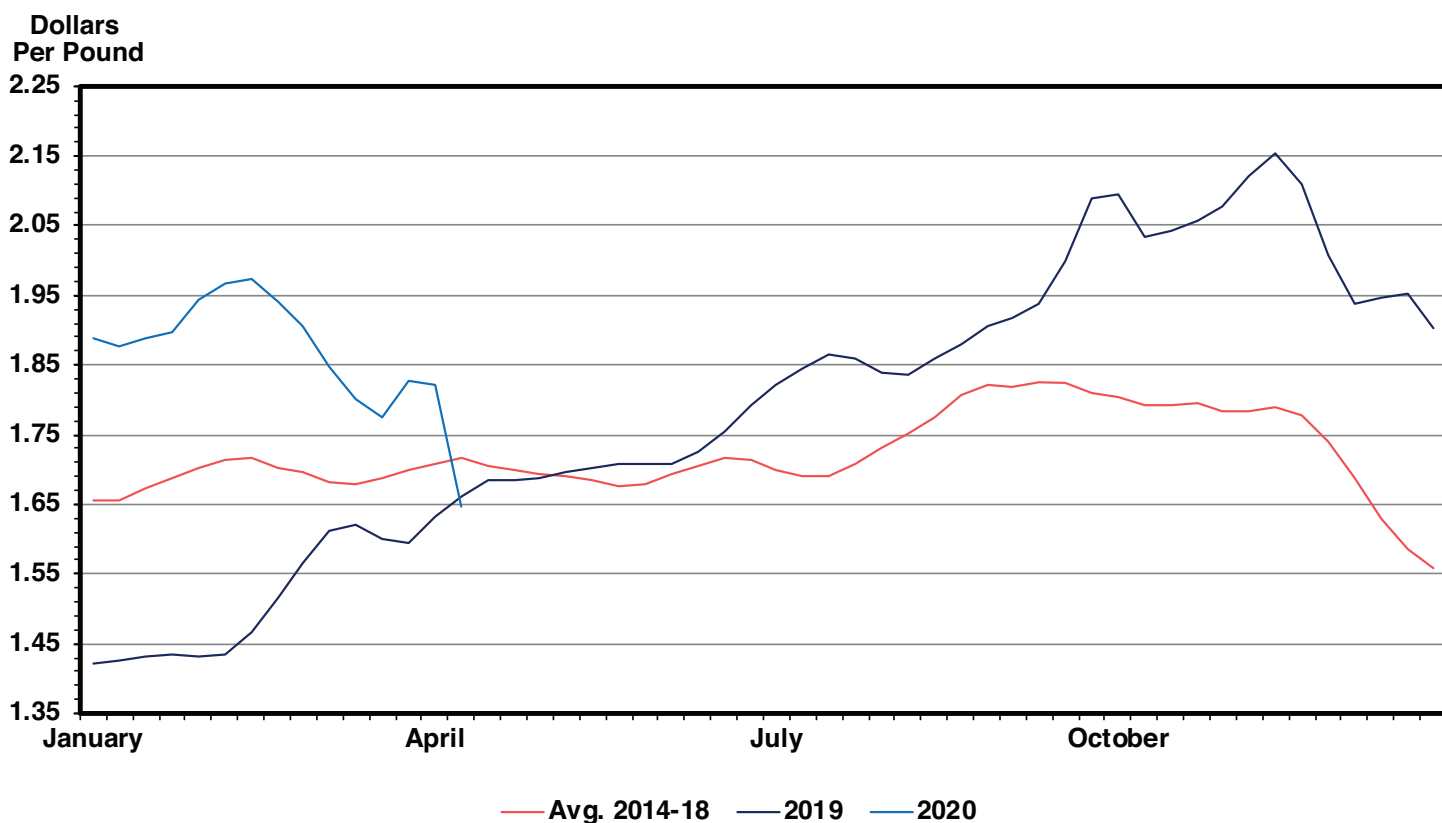


Figure 6. Cheddar Cheese Prices, 40 Pound Block, US, Weekly.

Data Source: USDA/AMS, Livestock Marketing Information Center.

Dollars
Per Cwt.

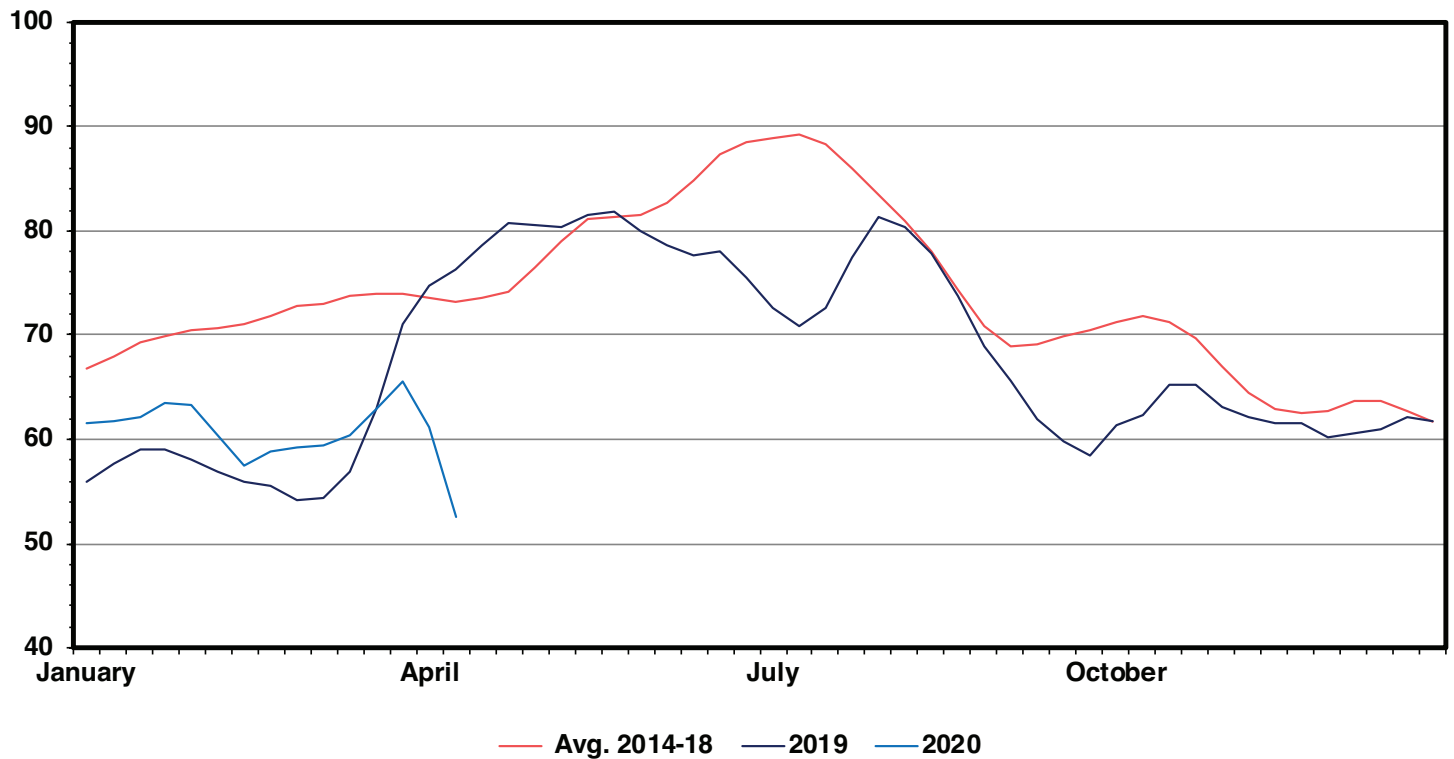


Figure 7. Base Slaughter Hog Prices, National, Weighted Average Carcass Price, Weekly.
Data Source: USDA/AMS, Livestock Marketing Information Center.

