



Food & Agricultural  
Policy Research Institute  
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Agricultural Markets  
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University of Missouri



# U.S. Agricultural Market Outlook

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Any opinion, findings, conclusions, or recommendations expressed in this publication are those of the authors and do not necessarily reflect the view of the U.S. Department of Agriculture nor the University of Missouri.

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The Agricultural and Food Policy Center at Texas A&M University will prepare a companion set of estimates of the farm-level impacts of these projections ([www.afpc.tamu.edu](http://www.afpc.tamu.edu)).

The authors would like to thank participants in a workshop reviewing a preliminary version of these estimates in via virtual review in December 2020. Any remaining errors are those of the authors.

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## Table of contents

|                           |    |
|---------------------------|----|
| Summary .....             | 2  |
| Grains.....               | 17 |
| Oilseeds .....            | 31 |
| Other crops.....          | 39 |
| Biofuels .....            | 47 |
| Livestock and dairy.....  | 53 |
| Aggregate indicators..... | 61 |

## Summary

The COVID-19 pandemic upended agricultural markets, contributing to a dismal outlook for the farm economy in the spring and summer of 2020. A series of emergency support programs provided record government payments to farmers, and prices for many commodities rebounded in the final months of the year, resulting in a large increase in 2020 net farm income. Looking ahead, the outlook is uncertain, but certainly more optimistic than it was a few months ago.

These baseline projections for agricultural and biofuel markets were prepared using market information available in January 2021. Macroeconomic assumptions are based primarily on forecasts by IHS Markit, which suggest a recovery in the U.S. and global economies. The baseline reflects current policies, meaning it incorporates the various assistance programs that had been enacted prior to January 2021, but does not reflect any subsequent policy changes.

Commodity markets will continue to be volatile. We use our models to develop a range of projected market outcomes that takes into account some major sources of uncertainty about future supply and demand conditions. In some of the resulting 500 outcomes, prices, quantities and values are much higher or much lower than the averages reported here.

Some key results:

- Major crop prices retreat from recent peaks, but remain above the prices of 2015-2019. For the crop to be harvested in the fall of 2021, projected corn prices average \$4.06 per bushel and soybeans average \$10.61 per bushel.
- Increasing imports by China explain much of the recent strength in grain and oilseed markets. If China's purchases continue at the recent pace, U.S. exports and market prices could be higher than projected here, but there is downside risk as well.
- Higher prices and assumed normal spring planting conditions allow 2021 total area planted to major crops to rebound to 2018 levels. That could allow planted acreage for corn, soybeans and wheat to all expand in the same year. Projected soybean acreage exceeds 90 million acres.
- Average prices for livestock and poultry increase in 2021 as the sector returns to more normal operating conditions after the plant closures and other disruptions of 2020.
- After the pandemic reduced driving and fuel use in 2020, projected ethanol production and use increase in 2021, but do not immediately rebound to pre-COVID levels.
- Crop insurance and the price loss coverage (PLC) program account for most projected support to the farm sector. These programs provide far less support than the market facilitation program (MFP), the coronavirus food assistance program (CFAP) and the paycheck protection program (PPP) provided in 2020.
- The final rounds of ad hoc assistance payments push total outlays on selected mandatory farm-related programs to a record \$51 billion in fiscal year (FY) 2021. Without this additional assistance, the total drops back to an annual average of \$23 billion between FY 2022 and FY 2030, only slightly above the FY 2015-FY 2019 average.
- Net farm income increased to \$121 billion in 2020, the highest level since 2013, primarily because of \$46 billion in government payments. Net farm income drops to \$112 billion in 2021, in spite of a \$25 billion increase in crop and livestock receipts. Reduced government payments and higher production costs explain the drop in net farm income.
- Higher levels of net farm income support an increase in land and farm asset values in 2021. The result is the first slight dip in the farm debt-to-asset ratio since 2012. In later years, declining real net farm income and an eventual increase in interest rates put pressure on asset values and cause the debt-to-asset ratio to resume its increase.
- Consumer food price inflation increased to 3.4% in 2020, in part because of a wider gap between producer prices for livestock and consumer prices for meat. Food inflation moderates to 2.1% in 2021 as conditions normalize, and food inflation is similar to overall inflation in subsequent years.

## Key results

| Marketing year                                          | 2015/16-2019/20<br>average | 2020/21 | 2021/22 | 2022/23-2030/31<br>average |
|---------------------------------------------------------|----------------------------|---------|---------|----------------------------|
| <b>Crop prices</b>                                      |                            |         |         |                            |
| Corn farm price, dollars per bushel                     | 3.50                       | 4.22    | 4.06    | 3.83                       |
| Soybean farm price, dollars per bushel                  | 8.96                       | 11.15   | 10.61   | 9.76                       |
| Wheat farm price, dollars per bushel                    | 4.65                       | 4.84    | 5.09    | 5.09                       |
| Upland cotton farm price, cents per pound               | 65.5                       | 68.2    | 67.9    | 68.3                       |
| <b>Planted area, million acres</b>                      |                            |         |         |                            |
| Corn                                                    | 90.2                       | 90.8    | 91.3    | 90.9                       |
| Soybeans                                                | 84.3                       | 83.1    | 90.4    | 88.1                       |
| Wheat                                                   | 48.9                       | 44.3    | 45.9    | 45.3                       |
| 12 field crops and hay*                                 | 308.1                      | 302.4   | 310.8   | 307.6                      |
| <b>Selected program benefits, billion dollars</b>       |                            |         |         |                            |
| Agriculture risk coverage (ARC)                         | 2.57                       | 0.08    | 0.42    | 0.99                       |
| Price loss coverage (PLC)                               | 2.83                       | 2.36    | 3.88    | 5.11                       |
| Crop insurance net indemnities                          | 3.06                       | 5.25    | 6.39    | 6.35                       |
| <b>Livestock sector prices</b>                          |                            |         |         |                            |
| Fed steers, 5-area direct, dollars per cwt              | 124.88                     | 108.46  | 116.61  | 132.01                     |
| Barrows and gilts, 51-52% lean, dollars per cwt         | 48.15                      | 43.25   | 47.18   | 52.20                      |
| National wholesale broiler, cents per pound             | 90.95                      | 73.23   | 83.42   | 92.62                      |
| All milk, dollars per cwt                               | 17.23                      | 18.30   | 17.62   | 18.06                      |
| <b>Ethanol production, billion gallons</b>              |                            |         |         |                            |
|                                                         | 15.6                       | 13.8    | 14.9    | 16.3                       |
| <b>Government outlays, billion dollars, fiscal year</b> |                            |         |         |                            |
| Commodity Credit Corporation net outlays                | 21.6                       | 47.7    | 51.2    | 23.4                       |
| Major commodity programs                                | 11.9                       | 16.9    | 10.0    | 9.8                        |
| MFP, CRP, disaster and all other CCC net outlays**      | 5.4                        | 3.6     | 6.3     | 6.4                        |
| Crop insurance net outlays                              | 6.5                        | 13.3    | 3.7     | 3.4                        |
| Other non-CCC (CFAP, PPP, disaster, conservation)***    | 6.9                        | 9.9     | 8.9     | 10.1                       |
| Net farm income, billion dollars                        | 2.9                        | 21.0    | 32.3    | 3.5                        |
| <b>Net farm income, billion dollars</b>                 |                            |         |         |                            |
| Crop and livestock sector cash receipts                 | 76.7                       | 121.1   | 112.1   | 107.7                      |
| Government payments                                     | 369.4                      | 370.4   | 395.2   | 424.2                      |
| Real net farm income in 2021 dollars                    | 14.3                       | 46.3    | 24.0    | 11.3                       |
|                                                         | 81.9                       | 122.5   | 112.1   | 97.8                       |
| <b>Farm balance sheet, billion dollars</b>              |                            |         |         |                            |
| Farm assets                                             | 2,980                      | 3,122   | 3,254   | 3,236                      |
| Farm debt                                               | 388                        | 432     | 445     | 481                        |
| Debt/asset ratio                                        | 13.0%                      | 13.8%   | 13.7%   | 14.9%                      |
| <b>Annual consumer food price inflation</b>             |                            |         |         |                            |
|                                                         | 1.3%                       | 3.4%    | 2.1%    | 2.2%                       |

\* Includes corn, soybeans, wheat, upland cotton, sorghum, barley, oats, rice, peanuts, sunflowers, sugarcane, sugar beets and hay.

\*\* Market facilitation program (MFP), conservation reserve program (CRP) and other CCC programs.

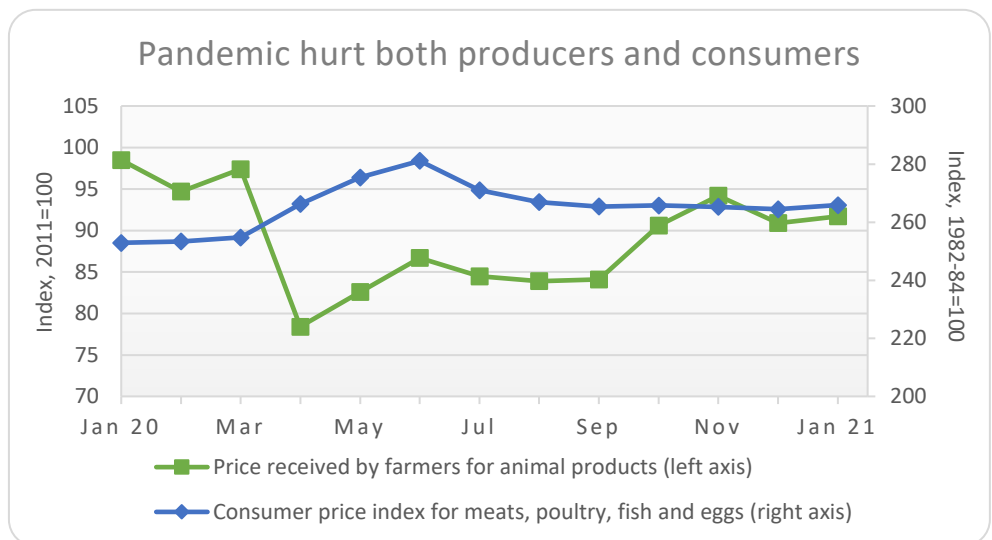
\*\*\* Coronavirus food assistance program (CFAP), paycheck protection program (PPP), disaster and conservation programs.

Note: The estimates are based on market information available in January 2021. Projections are averages across 500 outcomes.

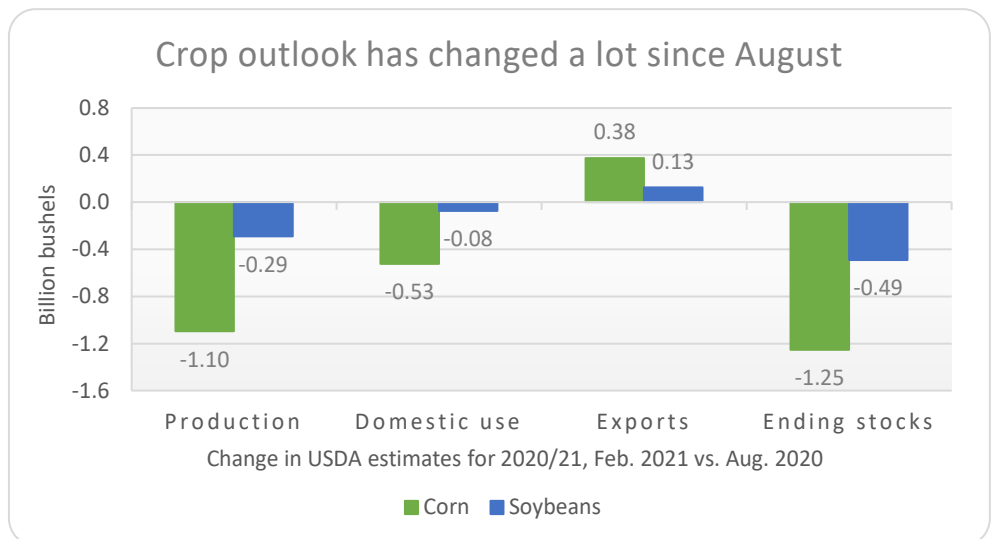


## How we got here

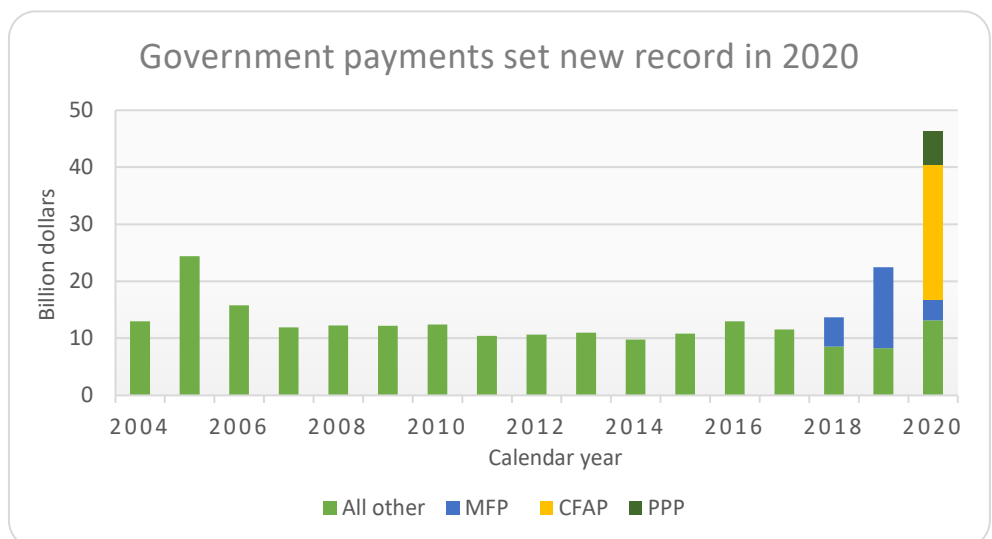
The coronavirus pandemic and associated responses have had widespread and dramatic effects on the food and farm sectors. Meat packing plant closures and shutdowns, for example, resulted in lower prices paid to livestock producers and higher consumer meat prices. As shown in the chart, these effects moderated after the spring of 2020, but an index of prices received by farmers for animal products has remained below pre-pandemic levels.



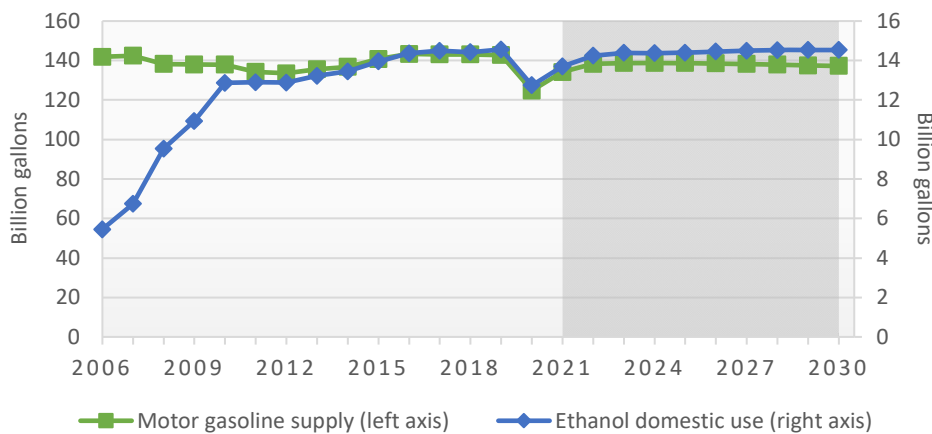
In August 2020, the expectation of a record corn harvest and a near-record soybean crop weighed on crop prices. Since then, USDA production estimates for 2020 have been sharply reduced, and very strong import demand from China has resulted in higher estimates of 2020/21 marketing year exports. The resulting large reduction in projected ending stocks corresponds with a large increase in market prices. Other crop prices have increased as well.



Direct government payments to agricultural producers in 2020 exceeded the previous record by more than \$20 billion. Most of the increase was explained by three ad hoc programs. The coronavirus food assistance program (CFAP) and the paycheck protection program (PPP) were both designed to respond to the pandemic. The market facilitation program (MFP) made payments from 2018-2020 to compensate farmers for losses in trade because of foreign trade barriers. These payments contributed to a significant increase in net farm income in 2020.



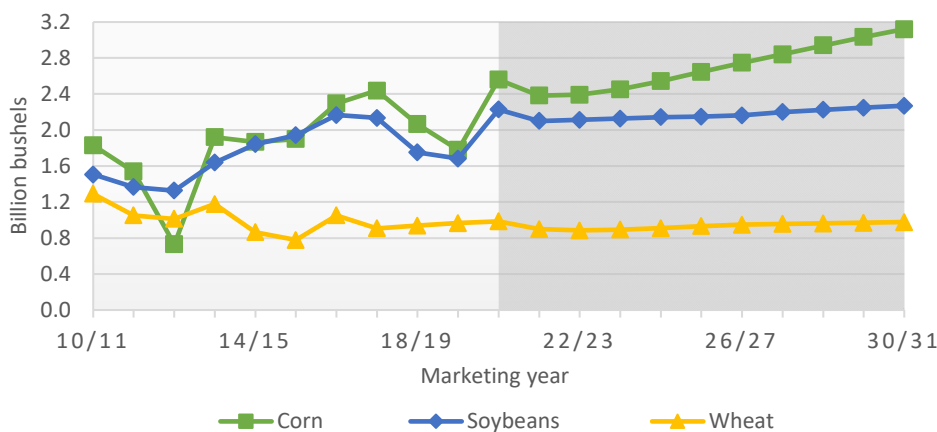
### COVID reduced driving and ethanol use



### Crop outlook highlights

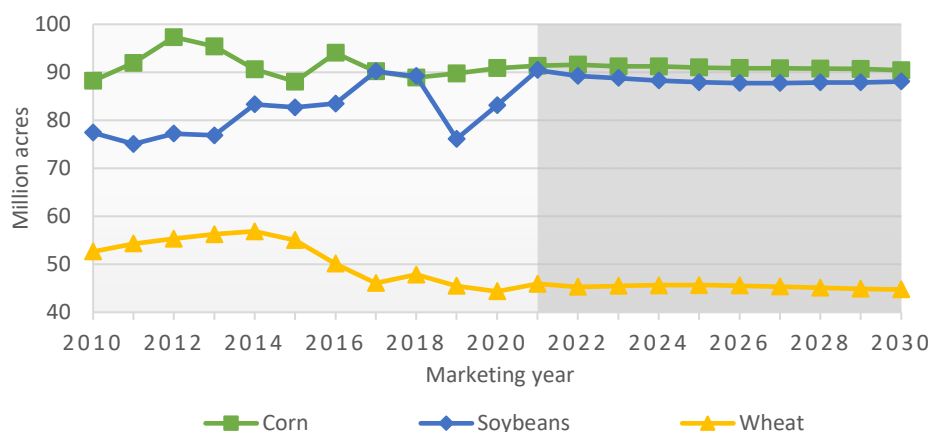
People drove less in 2020 because of the pandemic and associated responses, reducing demand for gasoline and ethanol. While domestic use of gasoline and ethanol are expected to increase in 2021, they remain below the 2019 level. Projected ethanol use exceeds 10% of gasoline supply, given some use of higher-level blends. The projections are sensitive to Renewable Fuel Standard (RFS) implementation and to prices of petroleum and biofuel feedstocks.

### China demand increases U.S. exports in 2020/21



Trade disputes, the impact of African swine fever (ASF) on pork production in China and strong competition from other exporters limited U.S. corn and soybean exports in 2018/19 and 2019/20. Exports of those two crops have increased sharply in 2020/21, primarily because of increased purchases from China as it rebuilds its swine herd. Future U.S. grain and oilseed exports depend on developments in China and elsewhere. Recent market strength suggests exports could exceed these projections, which are based on information available in January 2021.

### Corn and soybean area top 90 mil acres in 2021



Flooding and low market prices reduced the total area planted to major crops in 2019 and, to a lesser extent, in 2020. Much higher prices and an assumed return to more favorable spring weather allows projected corn, soybean and wheat area planted to all increase in 2021. Considering 12 major field crops and hay, total projected area devoted to crop production is about the same in 2021 as in 2018.

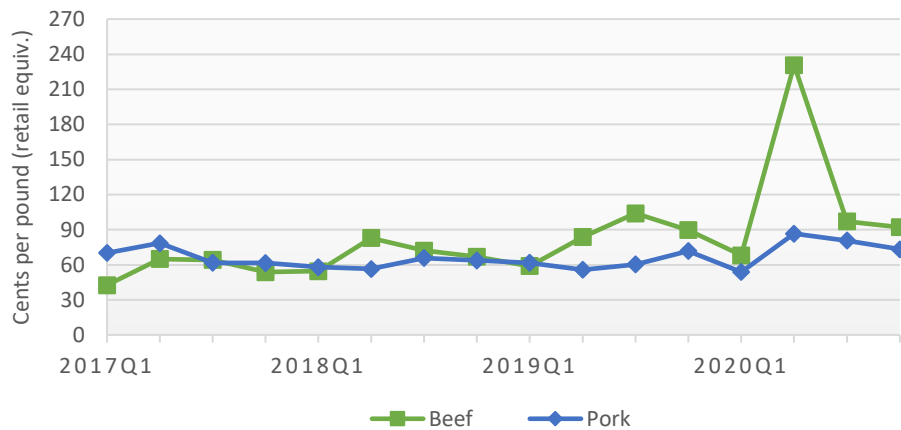
## Livestock and dairy outlook highlights

Supply chain disruptions and consumer shifts due to COVID-19 increased consumer demand for meat and decreased processor demand for animals in the spring of 2020. This led to record high margins between farm and wholesale prices. While margins have declined from the levels of last spring, they remain higher than historical averages. The extent to which retailers and processors continue to endure higher pandemic-related costs will affect the producer share of consumer meat expenditures.