Cents Per Pound

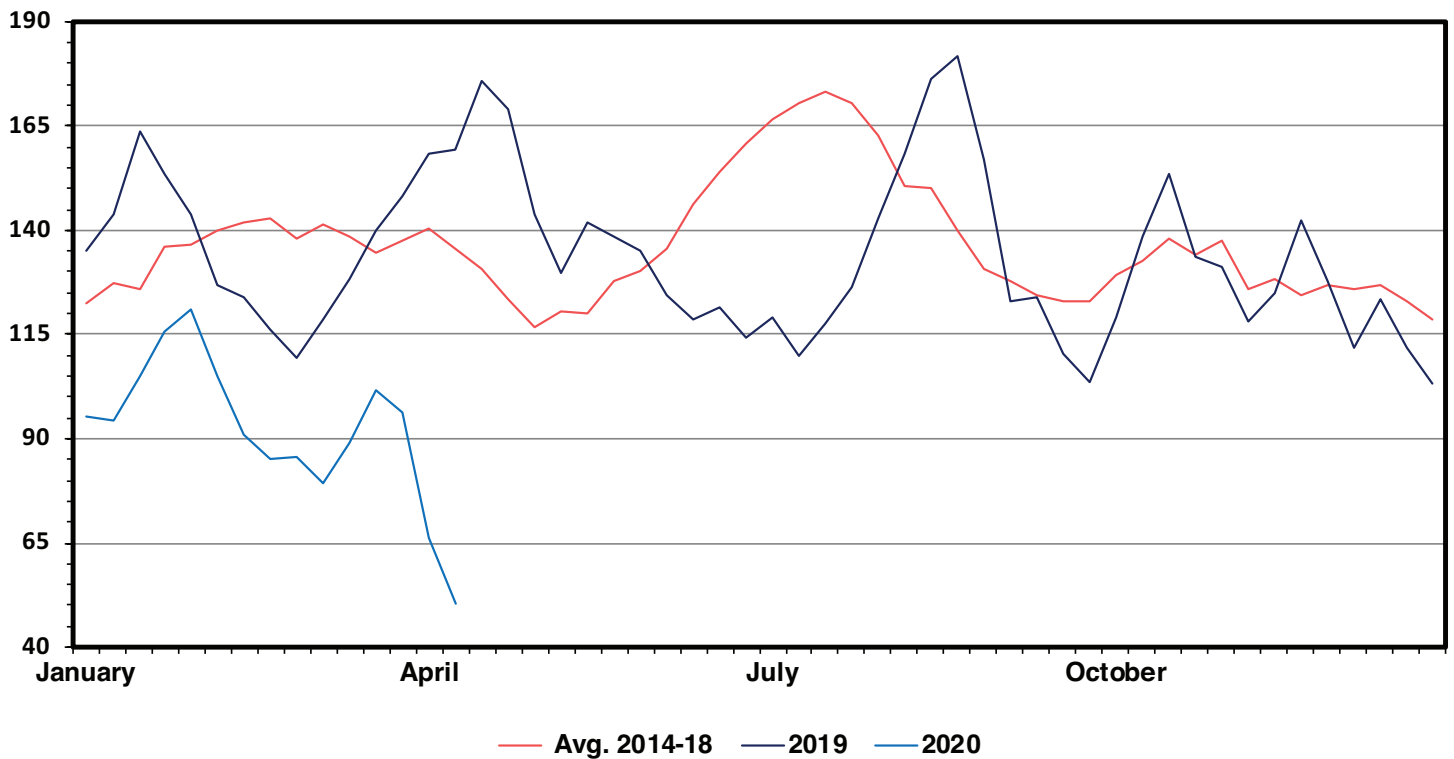


Figure 8. Wholesale Pork Belly Prices, Skin-on, 12-14 Pounds, Weekly.
Data Source: USDA/AMS, Livestock Marketing Information Center.

Texas is the largest sheep and goat producing state in the United States. More than 50 percent of American lamb ordinarily goes through restaurants. The COVID-19 pandemic hit just prior to the important Easter season sales. The result has been cancelled orders for lamb, closed processing facilities, and packing plants running very light shifts to fill the few orders they have (Figure 9). Cancelled sales already forced the bankruptcy of one major packer. Heavy slaughter weight lambs have experienced price declines upwards of 45 percent. The price for lighter weight lambs entering the non-traditional market have experienced more volatility but remained higher than traditional market lambs.

Allied Industries

The livestock industry has many allied industries that move the live animals, milk, and eggs through the production system from transportation, auctions, feed production and delivery, to processing, packaging, and store stocking. About 80 percent of calves are sold through auction markets across the United States. Slower movements and lower prices are reducing auction market revenues. COVID-19 illnesses have closed or slowed meat processing facilities—for example, those that take larger cuts of meat and process them into cuts or hamburger patties for further sale.

All of livestock agriculture are customers of crop agriculture. The effects of COVID-19 disruptions in crops like corn, soybeans, wheat, and ethanol by-products like distillers' grains will impact feed costs and livestock production costs and profits.

Further, international trade is an important market for U.S. meat and milk. The United States exports about 25, 18, and 11 percent of its pork, broiler, and beef production respectively. Interruptions in trade will

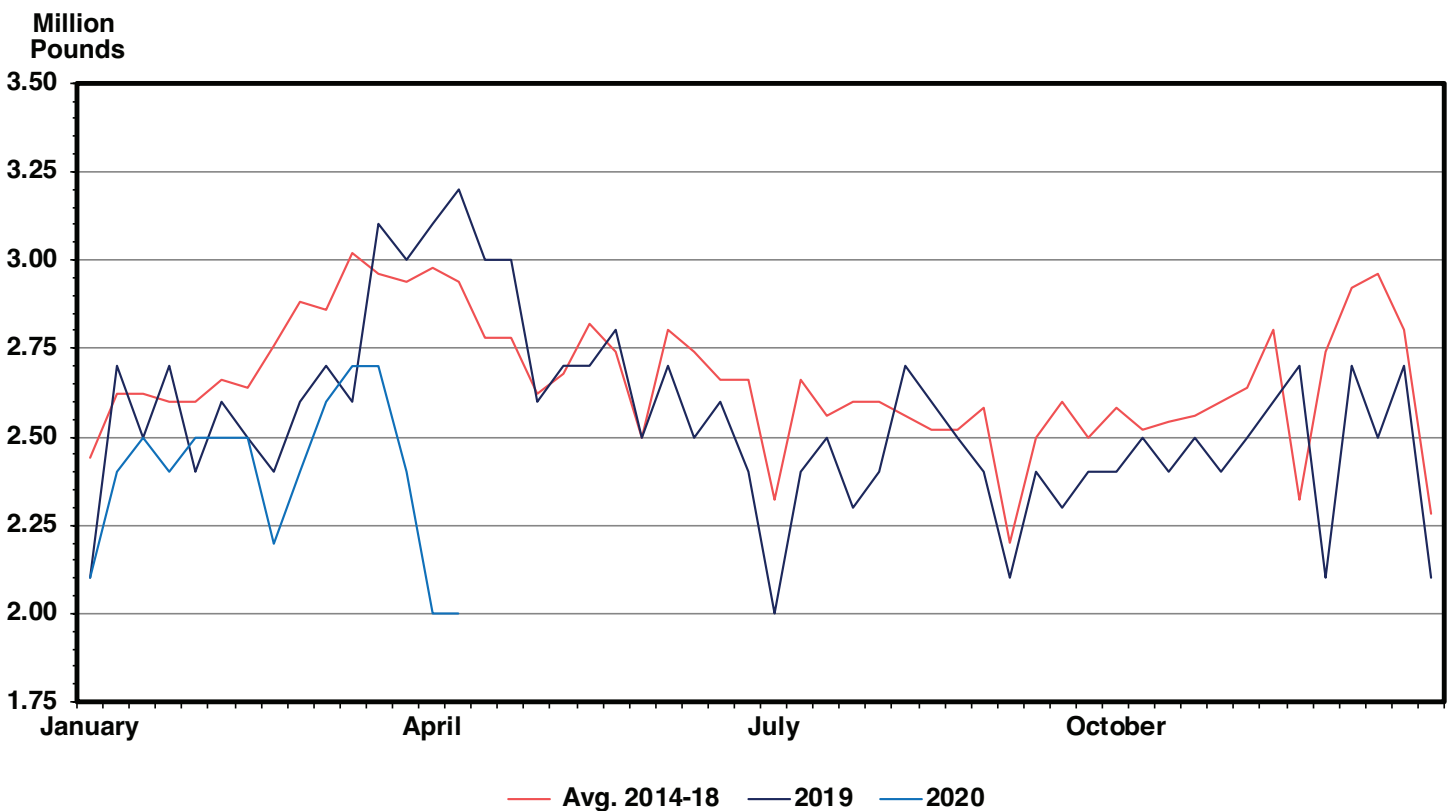


Figure 9. Lamb and Mutton Production, Federally Inspected, Weekly.
Data Source: USDA/AMS, Livestock Marketing Information Center.

further depress producer prices in each sector. The data available to date indicate that export markets have held up well, although packing and processing bottlenecks will affect exports in coming weeks and months.

Livestock Summary

COVID-19 has hit producer prices creating substantial economic losses across all of livestock agriculture. Many of those impacts will be felt over the course of the year as sales occur, production responds to financial losses, and the effects of the recession become apparent.

Crop Sector

For Texas row crop agriculture, the most immediate and visible impact is on commodity market prices, but effects can reasonably be expected to ripple through the industry supply chain from production inputs on through to retail consumers.