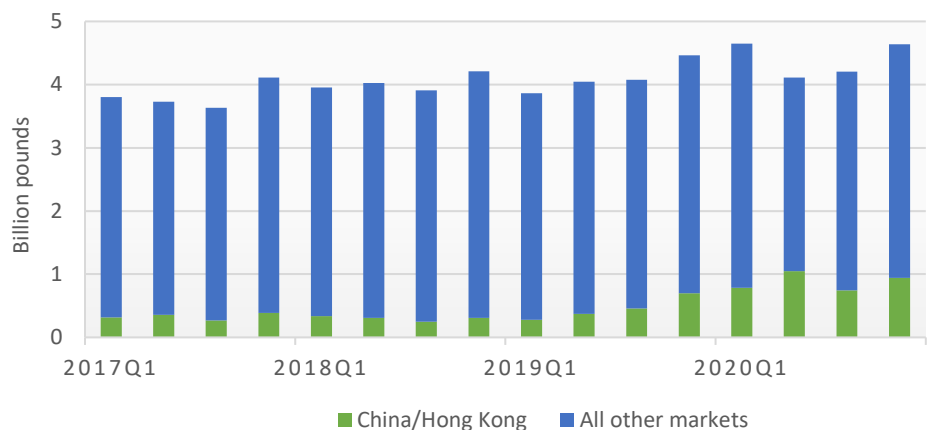
Meat exports to China, particularly pork, have shown considerable growth in recent quarters. This has helped keep livestock prices from steep declines despite six consecutive years of meat production growth and the recent economic uncertainty among domestic consumers. As China continues its recovery from ASF, demand for U.S. pork is expected to decline from recent levels. The outlook for beef exports to China and other markets remains bright due to strong demand and limited supplies among other major exporters.

As consumers shifted to more dining at home in 2020, both fluid milk and cheese demand increased at times during the year. Government food box purchases also contributed to higher cheese prices. Butter and nonfat dry milk prices remain well below pre-COVID levels. As pandemic recovery continues during 2021 and cheese production capacity has increases, the difference between Class III and Class IV milk prices is expected to narrow.

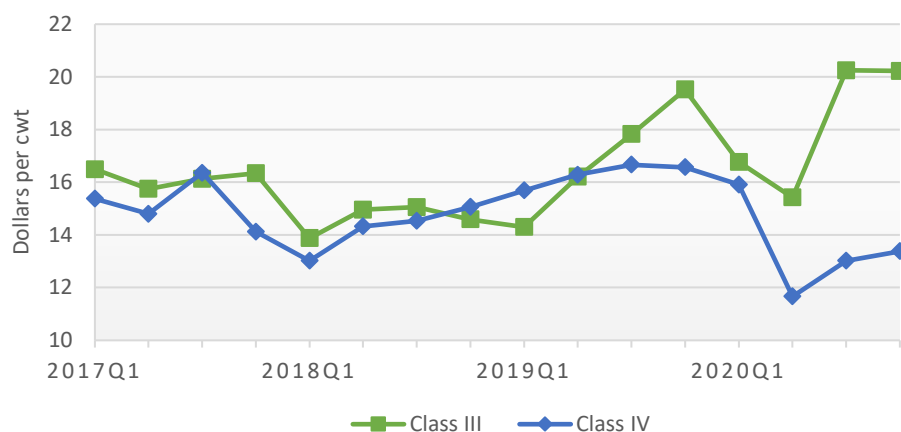
Farm to wholesale margins affected by COVID-19



Meat exports to China grow considerably

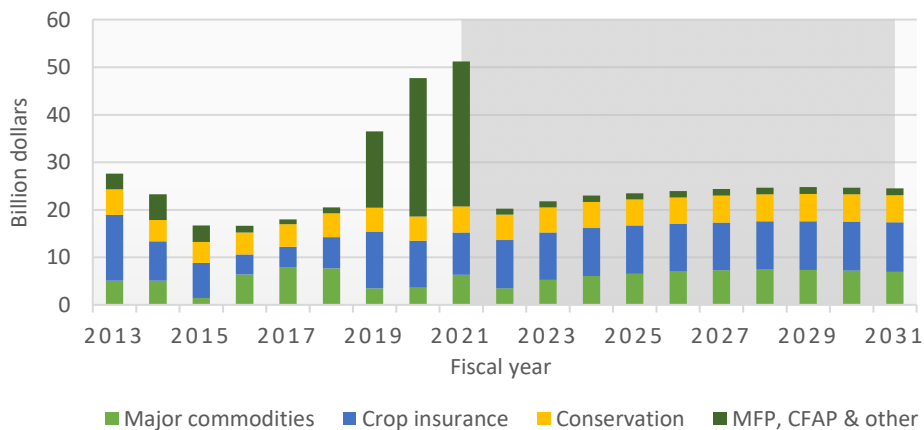


Demand shifts influence milk prices differently





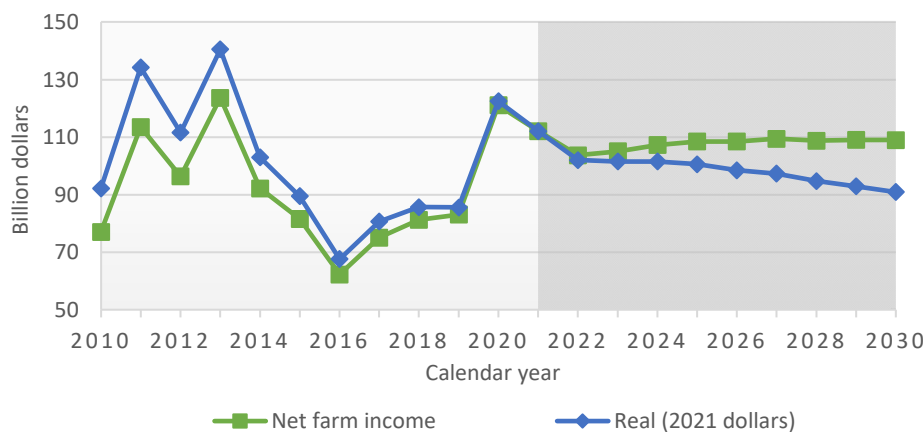
### Outlays drop sharply after ad hoc programs end



### Government costs, farm income and food prices

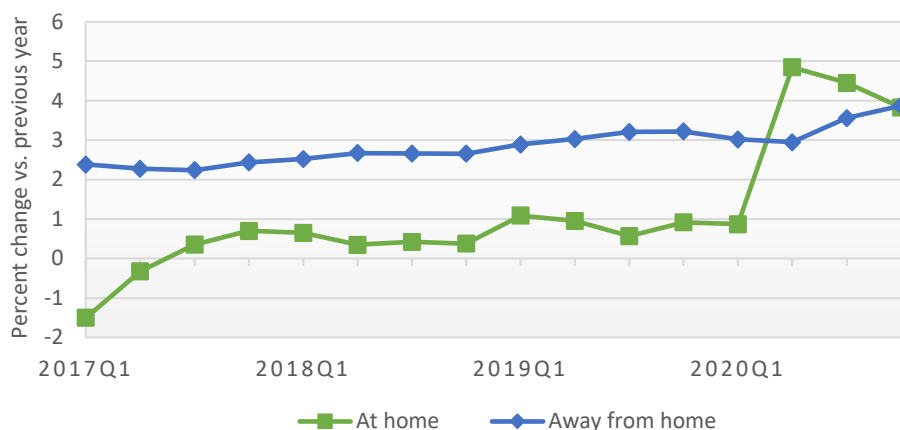
Ad hoc programs such as MFP, CFAP and PPP resulted in sharply higher spending on farm-related programs in fiscal years (FY) 2019-2021. If no new ad hoc programs are authorized, projected spending falls back to pre-2019 levels in FY 2022. Projected spending averages \$23.5 billion per year over the FY 2022-2031 period. Of that total, crop insurance accounts for \$10.1 billion, major commodity programs \$6.5 billion and conservation programs \$5.6 billion.

### Net farm income rose with payments in 2020



USDA reports that 2020 net farm income was \$121 billion, up sharply from the previous year, primarily because of the large increase in government payments. Projected crop and livestock receipts are up by \$25 billion in 2021, but net farm income falls because of a \$22 billion reduction in payments and a \$13 billion increase in production expenses. Net income levels are sensitive to even small changes in commodity prices and input costs, and policy changes could affect government payments.

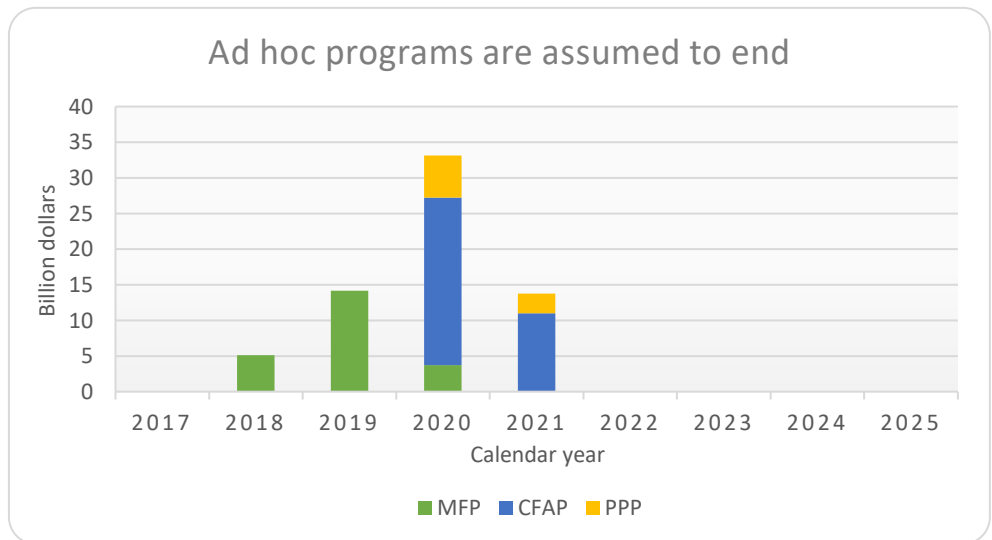
### Pandemic effects send food inflation higher



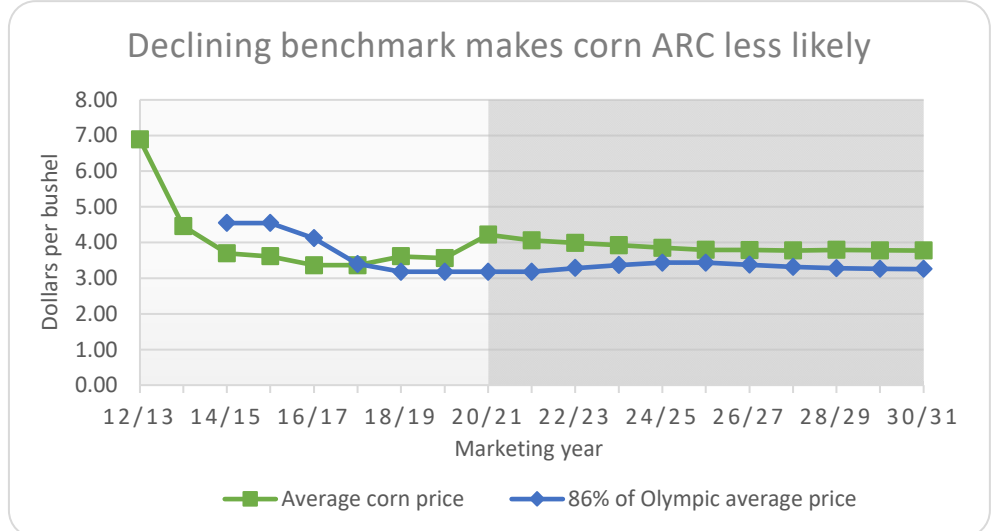
Food at home inflation spiked in the second quarter of 2020, as worker health concerns and the cost to process and transport food products from farm to retail increased. Food away from home inflation has also increased, even as the amount of dining away from home has sharply declined. Food at home inflation is expected to fall below 2% in 2021 and 2022 as pandemic-related marketing effects moderate.

## Policy assumptions

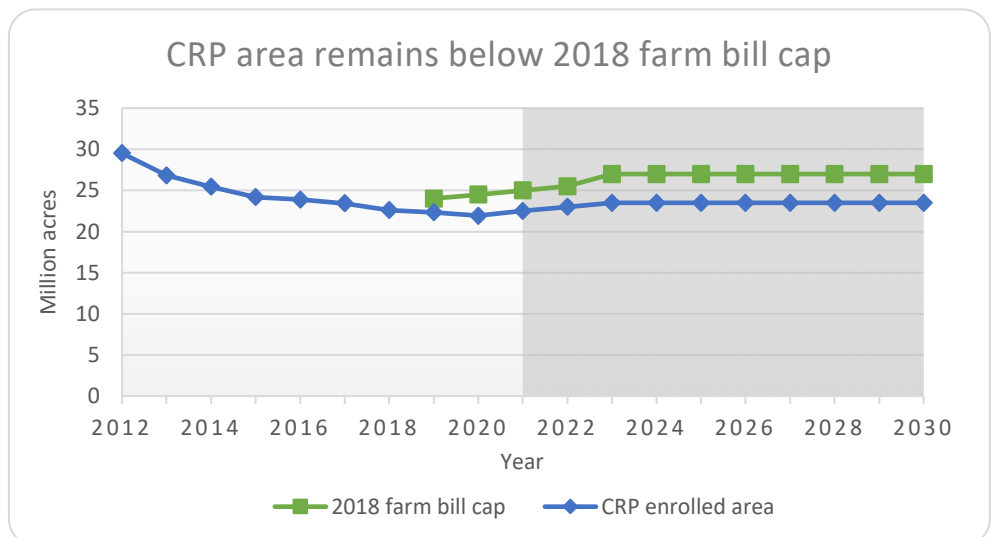
Three ad hoc programs that together provided \$33 billion in support to agricultural producers in 2020 are assumed to end. Final market facilitation program (MFP) payments were made in early 2020. Two rounds of coronavirus food assistance program (CFAP) payments were made in 2020, and in December 2020, Congress authorized additional payments to be made in 2021. The paycheck protection program (PPP) offers forgivable loans that have also provided substantial support.



When prices exceed 86% of the Olympic average, payments under the county version of the agricultural risk coverage program (ARC-CO) can only occur if county yields are below the trend-adjusted Olympic average. The chart helps explain why corn ARC payments were common from 2014-2016 but may occur less frequently in the future. Price loss coverage (PLC) payments only occur when U.S. marketing year average (MYA) prices fall below the reference price (\$3.70 per bushel for corn in 2020/21).



The 2018 farm bill increased caps on enrollment in the conservation reserve program (CRP) from 24 million acres in FY 2019 to 27 million acres in FY 2023. The farm bill also reduced caps on per-acre rental payments, so that they now cannot exceed 85% of county rental rates for general signups and 90% for continuous signups. Actual enrollment has remained below the acreage cap in part because the limitation on rental payments tends to discourage enrollment.



## Selected U.S. crop commodity program provisions

| Policy                                                                                                                                                                                                                                                                                                           | Crop/provision  | 2020/21-2023/24 average   | 2024/25-2030/31 average   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------------------|---------------------------|
| Price loss coverage (PLC)<br>(Makes payments when marketing year average (MYA) price falls below the indicated reference price. Paid on 85% of base acres and program yields. Effective reference price can exceed statutory minimum if the moving average of MYA prices exceeds the minimum by at least 17.6%.) |                 | Effective reference price | Effective reference price |
|                                                                                                                                                                                                                                                                                                                  | Corn            | \$3.70 per bu.            | \$3.72 per bu.            |
|                                                                                                                                                                                                                                                                                                                  | Soybeans        | \$8.43 per bu.            | \$8.75 per bu.            |
|                                                                                                                                                                                                                                                                                                                  | Wheat           | \$5.50 per bu.            | \$5.51 per bu.            |
|                                                                                                                                                                                                                                                                                                                  | Long grain rice | \$14.00 per cwt           | \$14.00 per cwt           |
|                                                                                                                                                                                                                                                                                                                  | Japonica rice   | \$17.30 per cwt           | \$17.30 per cwt           |
|                                                                                                                                                                                                                                                                                                                  | Sorghum         | \$3.95 per bu.            | \$3.96 per bu.            |
|                                                                                                                                                                                                                                                                                                                  | Barley          | \$4.95 per bu.            | \$4.95 per bu.            |
|                                                                                                                                                                                                                                                                                                                  | Oats            | \$2.40 per bu.            | \$2.44 per bu.            |
|                                                                                                                                                                                                                                                                                                                  | Peanuts         | \$535.00 per ton          | \$535.00 per ton          |
|                                                                                                                                                                                                                                                                                                                  | Sunflowers      | \$0.202 per lb            | \$0.202 per lb            |
|                                                                                                                                                                                                                                                                                                                  | Seed cotton     | \$0.367 per lb            | \$0.367 per lb            |
| Marketing loan program<br>(Producers can borrow at the loan rate and receive benefits if a market price indicator falls below the loan rate.)                                                                                                                                                                    |                 | Loan rate                 | Loan rate                 |
|                                                                                                                                                                                                                                                                                                                  | Corn            | \$2.20 per bu.            | \$2.20 per bu.            |
|                                                                                                                                                                                                                                                                                                                  | Soybeans        | \$6.20 per bu.            | \$6.20 per bu.            |
|                                                                                                                                                                                                                                                                                                                  | Wheat           | \$3.38 per bu.            | \$3.38 per bu.            |
|                                                                                                                                                                                                                                                                                                                  | Rice            | \$7.00 per cwt            | \$7.00 per cwt            |
|                                                                                                                                                                                                                                                                                                                  | Upland cotton   | \$0.520 per lb            | \$0.519 per lb            |

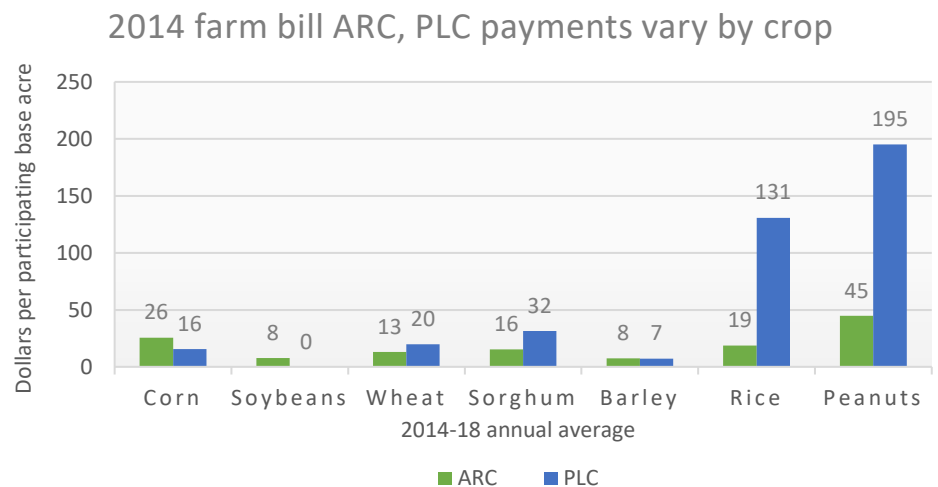
## Other policy assumptions

| Policy                          | Description                                                                                                                                                                                                                                                                          |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Agriculture risk coverage (ARC) | County version (ARC-CO) makes payments when county revenues per acre fall below 86% of benchmark county revenue tied to moving averages of MYA prices and trend-adjusted county yields. Payment are made on 85% of base acreage.                                                     |
| Dairy margin coverage (DMC)     | Milk producers receive payments when the margin between milk prices and an indicator of feed prices falls below coverage levels chosen by the producer.<br><br>Producers pay premiums, with much lower premiums on the first 5 million pounds of milk than on additional quantities. |
| Conservation reserve            | Maximum allowed enrollment increases to 27 million acres by 2023.<br><br>Maximum rental rate is 85% of county average rental rate for general signups and 90% of county average rental rate for continuous signups.                                                                  |
| Trade policies                  | Trade policies in place in January 2021 continue. China's imports remain below Phase 1 agreement commitments in 2021, as occurred in 2020.                                                                                                                                           |
| Coronavirus-related policies    | A final round of Coronavirus Food Assistance Program (CFAP) payments is made in 2021 based on provisions included in the Consolidated Appropriations Act approved in late 2020. This includes payments of \$20 per acre for most crops.                                              |

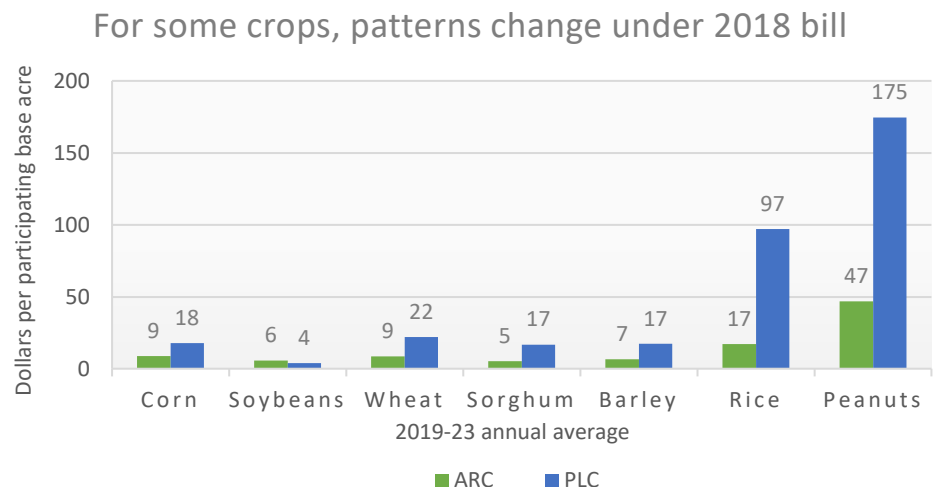
Note: These policy assumptions are not a prediction of future policy outcomes. Alternative policy scenarios can be evaluated against this current policy baseline.

## Crop program participation

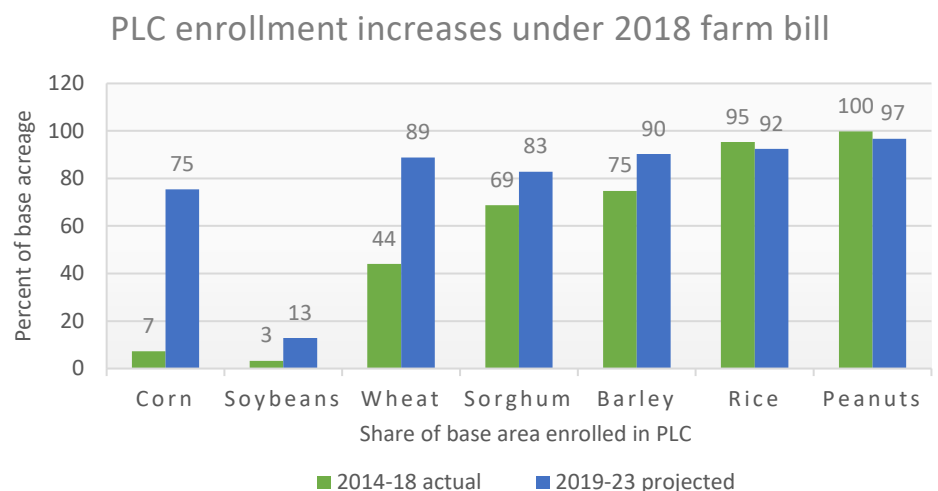
Under the 2014 farm bill, producers made a one-time election of ARC or PLC for each crop for the 2014-2018 crop years. For corn, soybeans and barley, ARC payments per base acre were larger over the 2014-18 period than average PLC payments. The reverse was true for wheat, sorghum, rice and peanut base acreage.



For most crops, projected average ARC payments decline as the moving average of prices used to set the ARC benchmark adjusts to the lower prices of recent years. Except for soybeans, projected average ARC payments per participating base acre are less than projected PLC payments for all the major crops for 2019-2023. Note that these estimates are averages across 500 outcomes; in any given year, payments could be zero or much larger than these averages.



The 2018 farm bill gave producers the opportunity to make new ARC-PLC elections in 2019, 2021, 2022 and 2023. With the change in expected payment rates, more producers elected PLC for 2019 and 2020 than had done so for 2014-18. Projected elections for 2021-23 assume only modest adjustments from the 2019-20 elections. Among the major crops, only soybeans has most of its base acreage enrolled in the ARC program.



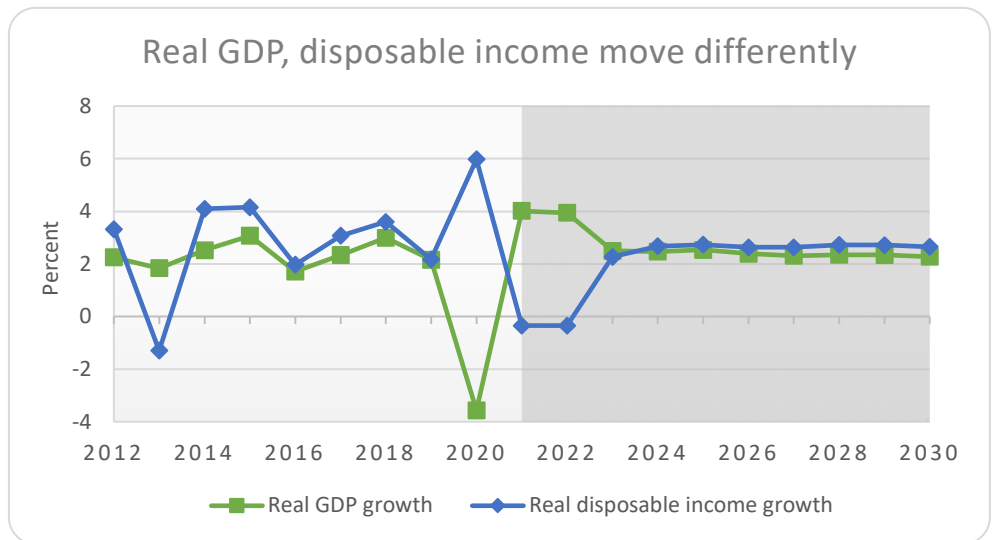
## ARC and PLC payments and participation rates

|                                         | Average<br>ARC payment  | Average<br>PLC payment | Share of base<br>acres in ARC | Share of base<br>acres in PLC |
|-----------------------------------------|-------------------------|------------------------|-------------------------------|-------------------------------|
| <b>Average for 2014-2018 crop years</b> | (Dollars per base acre) |                        | (Percent)                     |                               |
| Corn                                    | 25.67                   | 15.53                  | 92.8                          | 7.2                           |
| Soybeans                                | 7.75                    | 0.00                   | 96.7                          | 3.3                           |
| Wheat                                   | 13.09                   | 19.90                  | 56.0                          | 44.0                          |
| Sorghum                                 | 15.51                   | 31.61                  | 31.2                          | 68.8                          |
| Barley                                  | 7.61                    | 7.33                   | 25.2                          | 74.8                          |
| Oats                                    | 8.67                    | 4.55                   | 65.9                          | 34.1                          |
| Rice                                    | 18.79                   | 130.73                 | 4.7                           | 95.3                          |
| Peanuts                                 | 44.79                   | 194.90                 | 0.3                           | 99.7                          |
| Sunflower seed                          | 8.15                    | 17.87                  | 43.6                          | 56.4                          |
| <b>Average for 2019-2023 crop years</b> |                         |                        |                               |                               |
| Corn                                    | 8.98                    | 17.98                  | 24.6                          | 75.4                          |
| Soybeans                                | 5.85                    | 4.08                   | 87.1                          | 12.9                          |
| Wheat                                   | 8.61                    | 22.04                  | 11.2                          | 88.8                          |
| Sorghum                                 | 5.46                    | 16.83                  | 17.2                          | 82.8                          |
| Barley                                  | 6.58                    | 17.41                  | 9.7                           | 90.3                          |
| Oats                                    | 2.15                    | 2.52                   | 41.6                          | 58.4                          |
| Rice                                    | 17.23                   | 97.18                  | 7.6                           | 92.4                          |
| Peanuts                                 | 46.93                   | 174.69                 | 3.3                           | 96.7                          |
| Sunflower seed                          | 10.22                   | 19.67                  | 11.3                          | 88.7                          |

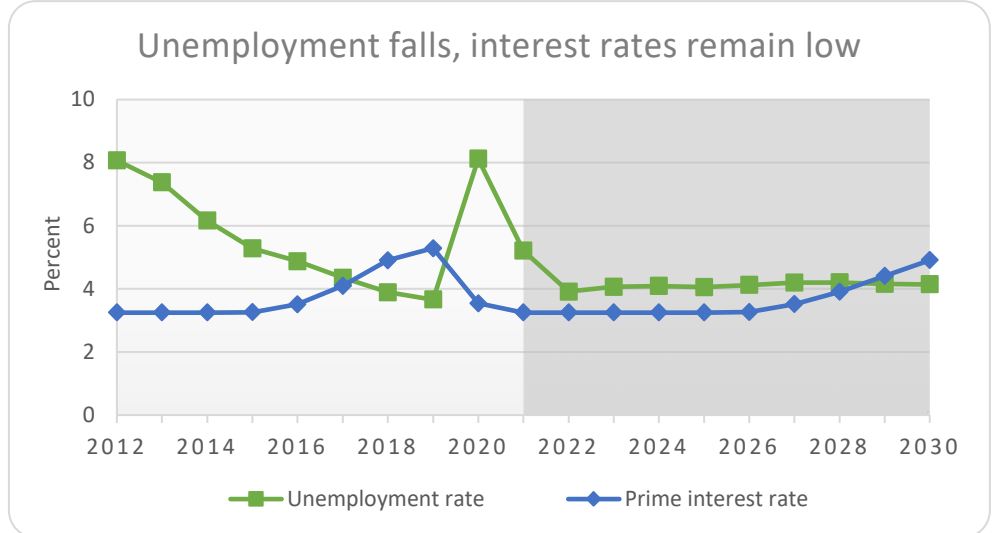


## Macroeconomic assumptions and farm prices paid

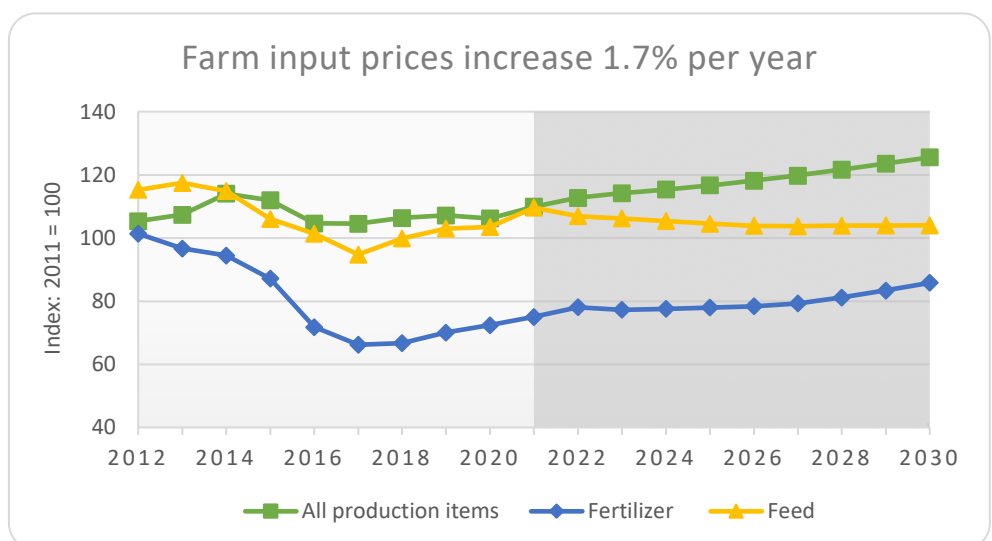
The pandemic caused a sharp drop in U.S. and global real gross domestic product (GDP) in 2020. In January 2021, IHS Markit projected the U.S. economy to grow by about 4% per year in 2021 and 2022, before returning to a more normal pace in subsequent years. Real disposable income shows a very different pattern. Large transfer payments boosted disposable income in 2020. With no further stimulus assumed, disposable income actually contracts slightly in 2021 and 2022.



Unemployment jumped in the spring of 2020, but has already declined significantly from its peak. IHS Markit forecasts further reductions in the unemployment rate in 2021 and 2022, bringing the average rate down to just over 4%. The Federal Reserve reduced interest rates in 2020, and IHS Markit projects the prime rate will remain at 3.25% until 2027.



Higher prices for feed, fertilizer, fuel, seed and other inputs result in a 3.5% increase in an index of farm production inputs in 2021. While feed prices drop with lower corn and soybean meal prices in 2022, prices of many other inputs continue to increase. Projected farm input prices increase by an average of 1.7% per year between 2021 and 2030.



## Macroeconomic assumptions

| Calendar year                 | 2020                                | 2021  | 2022  | 2023  | 2024  | 2025  | 2026  | 2027  | 2028  | 2029  | 2030  |
|-------------------------------|-------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Real GDP growth               | (Percent change from previous year) |       |       |       |       |       |       |       |       |       |       |
| United States                 | -3.6                                | 4.0   | 3.9   | 2.5   | 2.5   | 2.5   | 2.4   | 2.3   | 2.3   | 2.3   | 2.3   |
| China                         | 2.1                                 | 7.6   | 5.6   | 5.4   | 5.3   | 5.2   | 5.0   | 4.7   | 4.6   | 4.5   | 4.4   |
| World                         | -3.9                                | 4.4   | 4.1   | 3.2   | 3.1   | 3.1   | 3.0   | 2.9   | 2.9   | 2.9   | 2.8   |
| Population growth             |                                     |       |       |       |       |       |       |       |       |       |       |
| United States                 | 0.3                                 | 0.2   | 0.4   | 0.5   | 0.5   | 0.6   | 0.6   | 0.6   | 0.5   | 0.5   | 0.5   |
| World                         | 1.0                                 | 1.0   | 1.0   | 1.0   | 0.9   | 0.9   | 0.9   | 0.9   | 0.9   | 0.8   | 0.8   |
| U.S. CPI, all urban consumers | 1.3                                 | 2.1   | 2.5   | 2.1   | 2.1   | 2.2   | 2.2   | 2.3   | 2.3   | 2.2   | 2.2   |
| U.S. real disposable income   | 6.0                                 | -0.3  | -0.3  | 2.3   | 2.7   | 2.7   | 2.6   | 2.6   | 2.7   | 2.7   | 2.7   |
|                               | (Percent)                           |       |       |       |       |       |       |       |       |       |       |
| U.S. unemployment rate        | 8.1                                 | 5.2   | 3.9   | 4.1   | 4.1   | 4.1   | 4.1   | 4.2   | 4.2   | 4.2   | 4.1   |
| 3-month Treasury bill rate    | 0.4                                 | 0.1   | 0.1   | 0.1   | 0.1   | 0.1   | 0.1   | 0.4   | 0.7   | 1.1   | 1.5   |
| Prime interest rate           | 3.5                                 | 3.3   | 3.3   | 3.3   | 3.3   | 3.3   | 3.3   | 3.5   | 3.9   | 4.4   | 4.9   |
| Petroleum prices              | (Dollars per barrel)                |       |       |       |       |       |       |       |       |       |       |
| West Texas Intermediate       | 39.24                               | 45.53 | 52.34 | 54.24 | 56.02 | 59.25 | 64.15 | 69.28 | 73.24 | 76.00 | 78.09 |
| Refiners' acquisition cost    | 37.41                               | 38.96 | 49.09 | 55.13 | 56.56 | 59.10 | 62.98 | 66.77 | 70.47 | 73.11 | 75.05 |
| Natural gas price             | (Dollars per million BTU)           |       |       |       |       |       |       |       |       |       |       |
| Henry Hub                     | 2.03                                | 2.71  | 2.84  | 3.10  | 3.31  | 3.54  | 3.67  | 3.76  | 3.97  | 4.26  | 4.64  |
| Exchange rates                | (Currency per dollar)               |       |       |       |       |       |       |       |       |       |       |
| Euro                          | 0.88                                | 0.80  | 0.79  | 0.78  | 0.77  | 0.78  | 0.79  | 0.80  | 0.81  | 0.82  | 0.82  |
| Chinese yuan                  | 6.90                                | 6.39  | 6.35  | 6.32  | 6.31  | 6.28  | 6.31  | 6.39  | 6.47  | 6.55  | 6.63  |

Source: IHS Markit, January 2021

## Indices of prices paid by farmers

| Calendar year                                      | 2020         | 2021  | 2022  | 2023  | 2024  | 2025  | 2026  | 2027  | 2028  | 2029  | 2030  |
|----------------------------------------------------|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Production items, interest, taxes and wages</b> | (2011 = 100) |       |       |       |       |       |       |       |       |       |       |
| Production items                                   | 109.6        | 113.2 | 116.1 | 118.1 | 119.8 | 121.5 | 123.3 | 125.4 | 127.6 | 130.0 | 132.5 |
| Feed                                               | 106.2        | 110.0 | 112.7 | 114.2 | 115.4 | 116.7 | 118.2 | 119.8 | 121.7 | 123.6 | 125.6 |
| Livestock & poultry                                | 103.5        | 109.7 | 106.9 | 106.2 | 105.4 | 104.6 | 103.9 | 103.8 | 104.0 | 104.0 | 104.1 |
| Seeds                                              | 97.6         | 102.7 | 112.0 | 116.7 | 119.1 | 121.7 | 124.6 | 126.5 | 128.4 | 130.2 | 132.0 |
| Fertilizer                                         | 113.7        | 116.5 | 120.2 | 123.2 | 125.6 | 127.4 | 128.9 | 130.5 | 132.3 | 134.2 | 136.2 |
| Mixed fertilizer                                   | 72.4         | 75.0  | 78.1  | 77.3  | 77.6  | 78.0  | 78.4  | 79.3  | 81.2  | 83.4  | 85.9  |
| Nitrogen fertilizer                                | 72.3         | 74.9  | 78.2  | 77.7  | 77.9  | 78.2  | 78.5  | 79.3  | 81.2  | 83.3  | 85.7  |
| Potash and phosph.                                 | 73.4         | 76.0  | 78.5  | 76.8  | 77.2  | 78.2  | 78.8  | 79.8  | 81.7  | 84.1  | 87.0  |
| Agricultural chemicals                             | 69.6         | 72.6  | 76.7  | 77.6  | 77.6  | 77.1  | 77.1  | 77.7  | 79.5  | 81.2  | 82.9  |
| Fuels                                              | 98.3         | 101.8 | 103.8 | 105.3 | 107.0 | 108.7 | 110.5 | 112.5 | 114.8 | 117.1 | 119.5 |
| Supplies & repairs                                 | 71.2         | 72.7  | 77.4  | 82.6  | 84.6  | 87.3  | 91.0  | 94.6  | 98.2  | 101.2 | 103.7 |
| Autos & trucks                                     | 116.3        | 118.9 | 121.3 | 123.8 | 126.3 | 129.0 | 131.8 | 134.8 | 137.8 | 141.0 | 144.3 |
| Farm machinery                                     | 106.4        | 107.6 | 109.0 | 110.0 | 110.3 | 110.9 | 111.8 | 112.6 | 113.2 | 114.1 | 115.5 |
| Building material                                  | 123.9        | 126.3 | 128.6 | 129.8 | 131.3 | 132.8 | 134.6 | 136.7 | 139.3 | 141.9 | 144.4 |
| Farm services                                      | 120.6        | 123.4 | 125.6 | 127.6 | 129.6 | 131.5 | 133.5 | 135.6 | 137.7 | 139.8 | 142.0 |
| Interest*                                          | 116.4        | 118.5 | 121.4 | 124.0 | 126.7 | 129.4 | 132.3 | 135.4 | 138.8 | 142.3 | 146.0 |
| Taxes**                                            | 118.1        | 119.0 | 121.0 | 123.3 | 125.7 | 128.1 | 130.6 | 133.9 | 137.8 | 142.1 | 146.5 |
| Wage rates                                         | 119.5        | 123.3 | 126.3 | 132.6 | 139.4 | 141.2 | 143.2 | 145.6 | 148.3 | 151.3 | 154.7 |
|                                                    | 135.2        | 138.7 | 143.3 | 148.2 | 153.0 | 157.9 | 163.1 | 168.4 | 174.0 | 179.8 | 186.0 |

\* Interest per acre on farm real estate debt and interest rate on farm non-real estate debt.

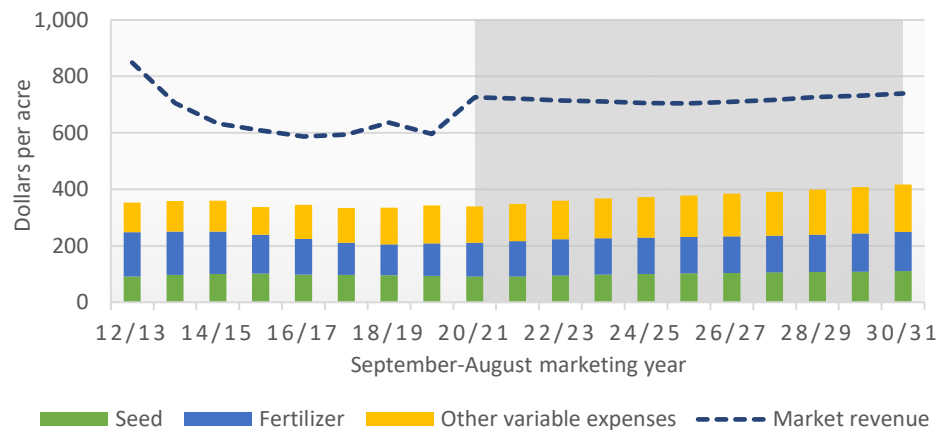
\*\* Farm real estate taxes payable per acre.