The timing of the pandemic falls almost exactly in the middle of two different crop production cycles. As a result, it is important to distinguish the immediate impact on 2019 crop production from the potential impact on the 2020 crop year. In most cases, the bulk of the 2019 crop had already been sold prior to the market declines which started in late February 2020. But, for the 10-25 percent of old crop production that was yet to be marketed, an immediate loss in value can be attributed directly to COVID-19. Other commodity-specific supply chain disruptions may continue to impact the remainder of the 2019 marketing year. **Looking forward to 2020 crop production, unfortunately, the worst may still lie ahead.** Producers who have already endured several years of depressed commodity prices now face the potential for even lower revenues and increased financial stress.

Risk management strategies, insurance programs, and safety net provisions will play a key role in softening the blow. While we address each of these below, the Title I safety net—Agriculture Risk Coverage (ARC) and Price Loss Coverage (PLC)—for the 2020 crop year will not provide support to producers until October 2021, a full year after the 2020 harvest. While it is too soon to know the mitigating impact some of these might have, the impacts of the COVID-19 economic disruption on agriculture are likely to be dramatic and historic. The following discussion begins to explore the nature of these impacts on Cotton, Corn, Sorghum, Wheat, Rice and Soybean production in Texas.

Cotton

In terms of relative price impacts, cotton has seen the most dramatic price collapse of the row crop commodities with a nearly 20 percent decline in both near term (May-20) and harvest (Dec-20) futures prices spanning the almost 2 months from late February through mid-April. Figure 10 illustrates the market price decline against the backdrop of other price levels, insurance, and policy parameters important to frame the discussion of the market impact on Texas cotton producers.

With the price decline beginning in late February 2020, it is important to note that, as of the end of February, an estimated 74 percent of the cotton produced in 2019 had already been sold. It follows that the most immediate impact is an approximate 20 percent loss in value (currently \$0.55/lb down from \$0.69/lb in February) on roughly one quarter of 2019 production. With a NASS estimated 6.4 million bale Texas cotton crop in 2019, approximately 1.68 million bales were exposed to a roughly \$0.14/lb price decline for a total loss in value of just over \$112 million. While a few mitigating factors could ease that impact, we also don't know if prices will continue to fall. Certainly, some producers hedged against declining prices. Another mitigating factor is the Title I safety net—including Agriculture Risk Coverage (ARC) and Price Loss Coverage (PLC)—that is

Table I. Effective Reference Prices, Projected Marketing Year Average (MYA) Prices, and Maximum and Projected PLC Payment Rates, 2019.

Commodity	Marketing Year	Unit	2019 Effective Reference Price	Projected 2019/2020 MYA Price/ Effective Price	Maximum 2019 PLC Payment Rate	Projected 2019 PLC Payment Rate
Seed Cotton	Aug. 1-Jul. 31	Pound	0.3670	0.2963	0.1170	0.0707
Corn	Sep. 1-Aug. 31	Bushel	3.70	3.60	1.50	0.10
Grain Sorghum	Sep. 1-Aug. 31	Bushel	3.95	3.25	1.75	0.70
Wheat	Jun. 1-May 31	Bushel	5.50	4.60	2.12	0.90
Rice (long grain)	Aug. 1-Jul. 31	Pound	0.1400	0.1220	0.0700	0.0180
Soybeans	Sep. 1-Aug. 31	Bushel	8.40	8.65	2.20	0.00

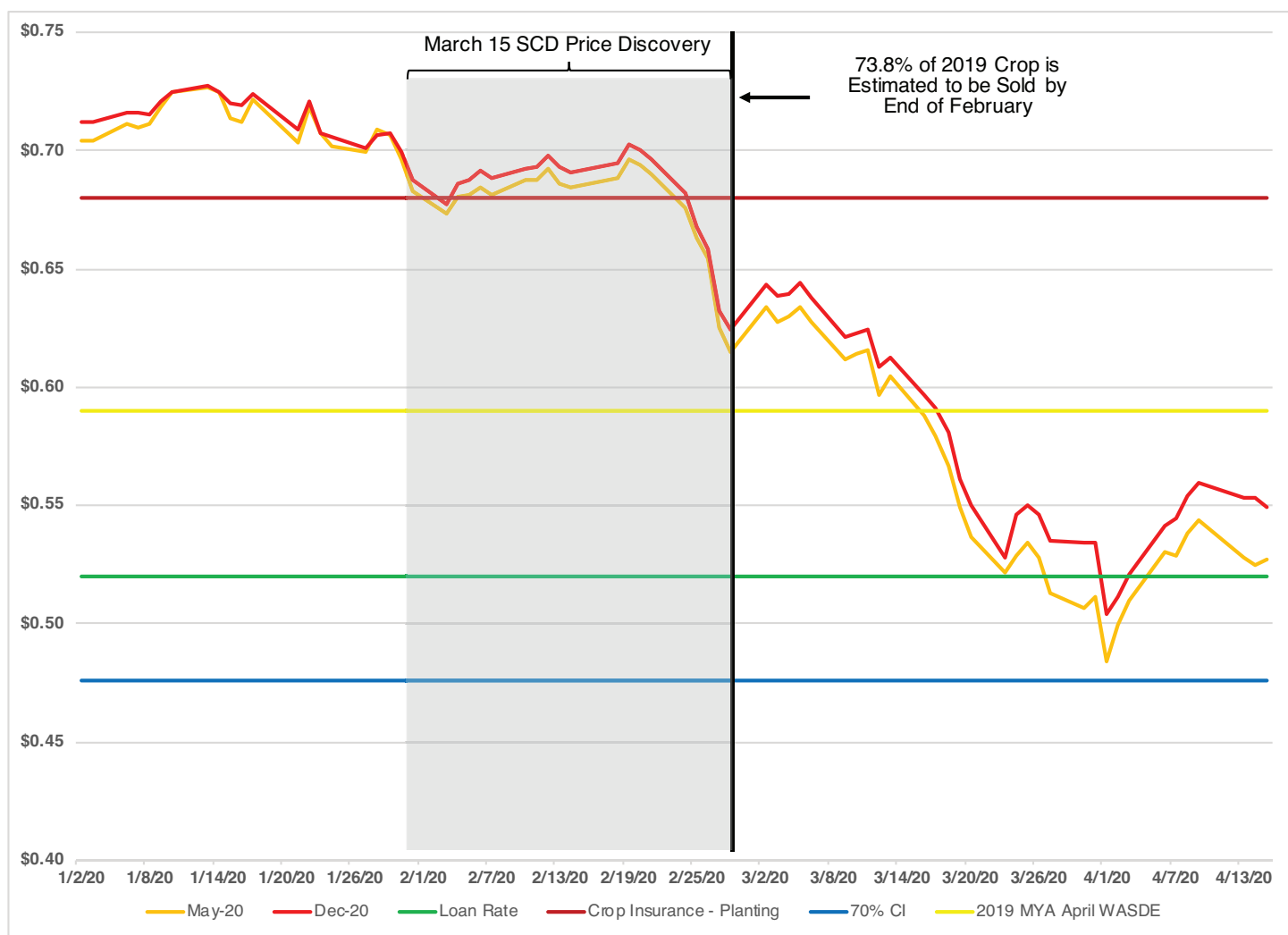


Figure 10. Crop Insurance, Futures Contract, and Marketing Year Average Prices and Policy Parameters for Cotton.

Table 2. Crop Insurance Projected Prices for Texas Sales Closing Dates, 2020.

Commodity	Unit	Sales Closing Date	\$/Unit
Cotton	Pound	1/31/2020	0.710
Cotton	Pound	2/28/2020	0.700
Cotton	Pound	3/15/2020	0.680
Corn	Bushel	1/31/2020	4.00
Corn	Bushel	2/15/2020	4.00
Corn	Bushel	3/15/2020	3.88
Grain Sorghum	Bushel	1/31/2020	3.80
Grain Sorghum	Bushel	2/15/2020	3.80
Grain Sorghum	Bushel	3/15/2020	3.69
Wheat	Bushel	9/30/2019	4.35
Rice (Long Grain)	Pound	1/31/2020	0.120
Rice (Long Grain)	Pound	2/28/2020	0.121
Soybeans	Bushel	1/31/2020	9.71
Soybeans	Bushel	2/28/2020	9.31
Soybeans	Bushel	3/15/2020	9.17

designed to protect against price and revenue declines. Most producers in Texas elected coverage under PLC, and while PLC covers the marketing year average (MYA) composite of cotton lint and cottonseed prices, it was largely set prior to the late February market collapse (MYA cotton seed was already determined (\$159/ton) by an earlier marketing year and the majority of 2019 lint production was already sold). To be sure, the last quarter of the crop selling at lower prices will push the MYA seed cotton price lower, but it will have little impact on PLC support for the 2019 crop year. And, even with a marginal increase in PLC for the 2019 year due to COVID-19, PLC payments for the 2019 crop year will not be made until October 2020 (Table 1).