## Crop variable expenses

We define variable production expenses to be USDA's operating expenses plus hired labor. This includes seed, fertilizer, fuel, chemicals and other variable inputs, but does not include the cost of land or machinery replacement.

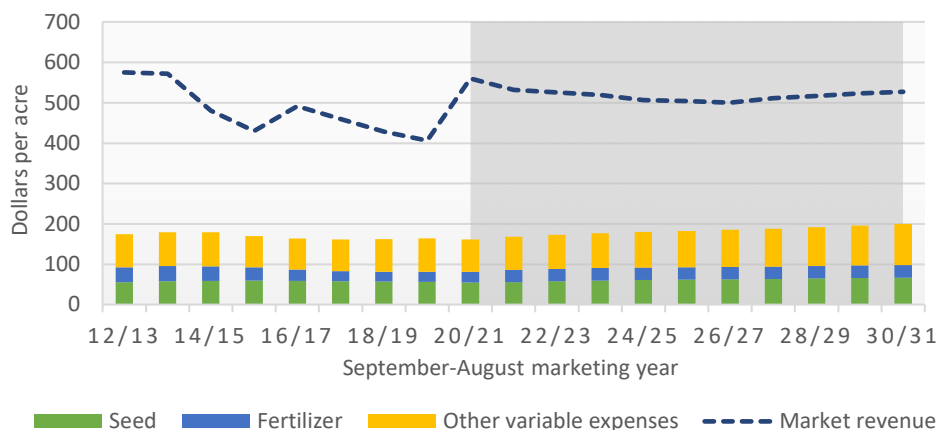
For corn, higher fertilizer costs contribute to a 3% increase in variable expenses in 2021. Over the 2020-30 period, corn variable expenses increase by an average of 1.8% per year.

Corn costs increase 1.8% per year from 2020-30



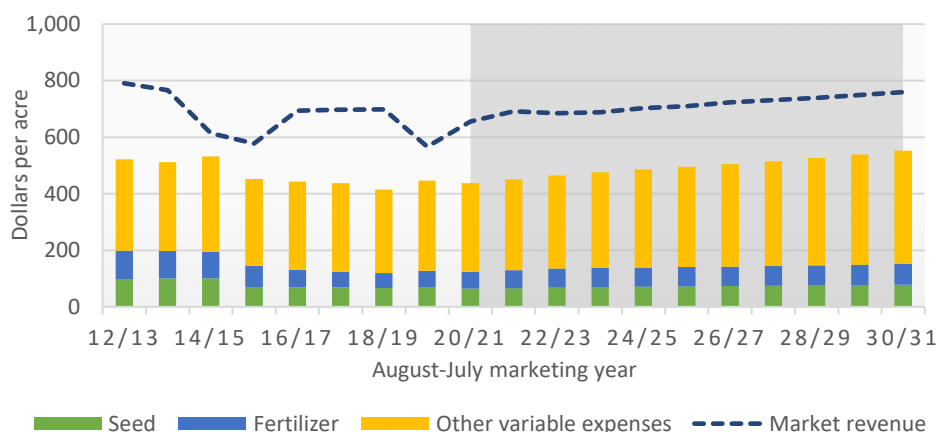
Relative to corn, soybeans utilize less fertilizer and per-acre variable production expenses are lower. Soybean market revenues per acre are also lower than for corn, but net returns (market revenue minus variable production costs) are similar, as the crops compete for acres. Projected soybean production expenses also increase by 1.8% per year between 2020 and 2030.

Soybean costs increase at a similar pace



In contrast, national average cotton variable expenses per acre are greater relative to market receipts than in the cases of soybeans and corn. Projected expenses grow by about 2.0% per year. Agricultural chemicals, fuel, repairs and ginning costs account for most of the other variable expenses in the chart.

Cotton costs are larger share of market receipts



## Crop variable costs of production

| Calendar year        | 2020               | 2021   | 2022   | 2023   | 2024   | 2025   | 2026   | 2027   | 2028   | 2029   | 2030   |
|----------------------|--------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Corn</b>          | (Dollars per acre) |        |        |        |        |        |        |        |        |        |        |
| Seed                 | 91.59              | 91.46  | 94.99  | 98.21  | 100.75 | 102.74 | 104.32 | 105.77 | 107.33 | 109.10 | 110.99 |
| Fertilizer           | 118.94             | 124.92 | 128.29 | 128.29 | 128.03 | 128.46 | 128.93 | 129.92 | 132.10 | 135.04 | 138.38 |
| Other variable costs | 129.15             | 132.43 | 136.63 | 140.89 | 143.88 | 147.18 | 151.01 | 155.14 | 159.54 | 163.84 | 168.10 |
| Total variable costs | 339.68             | 348.81 | 359.91 | 367.39 | 372.65 | 378.39 | 384.27 | 390.83 | 398.97 | 407.98 | 417.47 |
| <b>Wheat</b>         |                    |        |        |        |        |        |        |        |        |        |        |
| Seed                 | 14.63              | 14.86  | 15.01  | 15.10  | 15.11  | 15.09  | 15.08  | 15.06  | 15.06  | 15.08  | 15.10  |
| Fertilizer           | 43.81              | 44.84  | 46.16  | 46.48  | 46.50  | 46.56  | 46.66  | 46.90  | 47.50  | 48.29  | 49.18  |
| Other variable costs | 73.07              | 74.79  | 76.87  | 79.02  | 80.78  | 82.56  | 84.56  | 86.74  | 89.06  | 91.37  | 93.71  |
| Total variable costs | 131.51             | 134.48 | 138.04 | 140.60 | 142.38 | 144.20 | 146.30 | 148.71 | 151.62 | 154.74 | 157.99 |
| <b>Soybeans</b>      |                    |        |        |        |        |        |        |        |        |        |        |
| Seed                 | 54.76              | 55.66  | 57.73  | 59.52  | 60.93  | 62.03  | 62.93  | 63.79  | 64.76  | 65.83  | 66.97  |
| Fertilizer           | 26.97              | 30.94  | 31.04  | 31.28  | 31.05  | 30.63  | 30.36  | 30.28  | 30.75  | 31.16  | 31.56  |
| Other variable costs | 79.96              | 82.14  | 84.37  | 86.61  | 88.24  | 90.03  | 92.10  | 94.34  | 96.75  | 99.11  | 101.48 |
| Total variable costs | 161.69             | 168.74 | 173.13 | 177.41 | 180.23 | 182.69 | 185.38 | 188.40 | 192.26 | 196.11 | 200.01 |
| <b>Upland cotton</b> |                    |        |        |        |        |        |        |        |        |        |        |
| Seed                 | 64.02              | 65.31  | 67.56  | 69.46  | 71.16  | 72.70  | 73.77  | 74.89  | 75.89  | 77.07  | 78.35  |
| Fertilizer           | 59.87              | 64.48  | 67.27  | 67.91  | 68.03  | 68.29  | 68.45  | 69.13  | 70.42  | 72.15  | 73.99  |
| Other variable costs | 313.10             | 321.70 | 329.32 | 338.42 | 346.52 | 354.32 | 362.82 | 371.41 | 380.73 | 390.27 | 399.93 |
| Total variable costs | 437.00             | 451.49 | 464.14 | 475.79 | 485.71 | 495.32 | 505.03 | 515.43 | 527.04 | 539.49 | 552.26 |
| <b>Rice</b>          |                    |        |        |        |        |        |        |        |        |        |        |
| Seed                 | 98.35              | 96.44  | 97.83  | 100.27 | 102.09 | 103.60 | 104.91 | 106.17 | 107.27 | 108.47 | 109.73 |
| Fertilizer           | 96.44              | 97.90  | 100.84 | 101.53 | 101.67 | 102.06 | 102.55 | 103.27 | 104.76 | 106.67 | 108.77 |
| Other variable costs | 359.11             | 367.92 | 379.59 | 391.41 | 400.01 | 409.34 | 420.08 | 431.48 | 443.53 | 455.20 | 466.84 |
| Total variable costs | 553.89             | 562.26 | 578.26 | 593.21 | 603.77 | 615.00 | 627.53 | 640.92 | 655.56 | 670.34 | 685.34 |
| <b>Sorghum</b>       |                    |        |        |        |        |        |        |        |        |        |        |
| Seed                 | 14.08              | 14.34  | 14.41  | 14.62  | 14.77  | 14.90  | 14.99  | 15.09  | 15.19  | 15.30  | 15.42  |
| Fertilizer           | 34.50              | 36.60  | 37.37  | 37.48  | 37.41  | 37.51  | 37.62  | 37.89  | 38.50  | 39.30  | 40.21  |
| Other variable costs | 82.58              | 84.96  | 87.22  | 89.59  | 91.33  | 93.26  | 95.48  | 97.85  | 100.37 | 102.83 | 105.31 |
| Total variable costs | 131.16             | 135.90 | 139.00 | 141.69 | 143.52 | 145.67 | 148.09 | 150.82 | 154.06 | 157.44 | 160.94 |
| <b>Barley</b>        |                    |        |        |        |        |        |        |        |        |        |        |
| Seed                 | 22.06              | 22.23  | 22.72  | 23.01  | 23.16  | 23.24  | 23.32  | 23.41  | 23.56  | 23.71  | 23.88  |
| Fertilizer           | 43.46              | 44.46  | 46.36  | 46.74  | 46.66  | 46.66  | 46.71  | 47.01  | 47.82  | 48.87  | 50.06  |
| Other variable costs | 110.54             | 113.18 | 116.73 | 120.32 | 122.90 | 125.77 | 129.05 | 132.52 | 136.16 | 139.72 | 143.30 |
| Total variable costs | 176.07             | 179.87 | 185.82 | 190.07 | 192.72 | 195.67 | 199.08 | 202.95 | 207.55 | 212.30 | 217.24 |
| <b>Peanuts</b>       |                    |        |        |        |        |        |        |        |        |        |        |
| Seed                 | 116.79             | 117.78 | 119.01 | 120.16 | 121.12 | 121.98 | 122.69 | 123.38 | 124.18 | 125.07 | 126.03 |
| Fertilizer           | 70.55              | 74.73  | 78.22  | 79.41  | 79.51  | 79.44  | 79.53  | 80.12  | 81.78  | 83.89  | 86.08  |
| Other variable costs | 331.91             | 340.11 | 348.47 | 356.65 | 362.80 | 369.59 | 377.33 | 385.66 | 394.51 | 403.18 | 411.86 |
| Total variable costs | 519.24             | 532.61 | 545.70 | 556.23 | 563.43 | 571.01 | 579.56 | 589.17 | 600.47 | 612.14 | 623.96 |

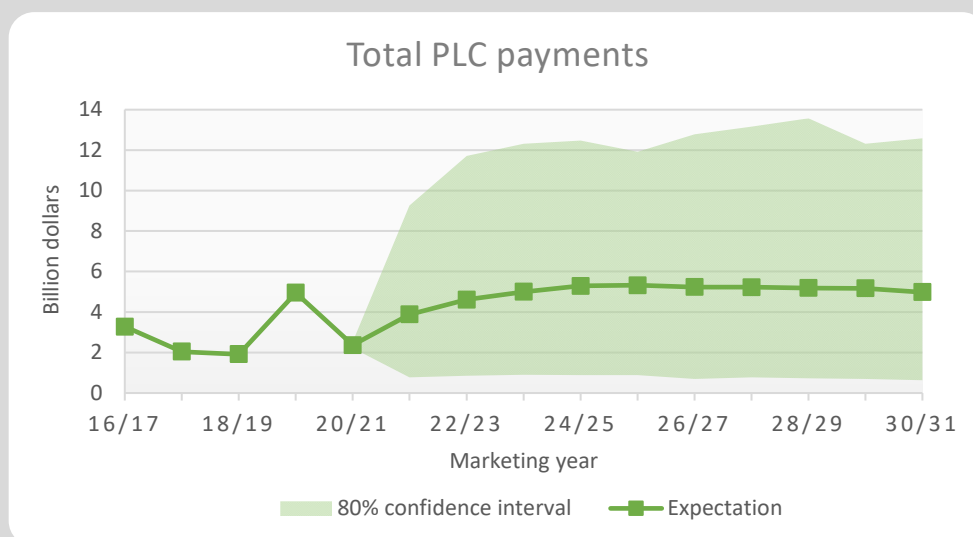
## The Stochastic Baseline

This baseline is constructed to incorporate the uncertainty of projections. Any estimate of the future has a random component that cannot be known ahead of time. As a result, a subset of the variables is allowed to be stochastic. This means that they contain a random effect. Since the models are interconnected, this leads to variability throughout the system. It is impossible to capture all uncertainty. Therefore, the stochastic baseline should not be treated as thoroughly capturing all risk.

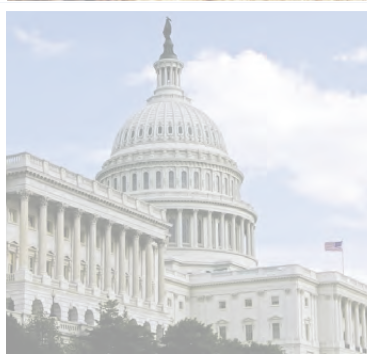
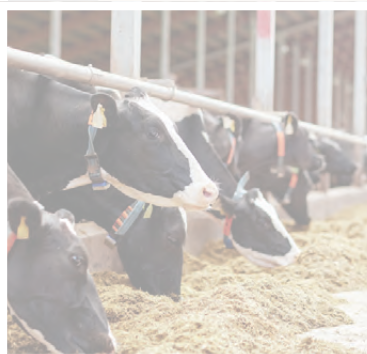
While the tables present one number for each variable, there is actually a distribution behind each. Many of the paths for the variables appear flat as if there is little year over year change. The charts and tables generally present the expectation for each year, which is the mean of the distribution. In reality, our models approximate an infinite number of outcomes.

The stochastic nature of the baseline can lead to interesting results. Consider the Price Loss Coverage (PLC) program that makes payments when the farm price falls below a reference price. Our expected farm price may be above the reference price. However, there is some probability that the price may fall below the reference price in the future. All of these outcomes determine the expected PLC payments. As a result, our tables may show an expected PLC payment even when the expected farm price is above the reference price, such as occurs in the case of corn for every year of the projection period.

Whenever the farm price is above the reference price, the PLC payment is zero. However, if the inverse is true then the payment rate has a one-to-one relationship with the farm price. This creates an asymmetry in the distribution of PLC payments as the lower tail is limited at zero while the upper tail can be quite high. The Aggregate Indicators section includes a table with confidence interval information for several variables.



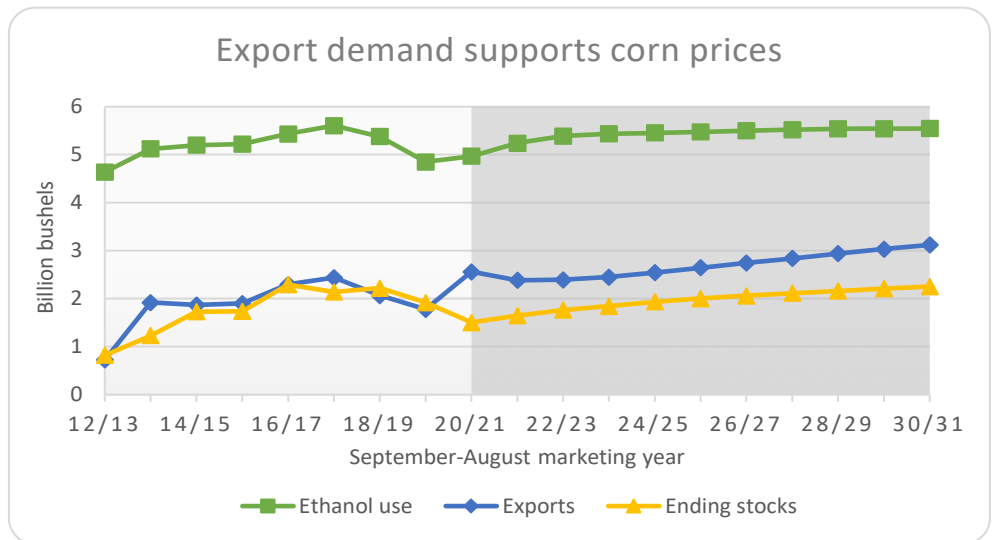




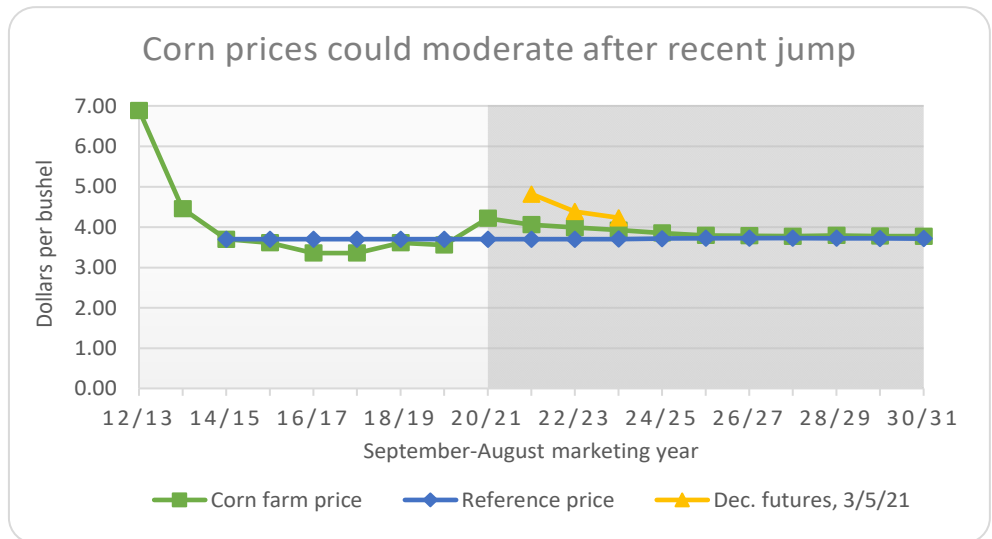
# Grains

## Corn

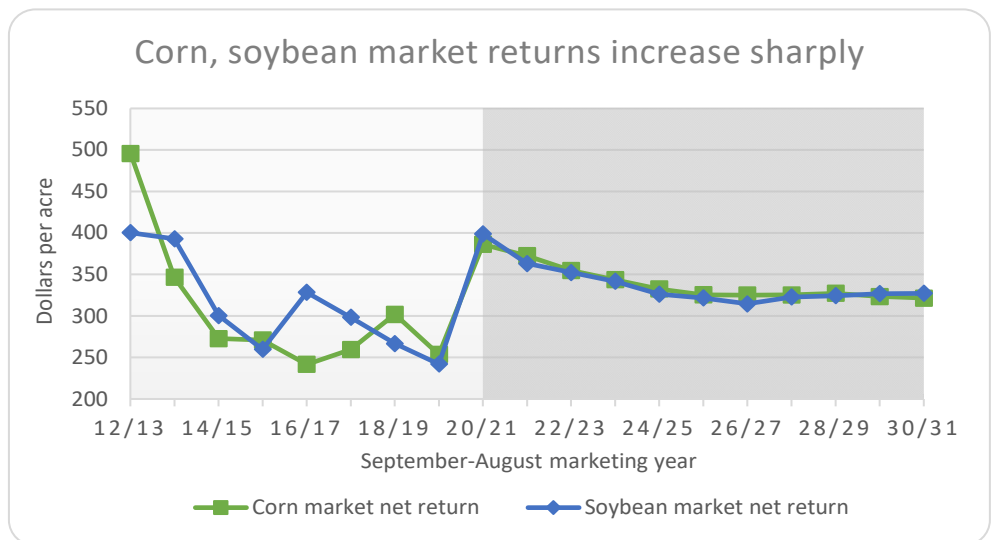
Corn prices have increased in 2020/21 because of a smaller-than-anticipated 2020 harvest and a large increase in U.S. exports. A modest recovery in ethanol use also contributes to a reduction in 2020/21 corn ending stocks to the lowest level since 2013/14. Projected ethanol use depends in part on implementation of the RFS. The outlook for U.S. corn exports depends in part on China's import demand and the ability of the U.S. infrastructure to handle increased shipments.



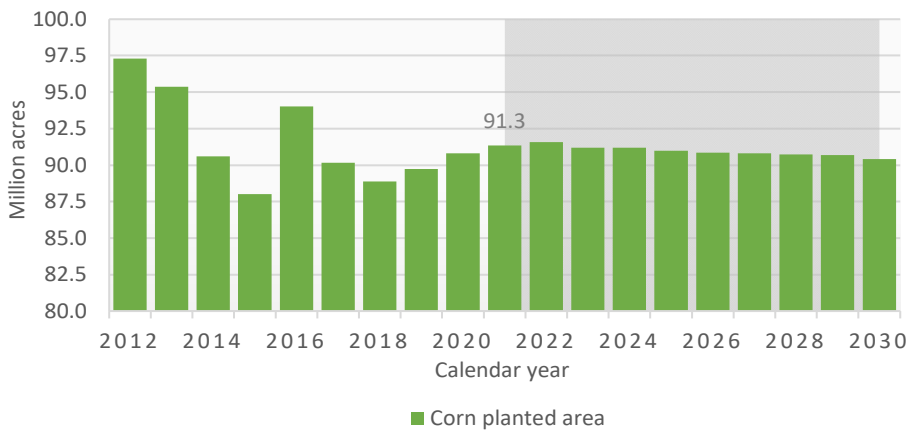
Corn prices jumped in late 2020 and nearby futures prices topped \$5.50 per bushel in early March. Current MYA farm prices for 2020/21 are much lower, in part because of early sales at much lower prices. Projected MYA prices decline slightly in 2021/22, but remain above \$4.00 per bushel. December 2021 futures prices on March 5, 2021 suggest a slightly higher 2021/22 price, even after considering the normal basis between futures and farm prices. Projected average prices remain slightly above the reference price.



Market net returns (price times yield minus variable expenses) increase sharply in 2020/21 for both corn and soybeans. In response to stronger returns and an assumed return to normal spring planting conditions, acreage increases for both crops. Projected net returns decline in 2021/22 and later years, but remain above the average levels of 2014/15-2019/20. Note that these market net returns exclude government payments and crop insurance net indemnities.

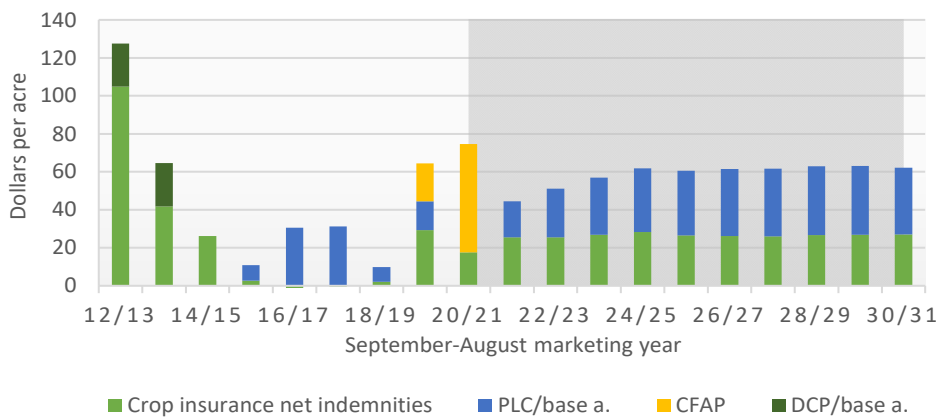


### Corn planted area climbs in 2021, 2022



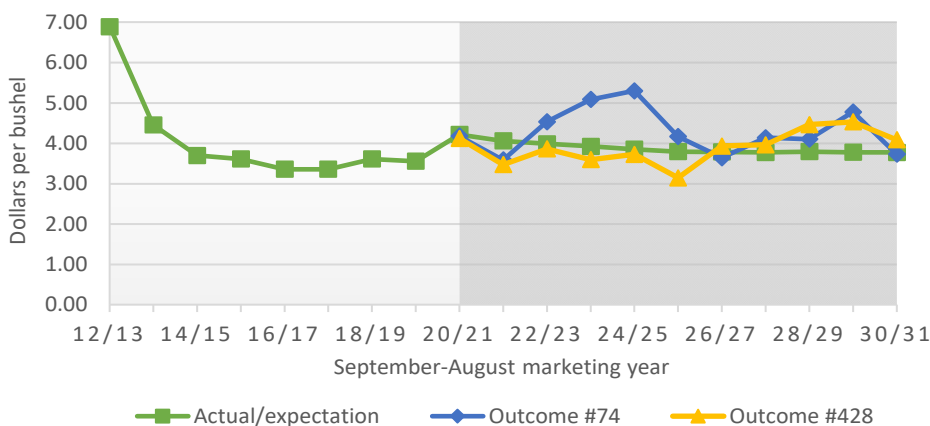
Corn area in 2021 is projected to increase to 91.3 million acres in response to strong expected net returns. These acreage levels assume normal weather and conditions during planting, unlike the past two years in parts of the country. With little change in relative returns for corn and soybeans, corn area remains relatively steady in 2022 and subsequent years despite declining net returns.

### Mix of corn program benefits changes over time



The mix of government programs that benefit corn producers has changed over time. The chart shows average benefits per planted or base acre for a PLC participant. The 2020/21 figure for CFAP assumes an additional payment of \$20 per acre beyond that already provided by February 2021. Projected PLC and crop insurance net indemnities are an average of stochastic outcomes. The chart does not include MFP payments and marketing loan benefits. An ARC participant would receive ARC but not PLC payments.

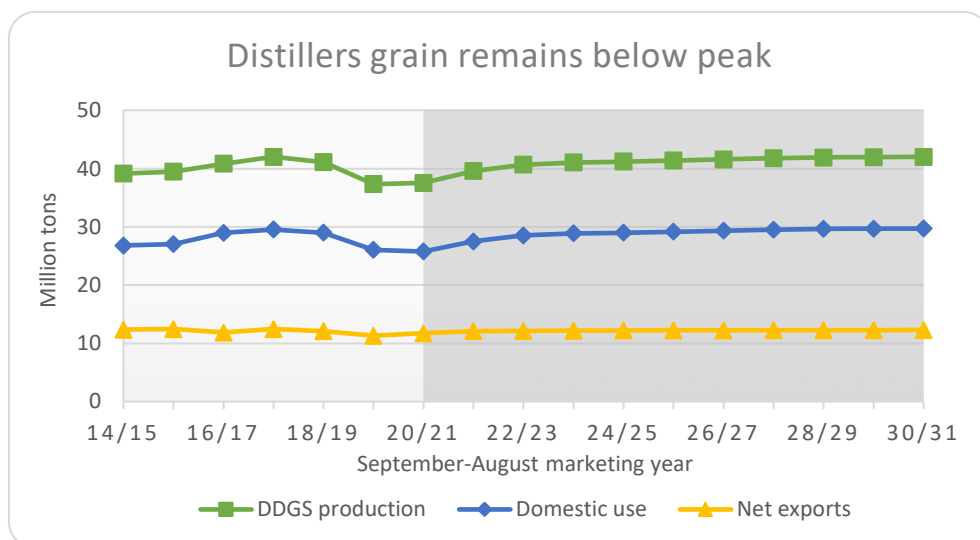
### Prices will vary more than reported averages



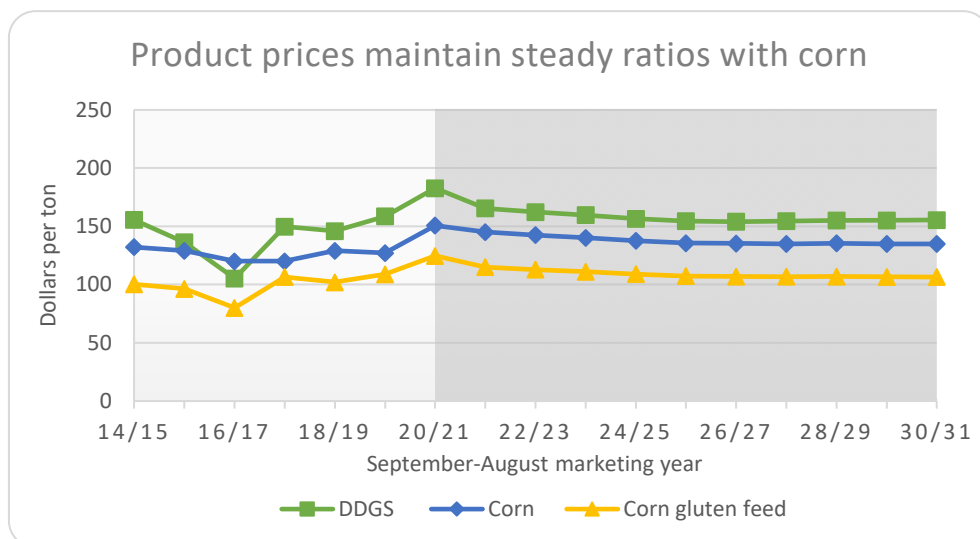
Actual crop production and prices will vary much more than the averages reported in the table. The chart shows two of the 500 stochastic outcomes. They differ because they make different plausible sets of assumptions about some of the factors that make agricultural commodity markets inherently uncertain. Because of this uncertainty, the average level of PLC payments as reported in the tables is positive, even though the average projected price is above the reference price that triggers PLC payments.

## Corn milling products

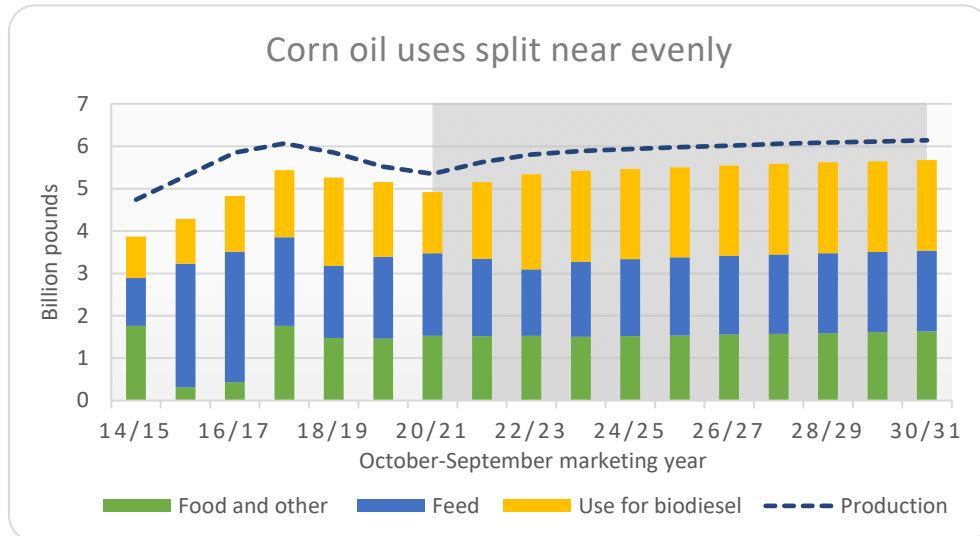
Distillers dried grains with solubles (DDGS) production recovers alongside dry mill ethanol production and averages about 41 million tons over the projection period. Production remains below the peak of 2017/18, but approaches that level by the end of the period. Domestic use of DDGS keeps pace with the increases in production as net exports remain roughly constant in the projection period.



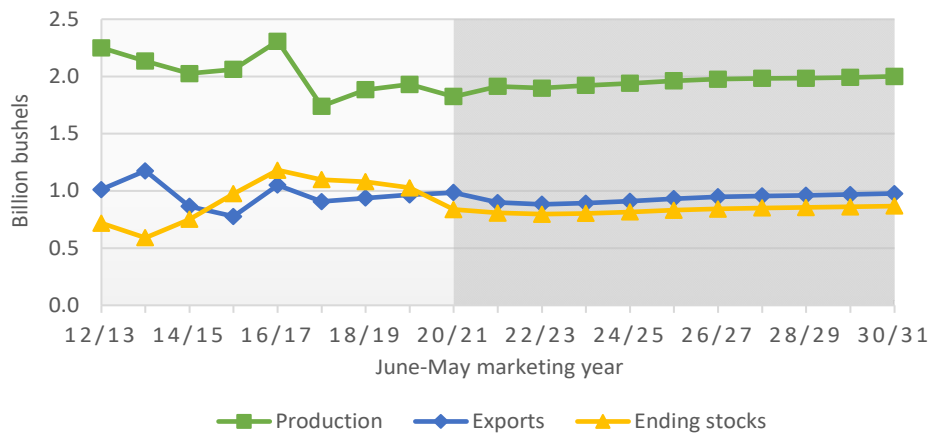
Prices for DDGS are projected to rise in 2020/21 before following a lower path alongside corn. Over the course of the projection period, DDGS prices are a little higher than corn prices, at \$160 per ton on average. The ratios of other corn product prices (e.g., corn gluten feed and corn gluten meal) to the corn price are also estimated to remain steady.



By the end of the projection period, total corn oil production is estimated to increase to slightly over 6 billion pounds. The share of corn oil used for biodiesel production rises in the near term before reaching a steady state with other uses where in each category accounts for roughly a third of total domestic use. Net exports recover only slightly but remain below levels seen prior to 2019/20.



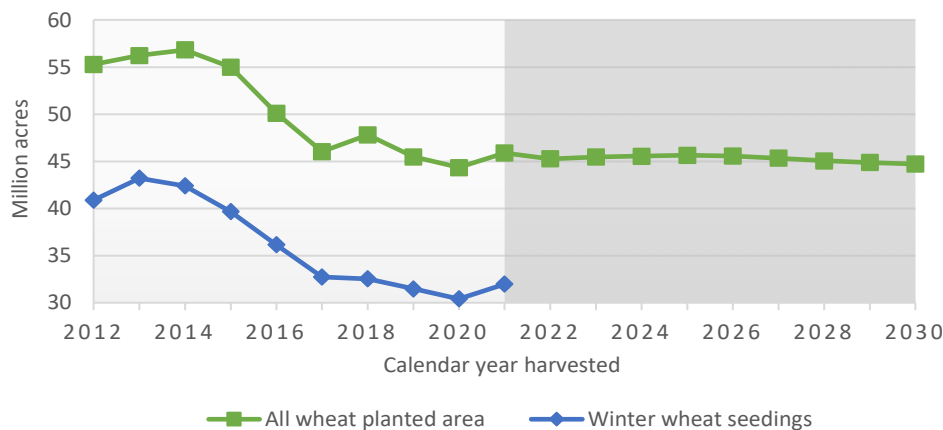
### Less production, more exports boost wheat price



### Wheat

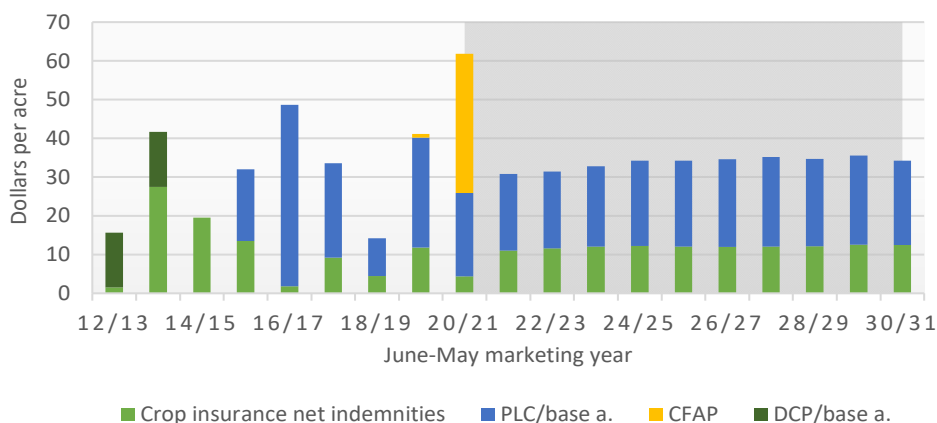
In 2020, reduced area and yields resulted in a smaller U.S. wheat crop. Coupled with an increase in U.S. exports this contributes to a decline in 2020/21 ending stocks. In spite of a modest increase in production, stocks remain below the levels of 2015/16-2019/20, and this allows average prices to remain above \$5.00 per bushel over the projection period. Futures markets in early March 2021 suggest prices could be higher than indicated here.

### Winter wheat seedings increase in 2021



After seven straight years of decline, USDA reports an increase in 2021 winter wheat seedings. This is expected to result in an increase in total wheat area, although weather and other factors will affect how much is ultimately planted and harvested. Projected demand and prices are strong enough to keep wheat area relatively steady over the next decade. Actual acreage will depend on competition in international wheat markets on the demand side and from other crops on the supply side.

### Mix of wheat program benefits also changes

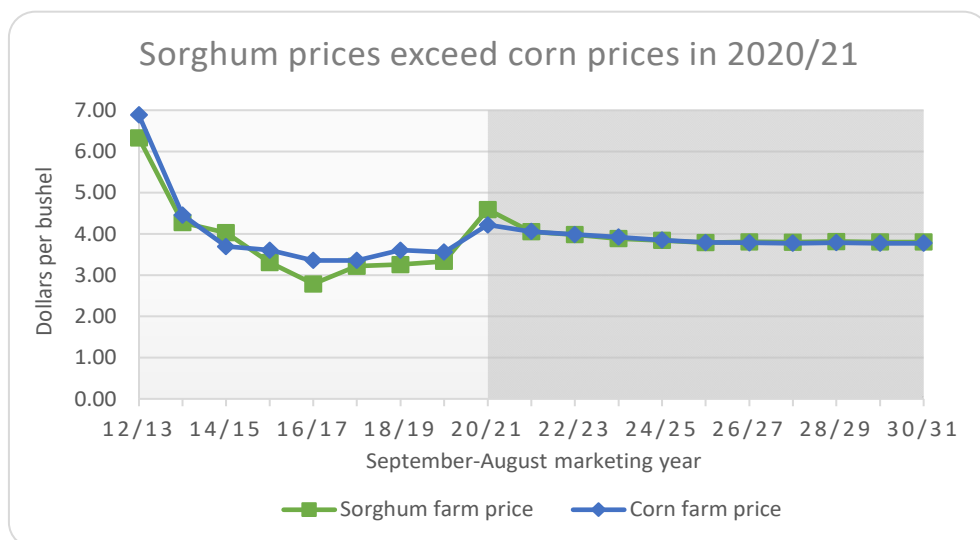


The mix and level of support provided by various government programs to wheat producers has changed over time. With projected average wheat prices below the reference price, wheat PLC payments are significant. The 2020/21 CFAP payment assumes \$20 in additional payments per acre beyond those made by February 2021. As with other crops, actual payments will vary greatly from year to year. The chart does not include MFP payments or marketing loan benefits. The picture would look different for an ARC participant.

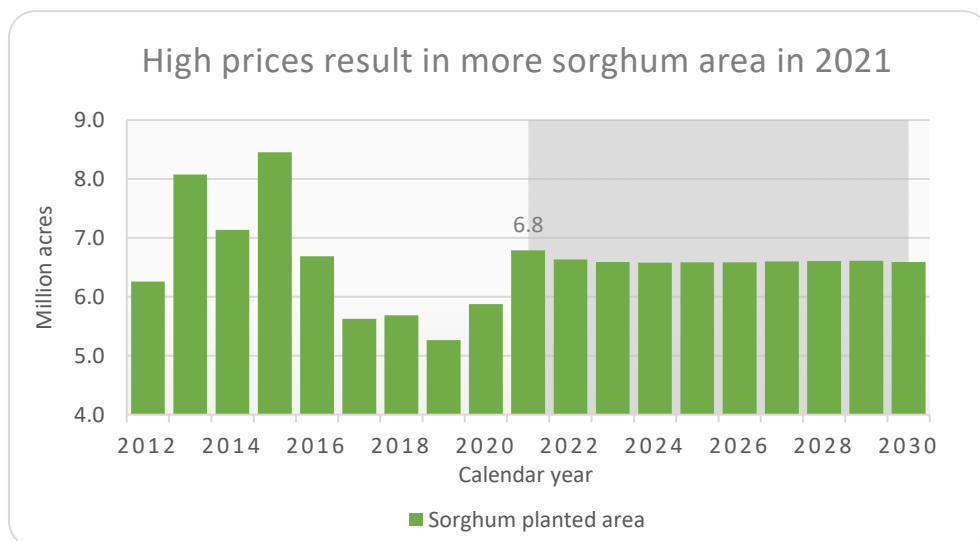


## Sorghum

Large purchases by China have resulted in MYA farm prices for sorghum exceeding those for corn in 2020/21 for the first time since 2014/15. Buyers in China can purchase sorghum without the tariff associated with corn imports, so they are willing to pay a higher price for sorghum. Year-to-date information suggests that actual 2020/21 sorghum prices will likely exceed the levels shown here. China's buying habits will determine future prices relative to corn.

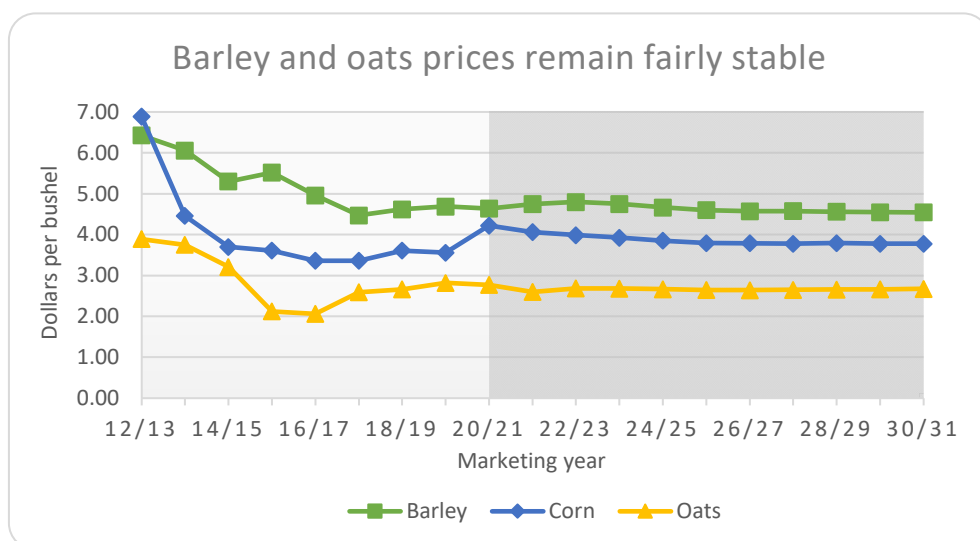


High sorghum prices cause an expansion of projected sorghum area planted in 2021. However, strong competition from other crops limits the increase, with sorghum area remaining below the recent peaks in 2013 and 2015. Developments in U.S.-China sorghum trade will affect sorghum acreage in subsequent years.