The longer-term impact on 2020 production is even less clear, but the outlook is poor to say the least. As of mid-April, the bulk of the Texas cotton crop is on the verge of being planted. Technically, planted acreage intentions could be adjusted, but most of the Texas cotton acres have few alternatives. Where alternatives might exist, few other commodities pencil out any better, and, in some cases, planting windows for alternatives may have already closed. With Dec-20 futures prices hovering around \$0.55/lb relative to roughly \$0.70/lb pre-COVID-19, a simple analysis would suggest an expected 20 percent reduction in expected revenue for the 2020 cotton crop. Few producers will be able to break even with a 20 percent revenue reduction.

For many years, crop insurance coverage has been a critical risk management tool for Texas producers. Fortunately, crop insurance planting prices were established prior to the dramatic declines that began in late February 2020. For example, Figure 10 shows the month-long price discovery window that set the cotton insurance planting price at \$0.69/lb for the March 15 sales closing date (prices for other sales closing dates and crops are found in Table 2). The most common insurance product purchased in Texas is revenue protection (RP) at 70 percent coverage. While crop insurance can be a valuable tool when prices decline during the

growing season, producers are still exposed to a deductible. In the case of 70 percent RP coverage, protection only kicks in after a 30 percent revenue loss. For the 2020 cotton crop, assuming normal yields, prices would have to fall to \$0.47/lb (70 percent CI in Figure 10) before crop insurance indemnities would kick in. In other words, despite the importance of crop insurance to Texas cotton farmers, it will very likely provide little to no support for the losses due to COVID-19 in 2020.

Current prices have fallen to the point where the Marketing Loan program is also relevant. Coupled to current production, Loan Deficiency Payments (LDP's) provide a more immediate and direct safety net for prices below loan rate levels (green line Figure 10). While LDP's do provide more of a price floor, \$0.52/lb for cotton is, in most cases, well below the cost of production. At that level, producers have already endured losses that have completely eroded profits.

Corn

Figure 11 illustrates the price impacts in the corn market as well as important program parameters. Relative to the pre-COVID price in the range of \$3.85/bu, the near term (May-20) corn futures contract price has seen a 17 percent decline to around \$3.25/bu. By the end of February, an estimated 60 percent of the Texas 2019 corn crop had been sold, leaving 40 percent exposed to recent losses in value. NASS estimates the 2019 corn crop at almost 286 million bushels. Assuming 114 million bushels unsold, a price decline of \$0.60/bu

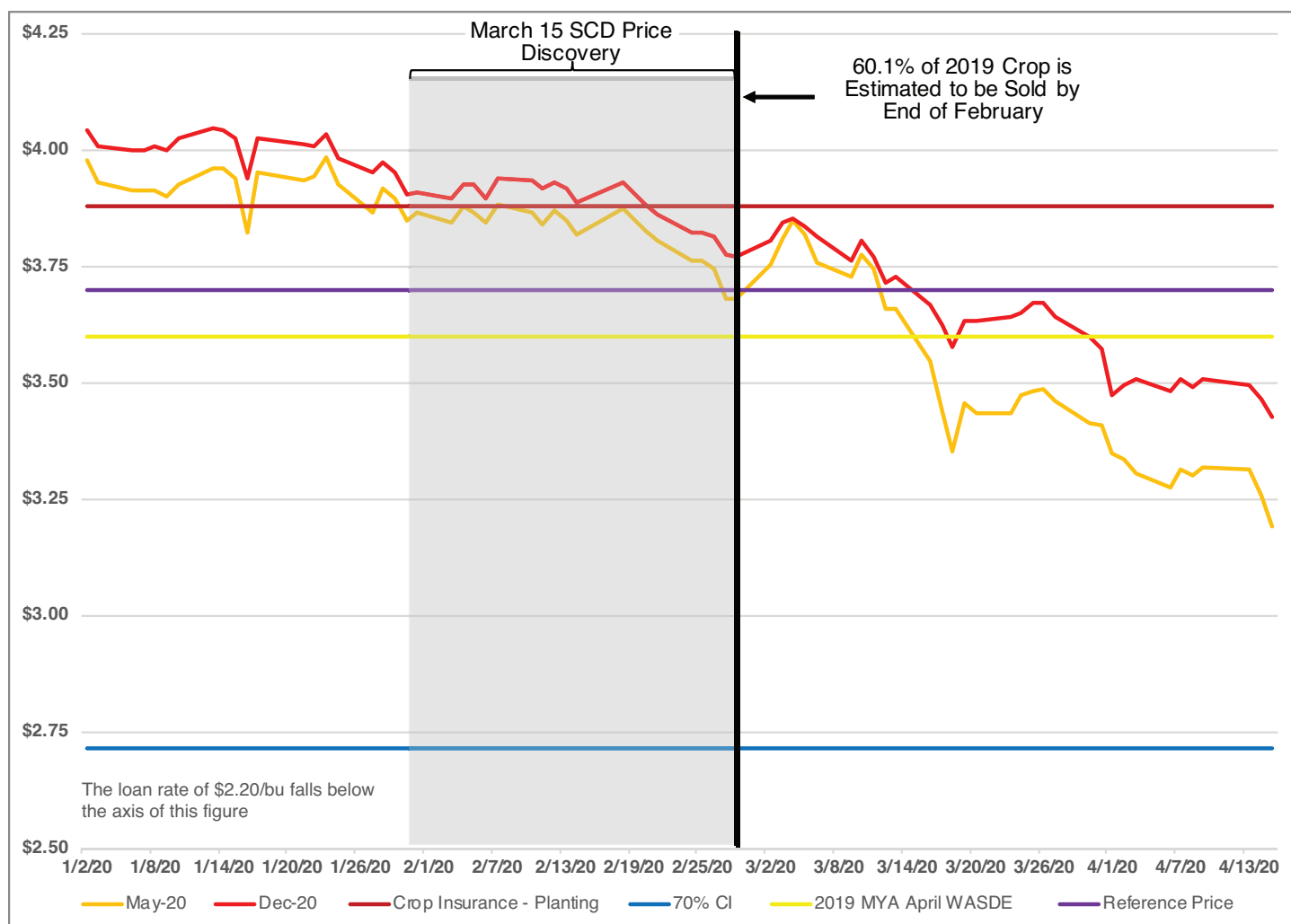


Figure 11. Crop Insurance, Futures Contract, and Marketing Year Average Prices and Policy Parameters for Corn.

implies a \$68.5 million loss in value. Again, mitigating factors may apply, and some production would have been sold before the full \$0.60/bu drop, but value losses to old crop production are significant and continued price/value risk remains.

PLC could provide protection against further price declines related to the 2019 crop. With 40 percent of the 2019 crop sales occurring after March 1, the lower market conditions will weigh heavily into the MYA price, potentially triggering PLC payments. Current (April) estimates of the 2019 PLC payment rate stands at just \$0.10/bu (\$3.70 reference price and projected \$3.60/bu MYA corn price). Similarly, ARC payments are more likely to trigger for a given county when the MYA price is below the reference price. Again, both ARC and PLC protection is limited because payments are decoupled from current production, and subject to reduction factors and producer payment limits.

For the 2020 crop, USDA crop progress as of April 13 suggests that 63 percent of the Texas corn crop has already been planted. Despite a dismal market outlook, very little planting flexibility remains available. The Dec-20 corn futures price recently fell below \$3.45/bu, a 14 to 15 percent reduction from expectations in January. Producers with already tight profit margins can ill-afford a 15 percent revenue loss. As with all commodities, market volatility could create some price protection opportunities (i.e. hedging), and producers should be ready to react quickly.