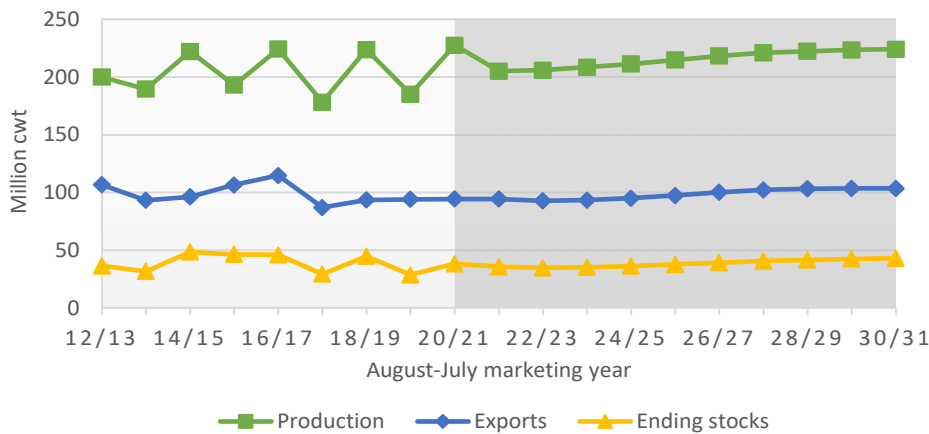


## Barley and oats

Most U.S. barley is used for malting and thus can sell at a significant premium to feed grains. Contract prices are set to retain sufficient acreage to satisfy brewing demand. Prices for oats can be volatile, depending on U.S. production, imports, and domestic demand. Unlike other grains, the share of barley and oat production which is exported is small.



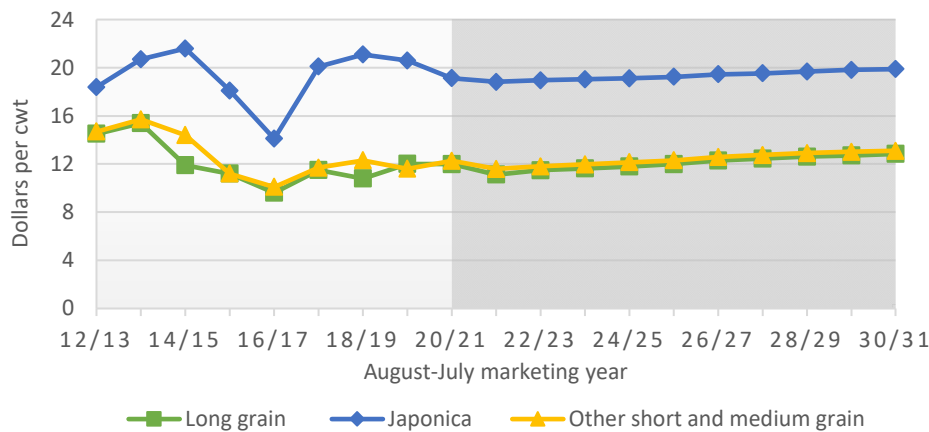
### U.S. rice production has oscillated



### Rice

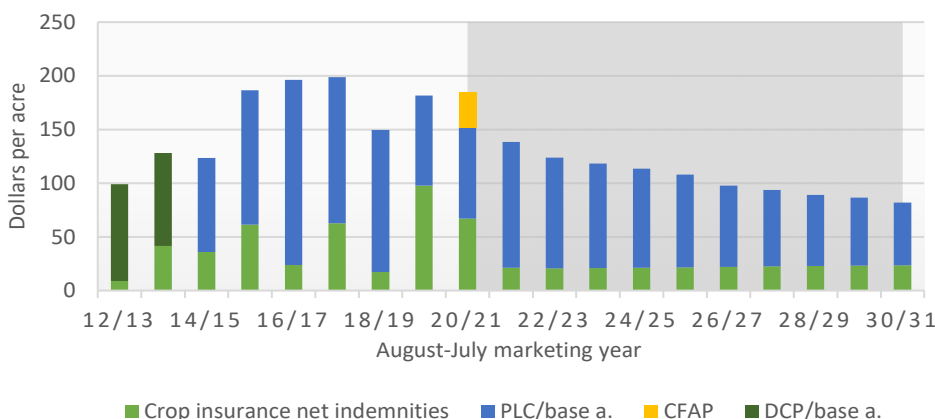
U.S. rice production has oscillated in recent years, with higher production in even-numbered years. Projected area and production contract in 2021, in part because of strong competition from other crops. Exports remain fairly steady for the next few years and then increase slightly. Actual supply and use will almost certainly be far more variable than these average projections indicate.

### Long grain rice prices increase after 2021/22



Projected 2020/21 prices for long grain rice are almost the same as the previous year, in spite of the increase in U.S. production. Projected prices dip in 2021/22 but then increase slowly over time. For Japonica rice, USDA revised its estimate of the 2019/20 price upward after these estimates were prepared, but a decline in 2020/21 still seems likely given weaker export demand. Other short and medium grain rice typically sells for a small premium to long grain rice.

### PLC dominates rice program payments



Compared to corn and wheat, PLC payments per rice base acre are larger and account for a larger share of total support in most years. Projected PLC payments decline with the projected increase after 2021/22 in long grain rice prices. Rice crop insurance net indemnities have been unusually large in 2019/20 and 2020/21. CFAP payments have been a smaller proportional share of rice producer income than is the case for many other crops.

## Corn supply and use

| September-August year             | 20/21                        | 21/22  | 22/23  | 23/24  | 24/25  | 25/26  | 26/27  | 27/28  | 28/29  | 29/30  | 30/31  |
|-----------------------------------|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Area</b>                       | (Million acres)              |        |        |        |        |        |        |        |        |        |        |
| Planted area                      | 90.8                         | 91.3   | 91.6   | 91.2   | 91.2   | 91.0   | 90.8   | 90.8   | 90.7   | 90.7   | 90.4   |
| Harvested area                    | 82.5                         | 83.3   | 83.6   | 83.2   | 83.3   | 83.1   | 83.0   | 82.9   | 82.8   | 82.8   | 82.6   |
| <b>Yield</b>                      | (Bushels per harvested acre) |        |        |        |        |        |        |        |        |        |        |
|                                   | 172.0                        | 178.5  | 180.0  | 181.9  | 184.0  | 186.2  | 188.3  | 190.4  | 192.5  | 194.4  | 196.5  |
| <b>Supply</b>                     | (Million bushels)            |        |        |        |        |        |        |        |        |        |        |
| Beginning stocks                  | 1,919                        | 1,504  | 1,647  | 1,763  | 1,842  | 1,934  | 2,003  | 2,061  | 2,113  | 2,159  | 2,211  |
| Production                        | 14,182                       | 14,877 | 15,051 | 15,148 | 15,324 | 15,472 | 15,627 | 15,797 | 15,947 | 16,105 | 16,229 |
| Imports                           | 25                           | 33     | 33     | 33     | 33     | 33     | 33     | 33     | 33     | 33     | 33     |
| <b>Domestic use</b>               | 12,063                       | 12,384 | 12,575 | 12,650 | 12,722 | 12,790 | 12,856 | 12,939 | 12,993 | 13,052 | 13,101 |
| Feed and residual                 | 5,668                        | 5,693  | 5,717  | 5,727  | 5,767  | 5,801  | 5,831  | 5,876  | 5,903  | 5,942  | 5,970  |
| Ethanol and coproducts            | 4,970                        | 5,240  | 5,388  | 5,438  | 5,456  | 5,476  | 5,499  | 5,523  | 5,538  | 5,544  | 5,547  |
| HFCS                              | 423                          | 432    | 436    | 437    | 435    | 435    | 434    | 435    | 434    | 434    | 439    |
| Seed                              | 31                           | 31     | 31     | 32     | 32     | 32     | 32     | 32     | 33     | 33     | 33     |
| Food and other                    | 971                          | 988    | 1,003  | 1,017  | 1,032  | 1,046  | 1,059  | 1,073  | 1,086  | 1,099  | 1,112  |
| <b>Exports</b>                    | 2,561                        | 2,382  | 2,392  | 2,452  | 2,543  | 2,646  | 2,746  | 2,839  | 2,941  | 3,033  | 3,120  |
| <b>Total use</b>                  | 14,623                       | 14,766 | 14,967 | 15,102 | 15,264 | 15,436 | 15,602 | 15,778 | 15,934 | 16,085 | 16,221 |
| <b>Ending stocks</b>              | 1,504                        | 1,647  | 1,763  | 1,842  | 1,934  | 2,003  | 2,061  | 2,113  | 2,159  | 2,211  | 2,252  |
| CCC inventory                     | 0                            | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Under loan                        | 163                          | 200    | 211    | 218    | 229    | 234    | 239    | 242    | 243    | 247    | 248    |
| Other stocks                      | 1,341                        | 1,447  | 1,552  | 1,624  | 1,705  | 1,769  | 1,821  | 1,871  | 1,916  | 1,964  | 2,004  |
| <b>Prices, program provisions</b> | (Dollars per bushel)         |        |        |        |        |        |        |        |        |        |        |
| Farm price                        | 4.22                         | 4.06   | 3.99   | 3.93   | 3.85   | 3.79   | 3.79   | 3.78   | 3.79   | 3.78   | 3.78   |
| Loan rate                         | 2.20                         | 2.20   | 2.20   | 2.20   | 2.20   | 2.20   | 2.20   | 2.20   | 2.20   | 2.20   | 2.20   |
| Reference price                   | 3.70                         | 3.70   | 3.70   | 3.70   | 3.71   | 3.73   | 3.73   | 3.72   | 3.72   | 3.72   | 3.72   |
| <b>Base area</b>                  | (Million acres)              |        |        |        |        |        |        |        |        |        |        |
|                                   | 95.2                         | 95.2   | 95.2   | 95.2   | 95.2   | 95.2   | 95.2   | 95.2   | 95.2   | 95.2   | 95.2   |
| <b>PLC program yield</b>          | (Bushels per acre)           |        |        |        |        |        |        |        |        |        |        |
|                                   | 136.3                        | 135.8  | 136.2  | 136.1  | 136.0  | 135.9  | 135.6  | 135.6  | 135.6  | 135.6  | 135.6  |
| <b>PLC participation rate</b>     | (Percent of base acres)      |        |        |        |        |        |        |        |        |        |        |
|                                   | 75.5                         | 73.0   | 76.9   | 76.0   | 75.0   | 75.1   | 72.5   | 71.8   | 72.0   | 72.1   | 72.3   |
| <b>ARC participation rate</b>     | 24.5                         | 27.0   | 23.1   | 24.0   | 25.0   | 24.9   | 27.5   | 28.2   | 28.0   | 27.9   | 27.7   |
| <b>Returns and payments</b>       | (Dollars)                    |        |        |        |        |        |        |        |        |        |        |
| Gross market revenue/a.           | 725.76                       | 721.18 | 714.52 | 710.88 | 705.06 | 703.83 | 709.41 | 716.18 | 726.41 | 731.40 | 739.13 |
| Variable expenses/a.              | 339.68                       | 348.80 | 359.90 | 367.40 | 372.68 | 378.43 | 384.33 | 390.92 | 399.07 | 408.09 | 417.60 |
| Market net return/a.              | 386.08                       | 372.38 | 354.62 | 343.48 | 332.38 | 325.40 | 325.08 | 325.27 | 327.34 | 323.30 | 321.53 |
| Marketing loan benefits/a.*       | 0.00                         | 0.17   | 0.63   | 1.18   | 0.88   | 1.04   | 1.09   | 1.41   | 1.58   | 1.18   | 1.00   |
| <b>Payments to participants</b>   |                              |        |        |        |        |        |        |        |        |        |        |
| PLC/base a.*                      | 0.00                         | 18.92  | 25.58  | 30.15  | 33.43  | 34.06  | 35.24  | 35.55  | 36.26  | 36.33  | 35.08  |
| ARC/base a.*                      | 1.03                         | 6.49   | 8.18   | 9.36   | 12.94  | 15.96  | 19.88  | 19.43  | 17.74  | 18.14  | 16.92  |
| CFAP/a.                           | 57.06                        | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   |
| Insurance net indemnities/a.*     | 17.65                        | 25.60  | 25.55  | 26.90  | 28.35  | 26.47  | 26.21  | 26.06  | 26.68  | 26.81  | 27.07  |

\* Marketing loan benefits, CFAP and insurance net indemnities are averaged across all acres. PLC and ARC payments are per participating base acre. All projections are averages across 500 stochastic outcomes.

## Corn product supply and use

| Marketing year                    | 20/21                                     | 21/22  | 22/23  | 23/24  | 24/25  | 25/26  | 26/27  | 27/28  | 28/29  | 29/30  | 30/31  |
|-----------------------------------|-------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>High-fructose corn syrup</b>   |                                           |        |        |        |        |        |        |        |        |        |        |
|                                   | (Thousand tons, October-September year)   |        |        |        |        |        |        |        |        |        |        |
| Production                        | 7,661                                     | 7,827  | 7,927  | 7,951  | 7,937  | 7,952  | 7,956  | 7,977  | 7,988  | 7,995  | 8,103  |
| Domestic use                      | 6,583                                     | 6,644  | 6,669  | 6,633  | 6,556  | 6,517  | 6,452  | 6,406  | 6,350  | 6,284  | 6,309  |
| Net exports                       | 1,078                                     | 1,183  | 1,258  | 1,319  | 1,381  | 1,434  | 1,504  | 1,571  | 1,637  | 1,711  | 1,794  |
|                                   | (Cents per pound, October-September year) |        |        |        |        |        |        |        |        |        |        |
| Price, 42% Midwest                | 29.97                                     | 31.11  | 31.44  | 31.57  | 31.69  | 32.16  | 32.52  | 33.06  | 33.58  | 34.07  | 34.02  |
| HFCS price/ref. sugar price       | 91%                                       | 91%    | 91%    | 92%    | 95%    | 96%    | 98%    | 100%   | 101%   | 103%   | 104%   |
| <b>Distillers, brewers grains</b> |                                           |        |        |        |        |        |        |        |        |        |        |
|                                   | (Thousand tons, September-August year)    |        |        |        |        |        |        |        |        |        |        |
| Production (dry equiv.)           | 37,542                                    | 39,580 | 40,682 | 41,065 | 41,220 | 41,387 | 41,583 | 41,783 | 41,910 | 41,965 | 41,999 |
| Domestic use                      | 25,788                                    | 27,494 | 28,546 | 28,895 | 29,017 | 29,161 | 29,340 | 29,534 | 29,648 | 29,697 | 29,721 |
| Net exports                       | 11,754                                    | 12,086 | 12,136 | 12,170 | 12,203 | 12,225 | 12,244 | 12,249 | 12,262 | 12,268 | 12,279 |
|                                   | (Dollars per ton, September-August year)  |        |        |        |        |        |        |        |        |        |        |
| Price, IL points                  | 182.69                                    | 165.34 | 162.23 | 159.69 | 156.56 | 154.46 | 153.94 | 154.41 | 154.95 | 155.18 | 155.44 |
| DDGS price/corn price             | 121%                                      | 114%   | 114%   | 114%   | 114%   | 114%   | 114%   | 115%   | 114%   | 115%   | 115%   |
| <b>Corn gluten feed</b>           |                                           |        |        |        |        |        |        |        |        |        |        |
|                                   | (Thousand tons, September-August year)    |        |        |        |        |        |        |        |        |        |        |
| Production                        | 8,680                                     | 8,888  | 9,035  | 9,112  | 9,156  | 9,209  | 9,256  | 9,312  | 9,360  | 9,407  | 9,483  |
| Domestic use                      | 7,978                                     | 8,125  | 8,276  | 8,364  | 8,419  | 8,486  | 8,550  | 8,625  | 8,692  | 8,758  | 8,853  |
| Net exports                       | 702                                       | 763    | 759    | 749    | 737    | 723    | 705    | 687    | 668    | 649    | 631    |
|                                   | (Dollars per ton, September-August year)  |        |        |        |        |        |        |        |        |        |        |
| Price, 21%, IL points             | 124.68                                    | 115.01 | 112.82 | 111.03 | 108.95 | 107.38 | 106.88 | 106.78 | 106.91 | 106.70 | 106.49 |
| CGF price/corn price              | 83%                                       | 79%    | 79%    | 79%    | 79%    | 79%    | 79%    | 79%    | 79%    | 79%    | 79%    |
| <b>Corn gluten meal</b>           |                                           |        |        |        |        |        |        |        |        |        |        |
|                                   | (Thousand tons, September-August year)    |        |        |        |        |        |        |        |        |        |        |
| Production                        | 2,284                                     | 2,339  | 2,378  | 2,398  | 2,409  | 2,423  | 2,436  | 2,451  | 2,463  | 2,475  | 2,496  |
| Domestic use                      | 1,482                                     | 1,516  | 1,544  | 1,553  | 1,552  | 1,556  | 1,558  | 1,564  | 1,568  | 1,571  | 1,582  |
| Net exports                       | 803                                       | 823    | 833    | 845    | 857    | 868    | 878    | 886    | 896    | 904    | 914    |
|                                   | (Dollars per ton, September-August year)  |        |        |        |        |        |        |        |        |        |        |
| Price, 60%, IL points             | 519.73                                    | 483.80 | 480.81 | 474.88 | 464.95 | 459.22 | 455.26 | 459.25 | 458.95 | 460.95 | 461.09 |
| CGM price/soymeal price           | 136%                                      | 137%   | 137%   | 137%   | 137%   | 138%   | 138%   | 138%   | 138%   | 137%   | 137%   |
| <b>Corn oil</b>                   |                                           |        |        |        |        |        |        |        |        |        |        |
|                                   | (Million pounds, October-September year)  |        |        |        |        |        |        |        |        |        |        |
| Production                        | 5,350                                     | 5,627  | 5,809  | 5,892  | 5,936  | 5,978  | 6,019  | 6,061  | 6,093  | 6,118  | 6,145  |
| Domestic use                      | 4,915                                     | 5,161  | 5,338  | 5,422  | 5,464  | 5,507  | 5,547  | 5,588  | 5,621  | 5,646  | 5,672  |
| Biodiesel                         | 1,439                                     | 1,821  | 2,241  | 2,147  | 2,130  | 2,124  | 2,129  | 2,138  | 2,140  | 2,137  | 2,135  |
| Feed                              | 1,945                                     | 1,818  | 1,572  | 1,766  | 1,811  | 1,844  | 1,861  | 1,877  | 1,892  | 1,901  | 1,903  |
| Food/other                        | 1,531                                     | 1,522  | 1,525  | 1,509  | 1,523  | 1,539  | 1,557  | 1,573  | 1,589  | 1,608  | 1,634  |
| Net exports                       | 445                                       | 449    | 456    | 462    | 466    | 468    | 470    | 471    | 471    | 471    | 472    |
| Ending stocks                     | 85                                        | 102    | 117    | 125    | 131    | 134    | 137    | 139    | 140    | 141    | 142    |
|                                   | (Cents per pound, October-September year) |        |        |        |        |        |        |        |        |        |        |
| Chicago price                     | 42.78                                     | 41.79  | 39.94  | 38.59  | 37.31  | 37.04  | 36.72  | 36.66  | 36.88  | 37.02  | 37.18  |
| Corn oil price/soybean price      | 113%                                      | 113%   | 113%   | 113%   | 114%   | 113%   | 113%   | 113%   | 113%   | 113%   | 112%   |

All projections are averages across 500 stochastic outcomes.