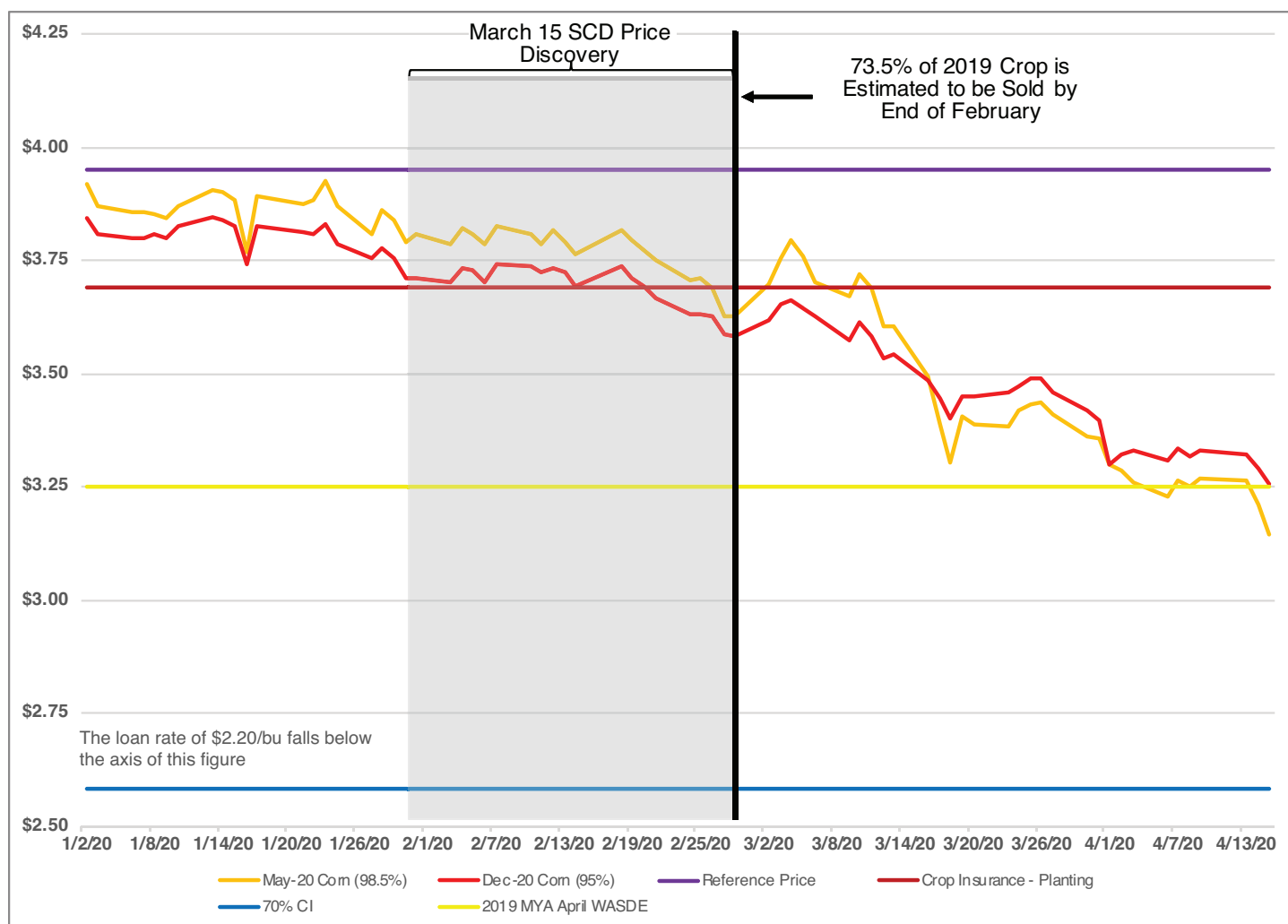


Figure 12. Crop Insurance, Futures Contract, and Marketing Year Average Prices and Policy Parameters for Grain Sorghum.

As noted in Figure 11, the corn price discovery period for the March 15 sales closing date established a \$3.88/bu crop insurance planting price. Similar to the case for cotton noted above, for 2020 crop corn, prices would have to fall below \$2.72/bu (assuming normal yields) before a 70 percent RP policy would generate an indemnity, leaving producers exposed to significant downward price risk.

Grain Sorghum

Figure 12 illustrates the price impacts on Grain Sorghum using defined percentages of the May-20 corn futures price and the Dec-20 corn futures price to estimate trends in grain sorghum markets. Prior to the COVID-related market disruptions beginning in late February 2020, grain sorghum was trading at roughly \$3.80/bu. The subsequent 17 percent decline in corn futures brings the current market estimate for sorghum to around \$3.15/bu. NASS estimates the 2019 Texas grain sorghum crop at 85.4 million bushels, with approximately 74 percent of that already sold as of the end of February. Approximately 22.6 million bushels as of March 1 would have been exposed to as much as a \$0.65/bu loss, for a total value loss of \$14.7 million.

The 2019 MYA price for grain sorghum is currently projected to be \$3.25/bu, falling well below the \$3.95/bu reference price. A PLC payment rate of \$0.70/bu is projected, and ARC payments are also likely depending on county yields. With the same caveats that applied to other crops, these programs offer some mitigation of the impact on the 2019 crop, but any payments will not be made until October 2020.

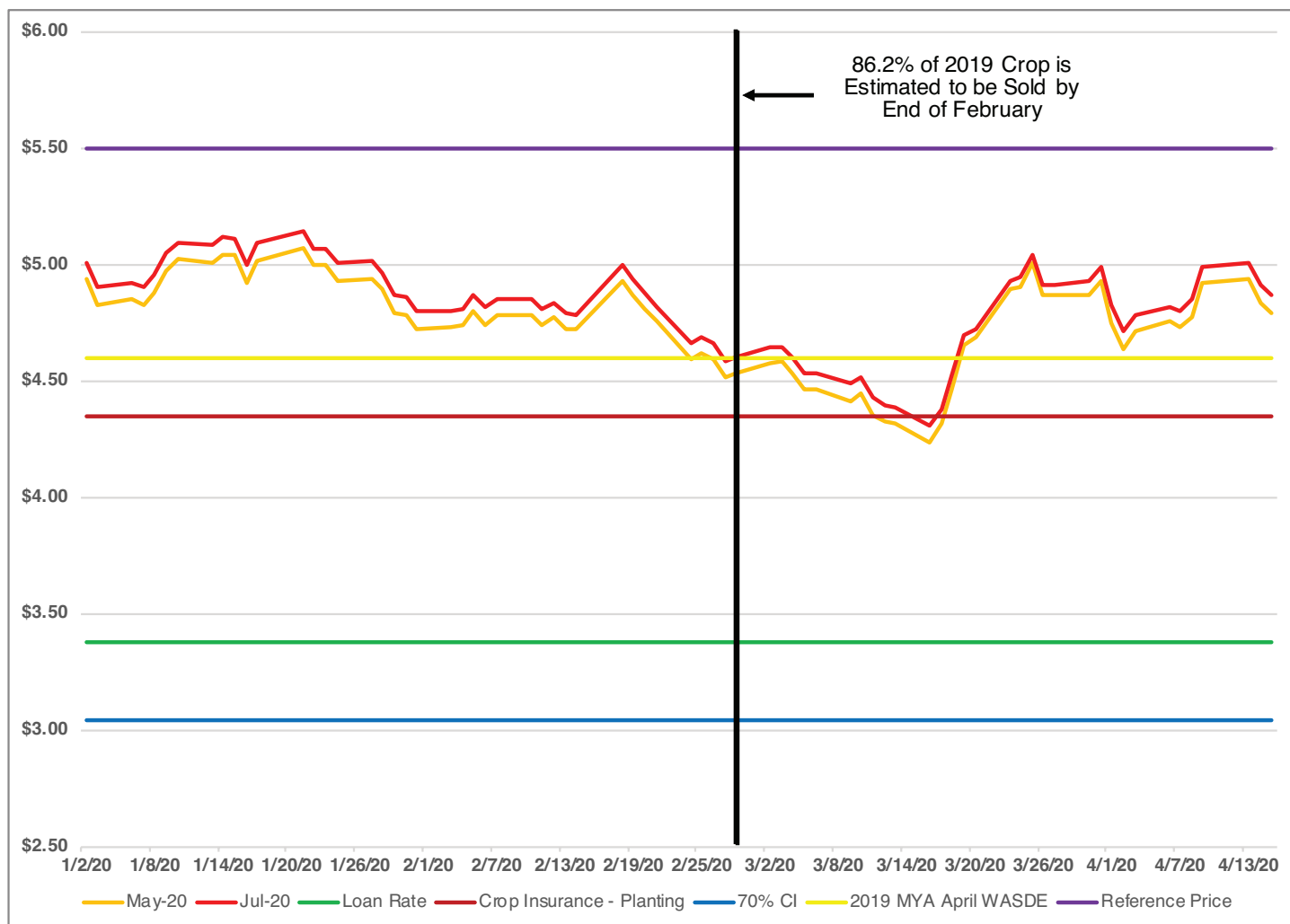


Figure 13. Crop Insurance, Futures Contract, and Marketing Year Average Prices and Policy Parameters for Wheat.

The picture for 2020 crop production is similarly distressing. Crop progress reports suggest that 60 percent of Texas grain sorghum is already in the ground. As with other crops, prices were already at modest levels and the outlook for as much as a 15 percent reduction in revenue cuts heavily into already thin profit margins.

During the month of February, the grain sorghum crop insurance price was established at \$3.69/bu. However, for a common 70 percent RP policy and assuming normal yields, crop insurance indemnities would not trigger at prices above \$2.58/bu, leaving a great deal of deductible exposure for the producer.