## Wheat supply and use

| June-May year                     | 20/21                        | 21/22  | 22/23  | 23/24  | 24/25  | 25/26  | 26/27  | 27/28  | 28/29  | 29/30  | 30/31  |
|-----------------------------------|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Area</b>                       | (Million acres)              |        |        |        |        |        |        |        |        |        |        |
| Planted area                      | 44.3                         | 45.9   | 45.3   | 45.5   | 45.6   | 45.6   | 45.6   | 45.3   | 45.1   | 44.9   | 44.7   |
| Harvested area                    | 36.7                         | 38.5   | 37.9   | 38.1   | 38.2   | 38.3   | 38.2   | 38.0   | 37.8   | 37.6   | 37.5   |
| <b>Yield</b>                      | (Bushels per harvested acre) |        |        |        |        |        |        |        |        |        |        |
|                                   | 49.7                         | 49.7   | 50.1   | 50.4   | 50.8   | 51.2   | 51.7   | 52.1   | 52.5   | 52.9   | 53.4   |
| <b>Supply</b>                     | (Million bushels)            |        |        |        |        |        |        |        |        |        |        |
| Beginning stocks                  | 2,974                        | 2,874  | 2,834  | 2,845  | 2,871  | 2,906  | 2,935  | 2,953  | 2,964  | 2,976  | 2,991  |
| Production                        | 1,028                        | 837    | 808    | 796    | 803    | 817    | 831    | 843    | 851    | 856    | 862    |
| Imports                           | 1,826                        | 1,913  | 1,900  | 1,922  | 1,941  | 1,962  | 1,977  | 1,984  | 1,986  | 1,993  | 2,001  |
|                                   | 120                          | 124    | 126    | 126    | 127    | 127    | 127    | 127    | 127    | 128    | 128    |
| <b>Domestic use</b>               | 1,152                        | 1,168  | 1,154  | 1,149  | 1,145  | 1,143  | 1,144  | 1,145  | 1,147  | 1,147  | 1,147  |
| Feed and residual                 | 125                          | 145    | 130    | 123    | 117    | 113    | 111    | 111    | 111    | 108    | 107    |
| Seed                              | 62                           | 61     | 61     | 61     | 61     | 61     | 61     | 61     | 60     | 60     | 60     |
| Food and other                    | 965                          | 962    | 962    | 964    | 966    | 969    | 971    | 974    | 976    | 978    | 980    |
| <b>Exports</b>                    | 985                          | 898    | 884    | 893    | 909    | 932    | 948    | 957    | 961    | 968    | 976    |
| <b>Total use</b>                  | 2,137                        | 2,066  | 2,038  | 2,042  | 2,054  | 2,075  | 2,092  | 2,102  | 2,108  | 2,115  | 2,123  |
| <b>Ending stocks</b>              | 837                          | 808    | 796    | 803    | 817    | 831    | 843    | 851    | 856    | 862    | 867    |
| CCC inventory                     | 0                            | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Under loan                        | 29                           | 29     | 28     | 29     | 30     | 30     | 31     | 31     | 31     | 31     | 31     |
| Other stocks                      | 808                          | 779    | 768    | 774    | 787    | 800    | 812    | 820    | 825    | 830    | 837    |
| <b>Prices, program provisions</b> | (Dollars per bushel)         |        |        |        |        |        |        |        |        |        |        |
| Farm price                        | 4.84                         | 5.09   | 5.18   | 5.17   | 5.12   | 5.07   | 5.05   | 5.04   | 5.05   | 5.06   | 5.08   |
| Loan rate                         | 3.38                         | 3.38   | 3.38   | 3.38   | 3.38   | 3.38   | 3.38   | 3.38   | 3.38   | 3.38   | 3.38   |
| Reference price                   | 5.50                         | 5.50   | 5.50   | 5.50   | 5.50   | 5.50   | 5.50   | 5.51   | 5.51   | 5.51   | 5.51   |
| <b>Base area</b>                  | (Million acres)              |        |        |        |        |        |        |        |        |        |        |
|                                   | 63.1                         | 63.1   | 63.1   | 63.0   | 63.0   | 63.0   | 63.0   | 63.0   | 63.0   | 63.0   | 63.0   |
| <b>PLC program yield</b>          | (Bushels per acre)           |        |        |        |        |        |        |        |        |        |        |
|                                   | 41.2                         | 41.0   | 41.0   | 41.0   | 41.0   | 41.0   | 41.0   | 41.0   | 41.0   | 41.0   | 41.0   |
| <b>PLC participation rate</b>     | (Percent of base acres)      |        |        |        |        |        |        |        |        |        |        |
|                                   | 93.0                         | 85.9   | 85.7   | 86.1   | 86.0   | 85.9   | 85.9   | 85.7   | 85.8   | 85.7   | 85.9   |
| <b>ARC participation rate</b>     | 7.0                          | 14.1   | 14.3   | 13.9   | 14.0   | 14.1   | 14.1   | 14.3   | 14.2   | 14.3   | 14.1   |
| <b>Returns and payments</b>       | (Dollars)                    |        |        |        |        |        |        |        |        |        |        |
| Gross market revenue/a.           | 240.46                       | 252.34 | 259.04 | 260.03 | 259.73 | 259.55 | 260.81 | 262.32 | 264.67 | 267.41 | 271.11 |
| Variable expenses/a.              | 131.51                       | 134.48 | 138.04 | 140.60 | 142.39 | 144.21 | 146.31 | 148.73 | 151.65 | 154.77 | 158.02 |
| Market net return/a.              | 108.94                       | 117.86 | 121.00 | 119.43 | 117.35 | 115.34 | 114.49 | 113.59 | 113.02 | 112.64 | 113.09 |
| Marketing loan benefits/a.*       | 0.00                         | 1.02   | 1.81   | 2.00   | 2.32   | 2.55   | 2.63   | 2.08   | 2.16   | 1.89   | 2.56   |
| <b>Payments to participants</b>   |                              |        |        |        |        |        |        |        |        |        |        |
| PLC/base a.*                      | 21.52                        | 19.74  | 19.92  | 20.71  | 22.03  | 22.14  | 22.67  | 23.16  | 22.56  | 23.04  | 21.72  |
| ARC/base a.*                      | 6.86                         | 7.87   | 7.26   | 6.46   | 7.08   | 7.95   | 8.03   | 8.56   | 8.37   | 8.62   | 8.17   |
| CFAP/a.                           | 35.97                        | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   |
| Insurance net indemnities/a.*     | 4.37                         | 11.05  | 11.57  | 12.05  | 12.22  | 12.10  | 11.97  | 12.05  | 12.18  | 12.53  | 12.50  |

\* Marketing loan benefits, CFAP and insurance net indemnities are averaged across all acres. PLC and ARC payments are per participating base acre. All projections are averages across 500 stochastic outcomes.



## Sorghum supply and use

| September-August year               | 20/21                        | 21/22  | 22/23  | 23/24  | 24/25  | 25/26  | 26/27  | 27/28  | 28/29  | 29/30  | 30/31  |
|-------------------------------------|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Area</b>                         | (Million acres)              |        |        |        |        |        |        |        |        |        |        |
| Planted area                        | 5.88                         | 6.79   | 6.64   | 6.59   | 6.58   | 6.58   | 6.59   | 6.60   | 6.61   | 6.61   | 6.59   |
| Harvested area                      | 5.10                         | 6.03   | 5.89   | 5.85   | 5.84   | 5.84   | 5.84   | 5.86   | 5.86   | 5.87   | 5.85   |
| <b>Yield</b>                        | (Bushels per harvested acre) |        |        |        |        |        |        |        |        |        |        |
|                                     | 73.2                         | 74.7   | 74.8   | 75.1   | 75.4   | 75.9   | 76.2   | 76.6   | 76.9   | 77.2   | 77.5   |
| <b>Supply and use</b>               | (Million bushels)            |        |        |        |        |        |        |        |        |        |        |
| Production                          | 373                          | 452    | 442    | 441    | 442    | 445    | 446    | 450    | 452    | 454    | 455    |
| Imports                             | 0                            | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Domestic use                        | 85                           | 166    | 168    | 180    | 179    | 181    | 181    | 183    | 188    | 191    | 194    |
| Exports                             | 290                          | 278    | 273    | 260    | 262    | 263    | 265    | 266    | 264    | 263    | 260    |
| Ending stocks                       | 28                           | 36     | 37     | 38     | 39     | 40     | 41     | 41     | 42     | 43     | 44     |
| <b>Prices, returns and payments</b> | (Dollars)                    |        |        |        |        |        |        |        |        |        |        |
| Farm price/bu.                      | 4.59                         | 4.05   | 3.98   | 3.89   | 3.84   | 3.79   | 3.81   | 3.80   | 3.82   | 3.81   | 3.81   |
| Reference price/bu.                 | 3.95                         | 3.95   | 3.95   | 3.95   | 3.95   | 3.96   | 3.96   | 3.95   | 3.95   | 3.96   | 3.96   |
| Market net return/a.                | 205.12                       | 164.51 | 156.37 | 148.02 | 143.65 | 139.75 | 139.27 | 138.56 | 136.79 | 133.94 | 131.42 |
| Marketing loan benefits/a.*         | 0.00                         | 0.03   | 0.09   | 0.45   | 0.20   | 0.21   | 0.30   | 0.33   | 0.30   | 0.15   | 0.22   |
| Payments to participants            |                              |        |        |        |        |        |        |        |        |        |        |
| PLC/base a.*                        | 0.00                         | 14.82  | 18.81  | 21.89  | 23.73  | 23.71  | 23.60  | 23.52  | 23.80  | 23.99  | 23.48  |
| ARC/base a.*                        | 3.09                         | 3.54   | 3.78   | 4.74   | 6.44   | 8.51   | 9.77   | 8.29   | 7.66   | 8.02   | 7.43   |
| CFAP/a.                             | 37.34                        | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   |
| Insurance net indemnities/a.*       | 11.66                        | 27.43  | 23.14  | 22.88  | 23.63  | 23.35  | 24.14  | 23.34  | 24.41  | 24.54  | 24.36  |

\* Marketing loan benefits, CFAP and insurance net indemnities are averaged across all acres. PLC and ARC payments are per participating base acre. All projections are averages across 500 stochastic outcomes.

## Barley supply and use

| June-May year                       | 20/21                        | 21/22  | 22/23  | 23/24  | 24/25  | 25/26  | 26/27  | 27/28  | 28/29  | 29/30  | 30/31  |
|-------------------------------------|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Area</b>                         | (Million acres)              |        |        |        |        |        |        |        |        |        |        |
| Planted area                        | 2.62                         | 2.30   | 2.44   | 2.42   | 2.40   | 2.36   | 2.31   | 2.27   | 2.24   | 2.20   | 2.16   |
| Harvested area                      | 2.13                         | 1.85   | 1.96   | 1.94   | 1.92   | 1.89   | 1.86   | 1.82   | 1.80   | 1.77   | 1.74   |
| <b>Yield</b>                        | (Bushels per harvested acre) |        |        |        |        |        |        |        |        |        |        |
|                                     | 77.5                         | 77.5   | 78.4   | 79.4   | 80.3   | 81.3   | 82.3   | 83.1   | 84.1   | 85.0   | 86.0   |
| <b>Supply and use</b>               | (Million bushels)            |        |        |        |        |        |        |        |        |        |        |
| Production                          | 165                          | 143    | 153    | 154    | 155    | 154    | 153    | 151    | 151    | 150    | 149    |
| Imports                             | 7                            | 9      | 10     | 11     | 11     | 11     | 11     | 11     | 11     | 10     | 10     |
| Domestic use                        | 165                          | 155    | 157    | 157    | 158    | 157    | 157    | 156    | 155    | 154    | 153    |
| Exports                             | 8                            | 6      | 6      | 6      | 6      | 6      | 6      | 6      | 6      | 6      | 6      |
| Ending stocks                       | 79                           | 69     | 70     | 72     | 74     | 76     | 77     | 77     | 77     | 78     | 78     |
| <b>Prices, returns and payments</b> | (Dollars)                    |        |        |        |        |        |        |        |        |        |        |
| All barley farm price/bu.           | 4.64                         | 4.75   | 4.80   | 4.75   | 4.67   | 4.60   | 4.57   | 4.58   | 4.56   | 4.55   | 4.55   |
| Feed barley price/bu.               | 3.67                         | 3.64   | 3.63   | 3.58   | 3.51   | 3.46   | 3.44   | 3.44   | 3.44   | 3.43   | 3.43   |
| Reference price/bu.                 | 4.95                         | 4.95   | 4.95   | 4.95   | 4.95   | 4.95   | 4.95   | 4.95   | 4.95   | 4.95   | 4.95   |
| Market net return/a.                | 183.57                       | 187.50 | 189.74 | 186.47 | 181.65 | 177.96 | 176.28 | 177.03 | 175.63 | 173.40 | 173.04 |
| Marketing loan benefits/a.*         | 0.00                         | 0.74   | 1.97   | 2.61   | 2.57   | 2.85   | 3.18   | 3.83   | 3.84   | 3.54   | 3.66   |
| Payments to participants            |                              |        |        |        |        |        |        |        |        |        |        |
| PLC/base a.*                        | 13.90                        | 18.96  | 20.45  | 22.92  | 25.21  | 25.70  | 26.54  | 27.27  | 27.24  | 28.23  | 27.34  |
| ARC/base a.*                        | 4.52                         | 7.09   | 7.04   | 6.10   | 6.80   | 8.66   | 8.55   | 8.99   | 8.40   | 8.96   | 8.34   |
| CFAP/a.                             | 39.99                        | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   |
| Insurance net indemnities/a.*       | 2.54                         | 7.33   | 7.40   | 7.67   | 7.63   | 7.70   | 7.44   | 7.56   | 7.62   | 7.78   | 7.88   |

\* Marketing loan benefits, CFAP and insurance net indemnities are averaged across all acres. PLC and ARC payments are per participating base acre.  
All projections are averages across 500 stochastic outcomes.

## Oats supply and use

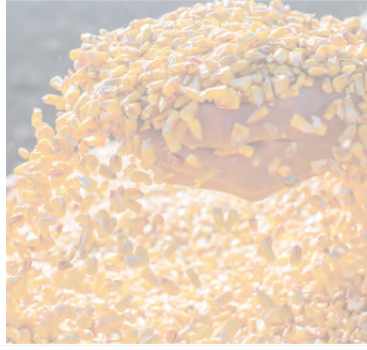
| June-May year                       | 20/21                        | 21/22 | 22/23 | 23/24 | 24/25 | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 |
|-------------------------------------|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Area</b>                         | (Million acres)              |       |       |       |       |       |       |       |       |       |       |
| Planted area                        | 2.98                         | 2.66  | 2.77  | 2.81  | 2.84  | 2.87  | 2.89  | 2.89  | 2.89  | 2.90  | 2.90  |
| Harvested area                      | 1.00                         | 0.86  | 0.89  | 0.91  | 0.92  | 0.93  | 0.93  | 0.93  | 0.94  | 0.93  | 0.94  |
| <b>Yield</b>                        | (Bushels per harvested acre) |       |       |       |       |       |       |       |       |       |       |
|                                     | 65.1                         | 65.6  | 66.1  | 66.4  | 66.8  | 67.1  | 67.6  | 68.2  | 68.6  | 68.9  | 69.4  |
| <b>Supply and use</b>               | (Million bushels)            |       |       |       |       |       |       |       |       |       |       |
| Production                          | 65                           | 56    | 59    | 61    | 61    | 62    | 63    | 64    | 64    | 65    | 65    |
| Imports                             | 94                           | 93    | 93    | 92    | 91    | 90    | 89    | 89    | 88    | 87    | 87    |
| Domestic use                        | 153                          | 150   | 150   | 150   | 150   | 150   | 150   | 150   | 150   | 149   | 149   |
| Exports                             | 2                            | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     |
| Ending stocks                       | 41                           | 38    | 38    | 39    | 40    | 41    | 41    | 42    | 43    | 43    | 44    |
| <b>Prices, returns and payments</b> | (Dollars)                    |       |       |       |       |       |       |       |       |       |       |
| Farm price/bu.                      | 2.77                         | 2.60  | 2.68  | 2.68  | 2.66  | 2.64  | 2.64  | 2.65  | 2.65  | 2.66  | 2.67  |
| Reference price/bu.                 | 2.40                         | 2.40  | 2.40  | 2.41  | 2.43  | 2.44  | 2.44  | 2.44  | 2.44  | 2.44  | 2.45  |
| Market net return/a.                | 50.89                        | 38.59 | 41.71 | 39.27 | 37.28 | 35.11 | 33.54 | 32.74 | 31.24 | 29.13 | 27.38 |
| Marketing loan benefits/a.*         | 0.00                         | 3.98  | 4.53  | 4.34  | 4.73  | 4.23  | 3.89  | 4.68  | 4.26  | 4.71  | 4.98  |
| Payments to participants            |                              |       |       |       |       |       |       |       |       |       |       |
| PLC/base a.*                        | 0.00                         | 4.40  | 3.97  | 4.25  | 4.68  | 4.73  | 4.83  | 4.96  | 4.73  | 4.93  | 5.19  |
| ARC/base a.*                        | 1.33                         | 1.85  | 1.66  | 1.44  | 1.62  | 1.65  | 1.67  | 1.52  | 1.56  | 1.53  | 1.57  |
| CFAP/a.                             | 30.01                        | n.a.  | n.a.  | n.a.  | n.a.  | n.a.  | n.a.  | n.a.  | n.a.  | n.a.  | n.a.  |
| Insurance net indemnities/a.*       | 1.21                         | 1.75  | 1.37  | 1.44  | 1.42  | 1.37  | 1.39  | 1.28  | 1.33  | 1.45  | 1.40  |

\* Marketing loan benefits, CFAP and insurance net indemnities are averaged across all acres. PLC and ARC payments are per participating base acre. All projections are averages across 500 stochastic outcomes.

## Rice supply and use

| August-July year                    | 20/21                       | 21/22  | 22/23  | 23/24  | 24/25   | 25/26   | 26/27   | 27/28   | 28/29   | 29/30   | 30/31   |
|-------------------------------------|-----------------------------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|
| <b>Area</b>                         | (Million acres)             |        |        |        |         |         |         |         |         |         |         |
| Planted area                        | 3.04                        | 2.75   | 2.74   | 2.76   | 2.78    | 2.80    | 2.83    | 2.85    | 2.84    | 2.84    | 2.83    |
| Harvested area                      | 2.99                        | 2.69   | 2.68   | 2.70   | 2.72    | 2.75    | 2.77    | 2.79    | 2.79    | 2.78    | 2.77    |
| <b>Yield</b>                        | (Pounds per harvested acre) |        |        |        |         |         |         |         |         |         |         |
|                                     | 7,619                       | 7,629  | 7,677  | 7,722  | 7,767   | 7,819   | 7,875   | 7,932   | 7,980   | 8,030   | 8,081   |
| <b>Supply and use</b>               | (Million hundredweight)     |        |        |        |         |         |         |         |         |         |         |
| Production                          | 227.6                       | 205.2  | 205.9  | 208.6  | 211.4   | 214.8   | 218.3   | 221.1   | 222.3   | 223.5   | 224.0   |
| Imports                             | 36.3                        | 36.4   | 36.9   | 37.5   | 38.1    | 38.5    | 39.0    | 39.5    | 40.1    | 40.7    | 41.3    |
| Domestic use                        | 159.8                       | 149.9  | 150.9  | 152.2  | 153.3   | 154.3   | 155.6   | 156.9   | 158.3   | 159.9   | 161.1   |
| Exports                             | 94.4                        | 94.4   | 92.8   | 93.5   | 95.1    | 97.5    | 100.2   | 102.3   | 103.2   | 103.6   | 103.6   |
| Ending stocks                       | 38.3                        | 35.7   | 34.8   | 35.2   | 36.3    | 37.8    | 39.3    | 40.7    | 41.6    | 42.4    | 43.1    |
| <b>Program provisions</b>           | (Dollars per hundredweight) |        |        |        |         |         |         |         |         |         |         |
| Loan rate                           | 7.00                        | 7.00   | 7.00   | 7.00   | 7.00    | 7.00    | 7.00    | 7.00    | 7.00    | 7.00    | 7.00    |
| Reference price                     |                             |        |        |        |         |         |         |         |         |         |         |
| Long grain                          | 14.00                       | 14.00  | 14.00  | 14.00  | 14.00   | 14.00   | 14.00   | 14.00   | 14.00   | 14.00   | 14.00   |
| Japonica                            | 17.30                       | 17.30  | 17.30  | 17.30  | 17.30   | 17.30   | 17.30   | 17.30   | 17.30   | 17.30   | 17.30   |
| Other medium/short                  | 14.00                       | 14.00  | 14.00  | 14.00  | 14.00   | 14.00   | 14.00   | 14.00   | 14.00   | 14.00   | 14.00   |
| <b>Base area</b>                    | (Million acres)             |        |        |        |         |         |         |         |         |         |         |
| Long grain                          | 3.91                        | 3.91   | 3.91   | 3.91   | 3.91    | 3.91    | 3.91    | 3.91    | 3.91    | 3.91    | 3.91    |
| Medium/short                        | 0.70                        | 0.70   | 0.70   | 0.70   | 0.70    | 0.70    | 0.70    | 0.70    | 0.70    | 0.70    | 0.70    |
| <b>Countercyclical/PLC yield</b>    | (Pounds per acre)           |        |        |        |         |         |         |         |         |         |         |
| Long grain                          | 5,869                       | 5,448  | 5,428  | 5,438  | 5,448   | 5,458   | 5,418   | 5,419   | 5,415   | 5,417   | 5,418   |
| Medium/short                        | 7,222                       | 7,259  | 7,259  | 7,261  | 7,259   | 7,262   | 7,262   | 7,262   | 7,262   | 7,262   | 7,260   |
| <b>PLC participation rate</b>       | (Percent of base acres)     |        |        |        |         |         |         |         |         |         |         |
| Long grain                          | 99.9                        | 96.7   | 92.8   | 92.9   | 93.1    | 93.6    | 93.8    | 94.5    | 94.7    | 95.0    | 95.2    |
| Medium/short                        | 83.5                        | 61.8   | 61.1   | 60.7   | 59.9    | 60.4    | 59.6    | 58.9    | 58.4    | 57.9    | 57.5    |
| <b>ARC participation rate</b>       |                             |        |        |        |         |         |         |         |         |         |         |
| Long grain                          | 0.1                         | 3.3    | 7.2    | 7.1    | 6.9     | 6.4     | 6.2     | 5.5     | 5.3     | 5.0     | 4.8     |
| Medium/short                        | 16.5                        | 38.2   | 38.9   | 39.3   | 40.1    | 39.6    | 40.4    | 41.1    | 41.6    | 42.1    | 42.5    |
| <b>Prices, returns and payments</b> | (Dollars)                   |        |        |        |         |         |         |         |         |         |         |
| Farm price/cwt                      | 13.10                       | 12.41  | 12.69  | 12.83  | 12.96   | 13.13   | 13.40   | 13.53   | 13.67   | 13.77   | 13.89   |
| Long grain                          | 12.00                       | 11.11  | 11.48  | 11.63  | 11.78   | 11.99   | 12.29   | 12.45   | 12.61   | 12.71   | 12.83   |
| Japonica                            | 19.13                       | 18.83  | 18.95  | 19.04  | 19.11   | 19.25   | 19.46   | 19.54   | 19.68   | 19.82   | 19.89   |
| Other medium/short                  | 12.26                       | 11.59  | 11.81  | 11.96  | 12.14   | 12.31   | 12.59   | 12.75   | 12.90   | 13.02   | 13.10   |
| Gross market revenue/a.             | 998.42                      | 946.96 | 973.99 | 990.89 | 1006.45 | 1026.87 | 1055.55 | 1072.76 | 1090.51 | 1105.33 | 1122.82 |
| Variable expenses/a.                | 553.89                      | 562.26 | 578.26 | 593.21 | 603.77  | 615.00  | 627.53  | 640.92  | 655.56  | 670.34  | 685.34  |
| Market net return/a.                | 444.52                      | 384.70 | 395.73 | 397.68 | 402.68  | 411.88  | 428.02  | 431.84  | 434.95  | 434.99  | 437.48  |
| Marketing loan benefits/a.*         | 0.00                        | 5.82   | 5.16   | 4.21   | 3.29    | 3.26    | 2.15    | 2.22    | 1.17    | 0.80    | 0.62    |
| <b>Payments to participants</b>     |                             |        |        |        |         |         |         |         |         |         |         |
| PLC/base a.*                        | 84.53                       | 116.97 | 103.22 | 97.18  | 92.22   | 86.27   | 75.72   | 71.23   | 66.15   | 63.29   | 58.27   |
| ARC/base a.*                        | 1.14                        | 28.06  | 28.46  | 26.62  | 26.55   | 23.36   | 25.35   | 21.99   | 20.32   | 20.80   | 20.06   |
| CFAP/a.                             | 33.38                       | n.a.   | n.a.   | n.a.   | n.a.    | n.a.    | n.a.    | n.a.    | n.a.    | n.a.    | n.a.    |
| Insurance net indemnities/a.*       | 67.26                       | 21.36  | 20.63  | 21.15  | 21.36   | 21.68   | 22.08   | 22.64   | 22.98   | 23.35   | 23.66   |