Wheat

Near-term financial impacts of the COVID-19 outbreak on the 2019 wheat crop are different than for most of the other row crops. First, strong demand for wheat, primarily a foodstuff, in both the U.S. and Chinese markets has thus far helped minimize losses for wheat producers as compared to those experienced by other commodities. Additionally, the realization of the severity of the pandemic and resulting market declines occurred after the majority of the 2019 wheat crop was already sold (the wheat marketing year is June 1-May 31). Based on monthly sales for 2015-2019 marketing years, typically 86.2 percent of the U.S. wheat crop would be sold by the end of February. Assuming these percentages hold for Texas producers, approximately 9.6 million bushels of wheat remained to sell for 2019. The May-20 futures contract price for wheat (orange line, Figure 13) experienced an approximate \$0.135/bu drop from its February high to the most recent closing price; however, the price did have some upward movement in March/April, approaching \$5.00/bu. This relatively minor drop in wheat price, coupled with the assumption that the majority of the 2019 wheat crop had been sold by the end of February, helped alleviate the near-term impacts of COVID-19 on Texas wheat producers.

The 2020 winter wheat crop is also unique in that it was already planted before anyone had even heard the term “COVID-19.” The Texas wheat crop that will soon be harvested in May/June has a similar story regarding the Jul-20 futures contract price, the contract associated with setting the crop insurance harvest-time price for revenue protection (red line, Figure 13). Currently, the most recent 30-day average contract price would yield a \$4.75/bu price for the 2020 crop; this would actually reflect a \$0.40/bu increase from the planting-time price established in August/September of last year (dark red horizontal line, Figure 13). However, it is important to note the harvest-time price for crop insurance will not be set until June 1-30, 2020. Additionally, the 2020 wheat marketing year will not begin until June 1, 2020, and will not be settled until May 31, 2021, so there is a lot of uncertainty remaining for pricing of the 2020 wheat crop. If demand remains strong and current market conditions hold, wheat could potentially weather the storm better than many other commodities, but, as we’ve seen in markets and everyday life during this pandemic, this could all change at a moment’s notice.

Rice

In terms of price impacts reflected in the futures market, rice, like wheat, has fared better than other commodities. Rice is a staple food product for more than half of the world’s population. Thus, when markets and supply chains are in a state of uncertainty, it isn’t surprising to see price increases for these staple food crops. Figure 14 shows rice prices as well as important program provision levels over most of the 2020 time period. It should be noted that rice has a relatively thinly traded futures market, so local price conditions could vary significantly from price levels in the futures market. While initially falling around 6 percent near the beginning of March, there has been an increase in the May-20 contract price that has been accompanied by an increase in volatility. The timing of the COVID-19 pandemic in the U.S. was such that the majority of the 2019 rice crop has been marketed. At the end of February, an estimated 63 percent of the Texas 2019 rice crop had been sold. However, that still leaves over a third (37 percent) to be marketed in the more volatile market conditions.

The 2020 Texas rice crop is well underway with an estimated 79 percent of the crop being planted as of April 12. The Nov-20 futures contracts have traded around \$0.01/lb lower than the 2019 crop contracts and

have been near \$0.1220/lb. The new crop contract hasn't seen the increase in price that the old crop contract has experienced. While there are other factors at play, this divergence likely signals that the market believes that disruptions in commerce and supply chains, real or perceived, are likely to be resolved by the time the 2020 crop is harvested and sold.

The May-20 contract price has traded near the PLC reference price of \$0.14/lb. However, the April WAS-DE suggests a 2019 marketing year average price of \$0.1220/lb. This results in a \$0.0180/lb PLC payment rate. As noted in the discussion of other crops, PLC payments for the 2019 crop year are not made until October 2020.

Figure 14 shows the month-long price discovery window that set the rice insurance planting price at \$0.1210/lb for the February 29 sales closing date (other relevant prices and discovery windows are found in Table 2). Assuming the purchase of revenue protection (RP) insurance at 70 percent coverage and assuming normal yields, the price for rice would have to drop \$0.0847/lb before an indemnity would kick in. Given the irrigated nature of rice, yields are more stable than other crops in Texas. Thus, a significant fall in prices, well below the cost of production, would have to occur before indemnities would be paid.

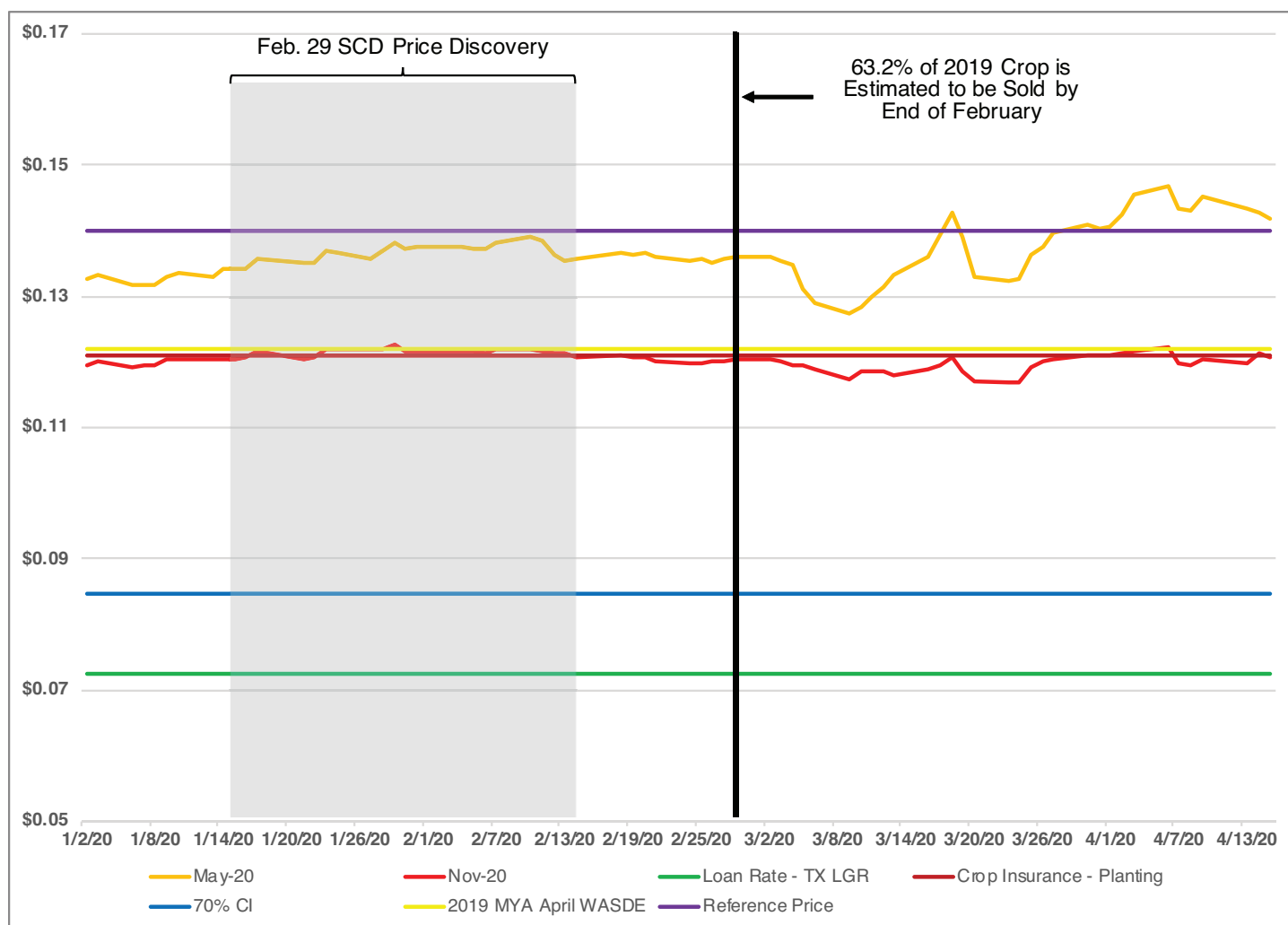


Figure 14. Crop Insurance, Futures Contract, and Marketing Year Average Prices and Policy Parameters for Rice.

Figure 15 illustrates the price impacts in the soybean markets as well as important safety net program support levels. Relative to the pre-COVID prices in the range of \$8.92/bu, the near term (May-20) soybeans futures contract price has seen an approximate 5.6 percent (or \$0.50/bu) decline to around \$8.42/bu. By the end of February, an estimated 74 percent of the previous year's soybean crop has generally been sold, leaving 26 percent exposed to recent losses in value. If the 74 percent holds for Texas producers, then with an estimated Texas soybean crop of 2 million bushels, 537,000 bushels remain unsold. A \$0.50/bu price decline translates to a \$268,000 loss in value. Again, mitigating factors may apply, and some production would have been sold before the full \$0.50/bu drop, but value losses to old crop production are important for soybean growers and continued price/value risk remains.

The longer-term impact on 2020 production is even less clear, but the outlook is poor relative to prior years. As of mid-April, none of the Texas soybean crop has been planted. It is possible that some acres could be switched to soybeans from other crops where soybeans might pencil out a little better. With Nov-20 futures prices currently in the \$8.60/bu range relative to the \$9.08/bu range pre-COVID-19, a simple analysis would suggest an expected 5.3 percent reduction in expected revenue for the 2020 soybean crop.

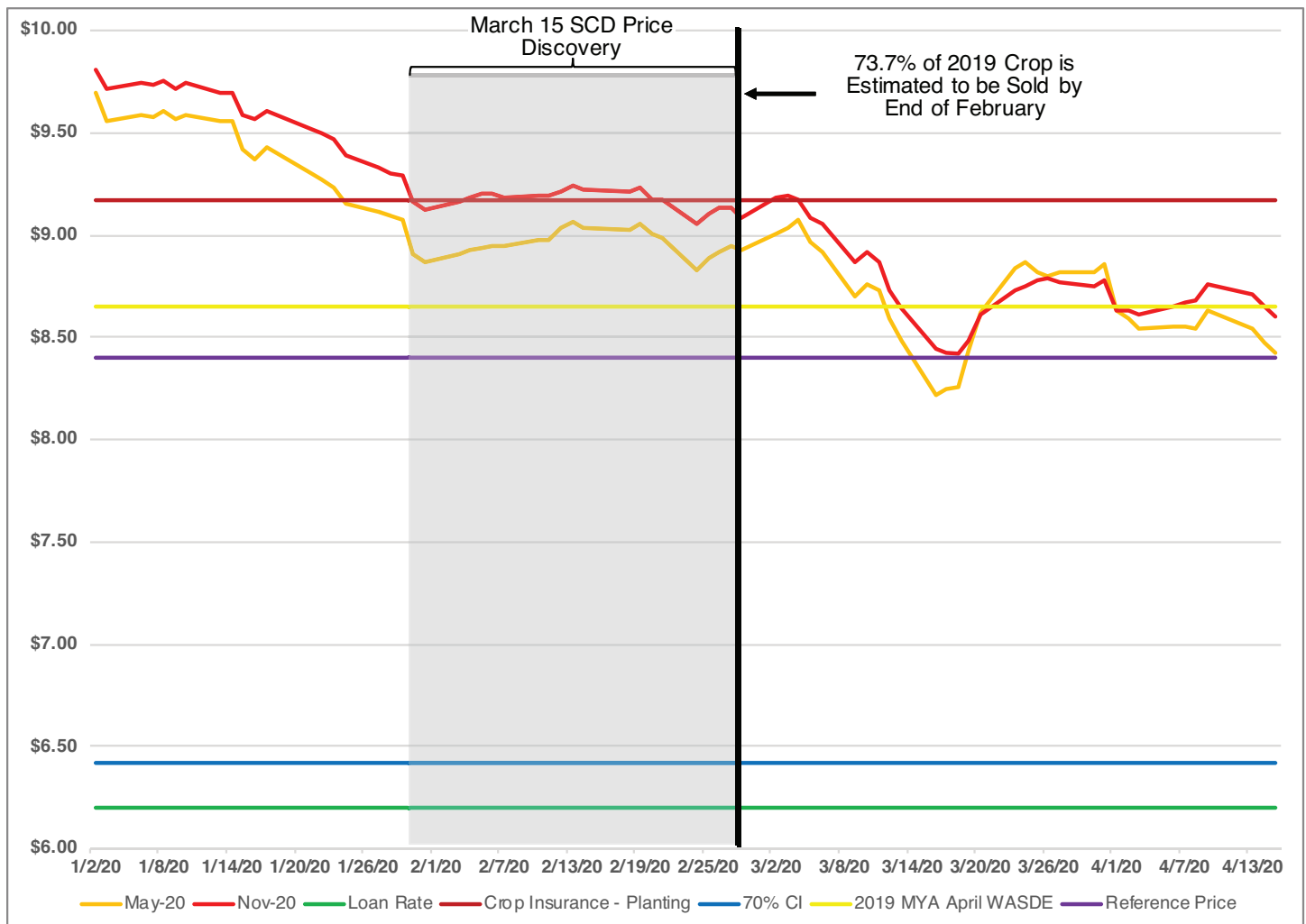


Figure 15. Crop Insurance, Futures Contract, and Marketing Year Average Prices and Policy Parameters for Soybeans.

As with other spring-planted crops, the timing of the soybean market collapse was such that the crop insurance planting prices were established prior to the dramatic declines that began in late February 2020. For example, Figure 15 shows the month-long price discovery window that set the soybean insurance planting price at \$9.17/bu for the March 15 sales closing date (prices for other sales closing dates and crops are found in Table 2). The most common insurance product purchased is revenue protection (RP) at 70 percent coverage. Given the 30 percent deductible, for 2020 soybeans, assuming normal yields, prices would have to fall to \$6.42/bu (70 percent CI in Figure 15) before crop insurance indemnities would kick in.

Crop Conclusion

Prior to the COVID-19 pandemic, producers in Texas were already experiencing financial stress after multiple years of low commodity market prices and ever-challenging weather conditions. The economic disruption that began in late February is impacting old crop (2019 production) that has yet to be sold. A simple value assessment of the unsold crop across 6 major row crops indicates that producers have likely experienced value losses in excess of \$200 million. Moving forward, the impact on the entire 2020 crop could be substantially larger. Producers face an incredibly challenging and uncertain market situation that has the potential to extend across multiple years. Risk management strategies, crop insurance, and Farm Bill program provisions will play a key role in providing relief for depressed prices. However, even with the collection of tools currently available, absent additional aid, the financial stress producers were already facing is likely to grow significantly.

Specialty Crop Sector

The specialty crop sector—made up primarily of fruits and vegetables—is amongst the hardest hit sectors of agriculture. Most fruits and vegetables are consumed fresh and are highly perishable. As a result, the closure of most restaurants and schools is causing a major reduction in demand. Many public schools are still offering meals for pick up, but the numbers of meals distributed is lower and the choice of fresh produce is very limited. On the other hand, some of that reduction in demand has translated to higher demand at grocery stores. However, different packaging requirements, changes in volume demanded, changing consumer purchasing habits and uncertainty are affecting fresh produce prices mainly at the farmgate level.

The U.S. fruit and vegetable sector faces stiff competition from other countries to supply fresh produce domestically. As opposed to most of the other agricultural sectors, the U.S. is a net importer of fruits and vegetables (Figure 16). Over the last 10 years, the U.S. trade deficit for fruits and vegetables has grown from \$6.2 billion in 2010 to \$16.2 billion in 2019. Around 53.1 percent of fresh fruit and 36.1 percent of fresh vegetables consumed in the U.S. are imported, up 48.8 and 25 percent respectively from 10 years ago (USDA, ERS). Mexico is the largest exporter of fresh produce to the U.S., accounting for 50.3 percent of the fruits and 71.3 percent of the vegetables imported by the U.S. in 2019 (USDA, FAS).

Over the last 8 years, imports of fresh produce from Mexico have increased at an average of 4.9 percent per year through all U.S. ports of entry. Texas is the largest port of entry of fresh produce from Mexico, accounting for over 50 percent. This year started with an increase in produce imports from Mexico through Texas of 5.2 percent compared to 2019. However, there has been a reduction in produce imports of 4.1 percent in February and 1.6 percent in March compared to those same months in 2019. It is rare to see a net reduction of fresh produce imports from Mexico through all Texas ports of entry in consecutive months. Moreover, it is expected that imports of fresh produce from Mexico will show a larger decrease in April given the uncertainty and reduction in food demand due to COVID-19.

South Texas fruit and vegetable harvesting is underway, and normally a reduction in imports is good news for local producers at this time of the year. However, prices of several produce items are low due to a de-

crease of available outlets, mainly food service outlets. U.S. domestic winter fruit and vegetable production has also been good so far this year, including in Texas, putting even more pressure on prices. Typically, a large fruit and vegetable producer would sell 40 percent of its production to retail, 40 percent to food service, and 20 percent to other outlets. Due to COVID-19, there has been an approximately 12 percent increase in retail demand for produce at grocery stores, given that consumption in restaurants has gone down significantly. Therefore, a typical producer needs to find an outlet for the remaining 48 percent of its production. On top of that, grocery stores are reducing the variety of items that they stock on shelves (as they focus on stocking the essentials), many times reducing up to 90 percent of the items that they usually carry, which includes several fruit and vegetable items. Once grocery stores acclimate to new consumer purchasing habits and volumes demanded, conditions may start returning to normal. In the meantime, Texas specialty crop producers are left with highly perishable products without many other outlets to utilize. Based on discussions with industry participants, fruit and vegetable producers in South Texas have experienced anywhere between a 20 to 50 percent reduction in sales in the month of March alone. If COVID-19 issues persist, Texas fruit and vegetable producers could be left without outlets for their highly perishable products and ultimately could lose over \$397 million.

Another issue affecting specialty crop producers across the U.S.—and especially South Texas producers during harvest—is labor shortage and uncertainty. Some producers are experiencing up to a 50 percent reduction in harvesting crews, which will delay harvesting of the crop and risk reducing its quality or even losing the entire crop. H-2A farmworkers make up 10 percent of crop farmworkers in the United States. The Department of State’s visa processing policies in response to COVID-19 that limit processing to returning workers could reduce the number of H-2A workers who can be employed on U.S. farms by as many as 60,000, although federal agencies appear to be attempting to mitigate this by seeking to transfer current H-2A workers with contracts set to expire to other farms seeking workers. However, there is substantial uncertainty regarding the processing of new H-2A applicants, and therefore with the availability of H-2A workers in the near

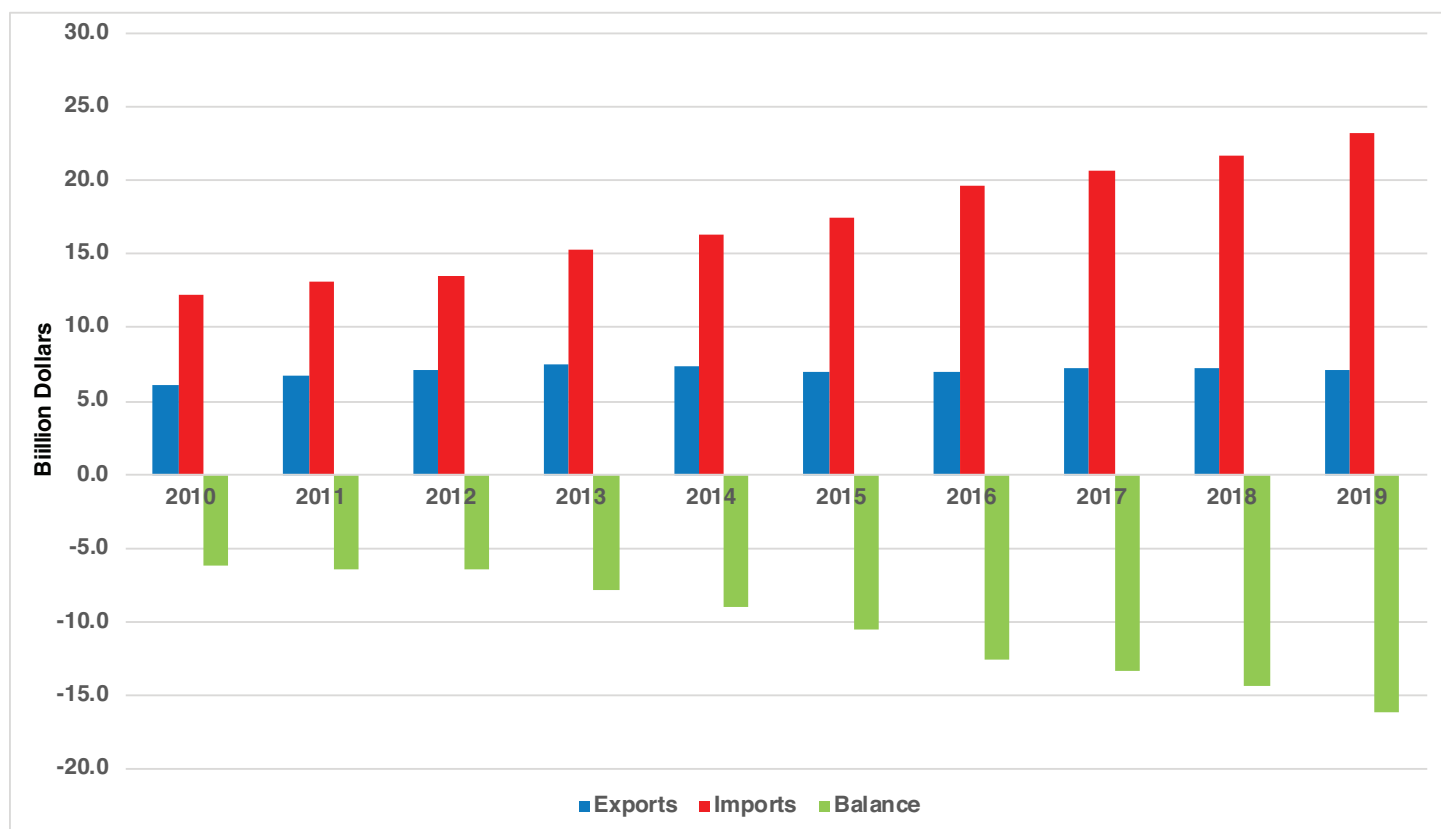


Figure 16. U.S. Trade Balance of Fresh Fruits and Vegetables.

future. In addition, payments under the Payment Protection Program (PPP) of the U.S. Small Business Administration do not cover H-2A workers.

Overall, due to COVID-19, the short run outlook for specialty crop producers is very complicated. The sudden loss of most food service outlets for highly perishable products along with good winter production of fruits and vegetables is causing low prices across most fresh produce commodities. Moreover, changing consumer purchasing habits at the grocery store, demand uncertainty and labor shortages have created the perfect storm for specialty crop producers in Texas and across the United States.

Ethanol Plants

Texas has four ethanol plants located in the Panhandle. Two plants in Hereford, and a plant each in Levelland and Plainview, have a total annual capacity of 340 million gallons of ethanol production. These plants were located to take advantage of at least some locally sourced corn and grain sorghum and to be in proximity to a large number of feedlots who are a ready market for their dried and wet distillers' grains (as feed). Economic conditions prior to the COVID-19 pandemic had already led to the Levelland plant closing, leaving Texas ethanol production capacity at approximately 300 million gallons a year.

Due to shelter-in-place restrictions, the number of people driving has drastically declined which has directly decreased the demand for ethanol as it generally represents 10 percent of every gallon of gas sold in the United States. U.S. gasoline demand has fallen by one-third since the start of the pandemic.³ According to the Renewable Fuels Association, nearly one-half of U.S. ethanol production capacity has been idled. Compounding the declines induced by COVID-19, the current oil production conflict between Russia and Saudi Arabia that arose during the pandemic has led to a \$28.25/barrel decline in the West Texas Intermediate crude oil price. Lower oil prices make ethanol relatively less competitive with other oxygenates refined from refining crude oil.

Since early March, ethanol futures have plummeted in tandem with oil prices. The nearby May ethanol contract fell from \$1.27/gallon on March 6 to as low as \$0.83/gallon, and currently sits at \$0.97/gallon. Cash prices have also suffered, falling from \$1.24/gallon in early March to \$0.80/gallon at last report. Ethanol co-products have seen price impacts as well. Dried distillers' grains cash prices have increased as much as \$60/ton from early March to early April, which is counter to typical seasonal trends. Texas ethanol plants are also a major source of CO₂ used in soft drinks and refrigerants, so the plant idling will likely have repercussions in other industries as well.

As a result of this economic decline, the Plainview ethanol plant has idled, the Green Plains Hereford ethanol plant is scheduled to idle on April 17, 2020, and the White Energy Hereford plant will reduce production by 25 to 50 percent of its roughly 100 million gallon capacity, leaving total Texas ethanol production at roughly 7.5 percent to 15 percent of total production capacity. The result will be at least a temporary decline in local demand for corn, further pressuring local cash prices, and a tremendous loss of a high-quality feed for cattle feeders. Simultaneous losses for two major regional industries will result in a significant economic impact on the local communities.

³ <https://www.reuters.com/article/us-usa-biofuels-coronavirus/coronavirus-spurs-new-clash-between-big-oil-and-big-corn-over-u-s-biofuels-idUSKBN2IY30K>

Summary and Conclusions

The impacts of the COVID-19 pandemic have already resulted in reduced profitability for anyone who has agricultural output that has needed to be marketed such as cow-calf operators, stocker operators, feedlots, lamb raisers and fruit and vegetable producers. However, if prices for all agricultural products do not return to pre-pandemic levels, the losses for Texas agricultural producers will be devastating. With most market prices for livestock and crops grown in Texas falling 25 to 30 percent, losses in the range of \$6 to \$8 billion could easily be realized, if not more. The next report in this series will provide estimates of these losses.

Mention of a trademark or a proprietary product does not constitute a guarantee or a warranty of the product by Texas AgriLife Research or Texas AgriLife Extension Service and does not imply its approval to the exclusion of other products that also may be suitable.

All programs and information of Texas A&M AgriLife Research or Texas A&M AgriLife Extension Service are available to everyone without regard to race, color, religion, sex, age, handicap, or national origin.