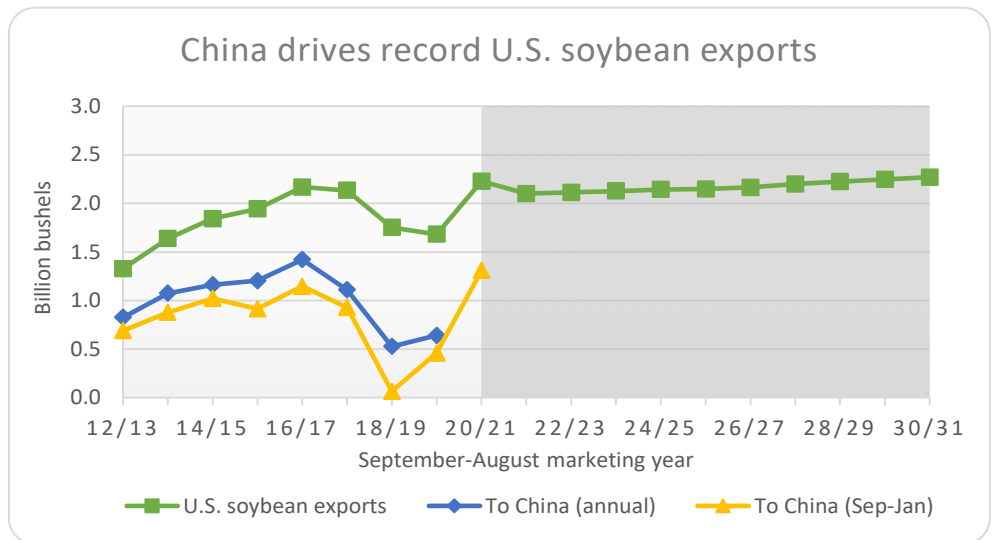
\* Marketing loan benefits, CFAP and insurance net indemnities are averaged across all acres. PLC and ARC payments are per participating base acre. All projections are averages across 500 stochastic outcomes.



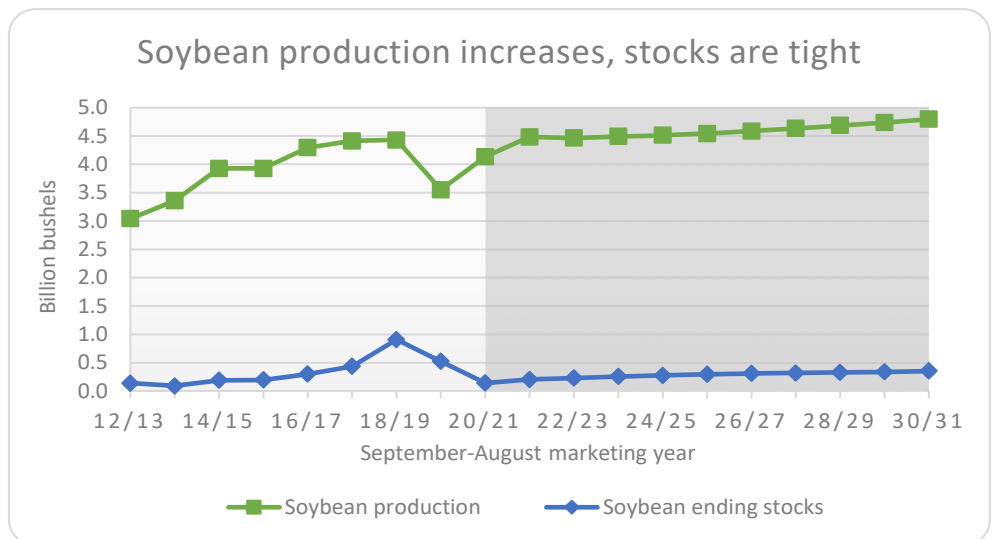
# Oilseeds

## Soybeans and products

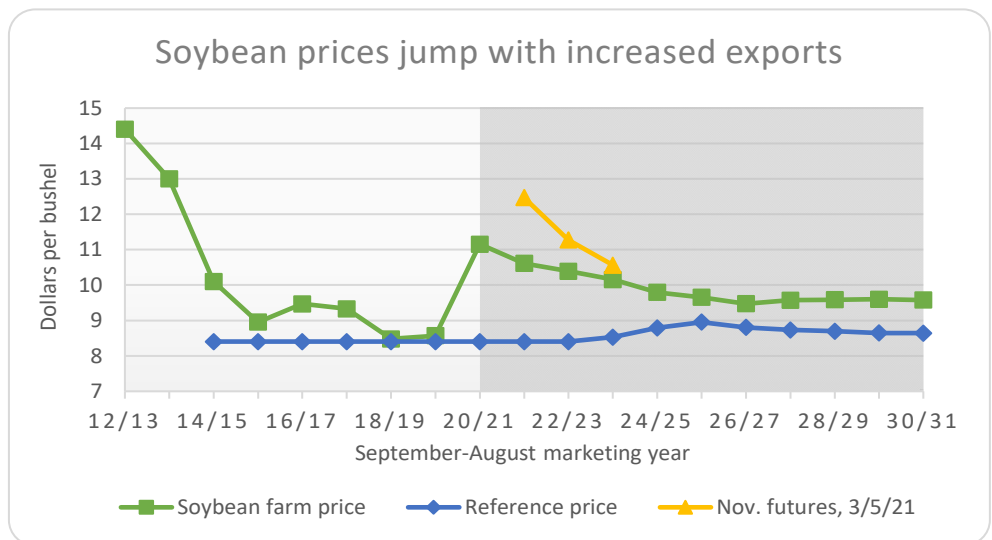
At the peak of the trade dispute, China imported almost no U.S. soybeans between September 2018 and January 2019. Two years later, a huge jump in imports by China is expected to result in record total U.S. soybean exports in 2020/21. Recovery of China's pork industry from ASF and the U.S.-China Phase 1 deal both play a role in the increase. The outlook for U.S. soybean exports depends both on China's internal demand and on competition from Brazil and other exporters.



U.S. soybean production increased in 2020 and could reach record highs in 2021 with a big increase in acreage and trend-line yields. At the same time, the large increase in soybean exports in 2020/21 results in the second straight year of sharply-reduced ending stocks. Projected stocks remain very tight by historical standards.

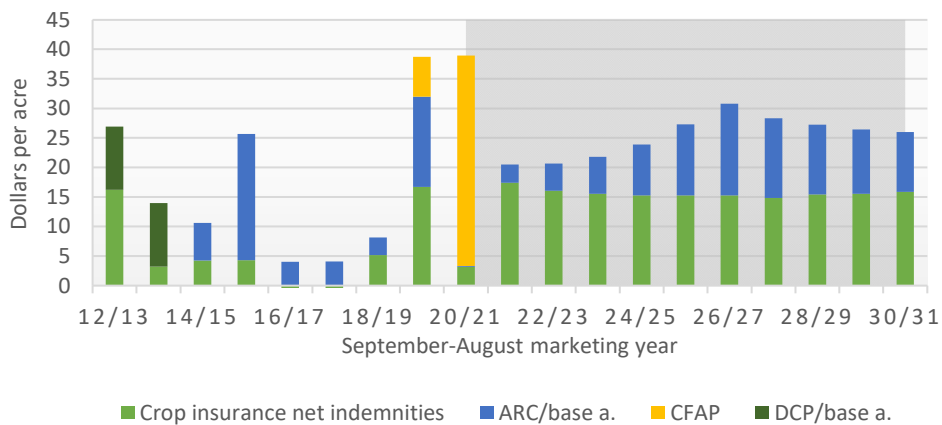


After four straight years when soybean MYA prices averaged less than \$10 per bushel, the 2020/21 price is projected to exceed \$11 per bushel. The increase in futures prices has been even more dramatic, with nearby futures over \$14 per bushel in early March. Projected prices decline slightly in 2021/22, given the large expected increase in production and moderating export demand. Futures markets in early March suggest a higher price for the 2021/22 crop. In some stochastic outcomes, prices are high enough to cause increases in soybean reference prices.



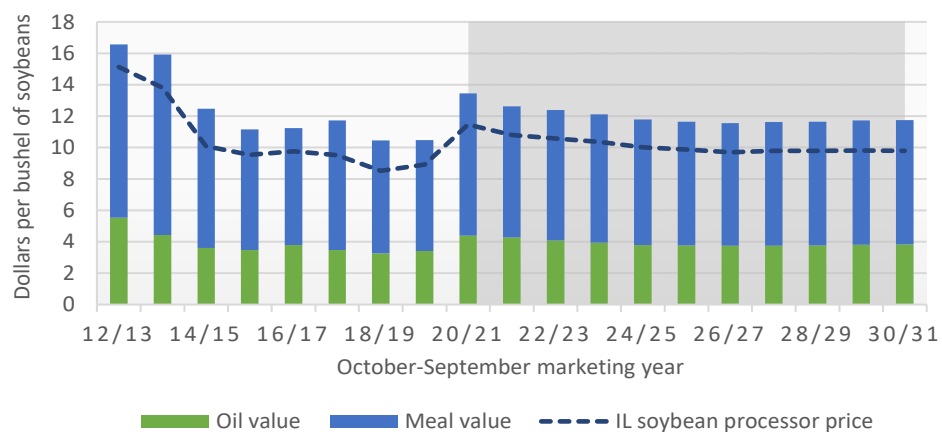


### Higher prices reduce soybean program benefits



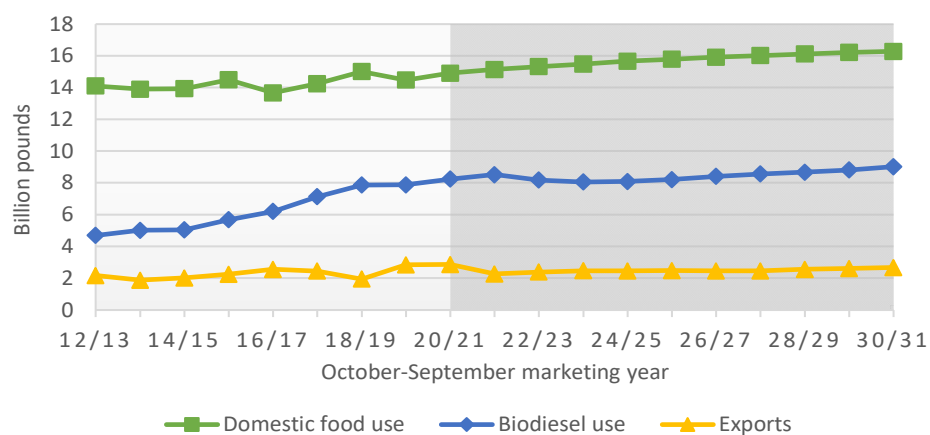
Soybean producers received smaller direct benefits from traditional farm programs in recent years than did producers of many other crops. In 2018/19 and 2019/20, however, they received large MFP payments (not shown in the chart), and CFAP payments could exceed \$35 per soybean acre in 2020/21, assuming the payments of \$20 per acre authorized in late 2020 are made. In the projection period, both ARC and PLC payments are relatively modest. The projected crop insurance net indemnities assume a loss ratio of around 0.9, which is greater than it has been in most years.

### Crushing margins maintained as prices increase



Prices for soybeans, soybean meal and soybean oil all increase in 2020/21, maintaining crushing margins. Soybean meal accounts for approximately two-thirds of the value of crushed soybeans during the projection period.

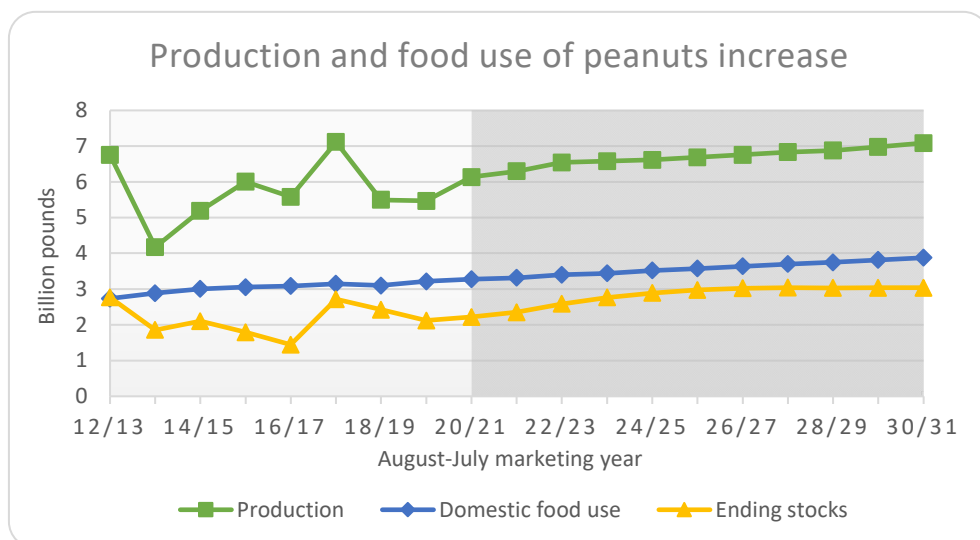
### Biodiesel use of soyoil has increased



Between 2012/13 and 2019/20, biodiesel accounted for about three-fourths of the increase in soybean oil consumption. Some further growth is projected, but a modest increase in food and other domestic uses also contributes to soybean oil consumption growth over the next decade. U.S. soybean oil exports are modest, as Argentina exports of soybean oil and Asian palm oil exports continue to dominate global vegetable oil trade.

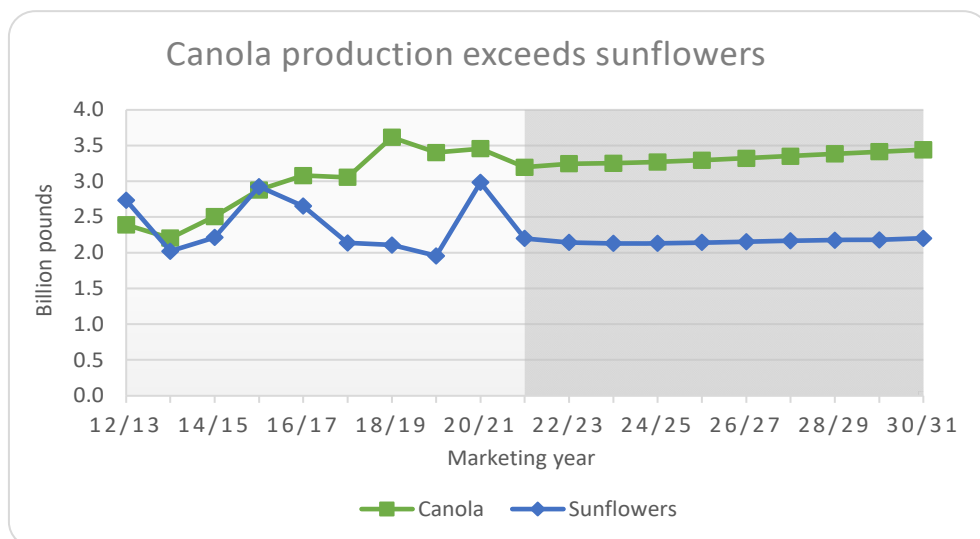
## Peanuts

Per-capita food uses of peanuts have increased in recent years and the trend is projected to continue, but at a slower pace. Yield growth accounts for most of the projected increase in production, as area planted is stable at a little under 1.6 million acres. Stocks increase, and prices average about \$400 per ton (20 cents per pound).

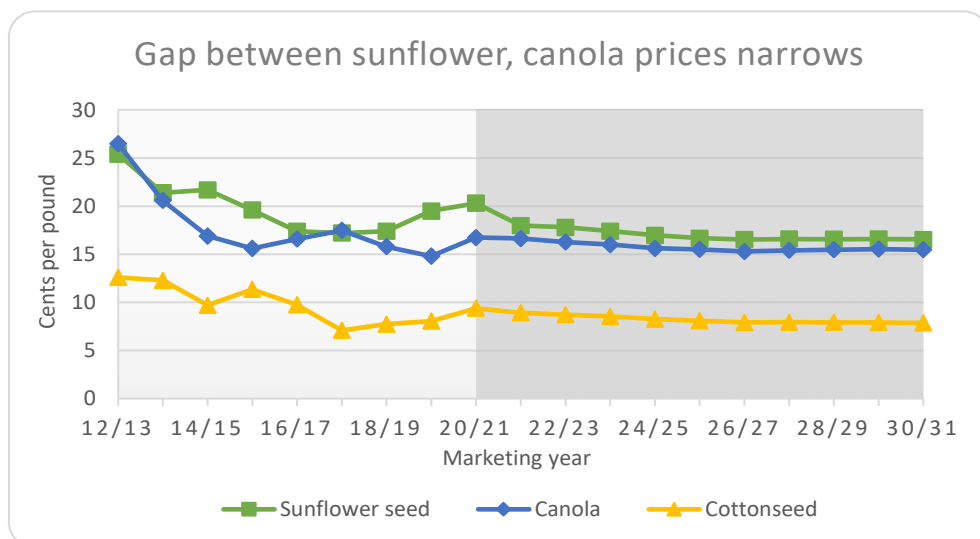


## Other oilseeds

U.S. production of canola increased from 2013-2018 and now consistently exceeds production of sunflowers. After a big increase in 2020, sunflower area is projected to contract in 2021, given competition from other crops.



Sunflower seed prices were at a strong premium to canola in 2019/20 and the beginning of the 2020/21 marketing year. The gap has narrowed recently, and is projected to stay fairly narrow in the projection period. Prices for both oilseeds are affected by global oilseed markets and domestic soybean prices, but have their own dynamics as well. Reduced supplies have supported cottonseed prices in 2020/21.



## Soybean supply and use

| September-August year             | 20/21                        | 21/22  | 22/23  | 23/24  | 24/25  | 25/26  | 26/27  | 27/28  | 28/29  | 29/30  | 30/31  |
|-----------------------------------|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Area</b>                       | (Million acres)              |        |        |        |        |        |        |        |        |        |        |
| Planted area                      | 83.1                         | 90.4   | 89.2   | 88.8   | 88.3   | 87.9   | 87.7   | 87.7   | 87.9   | 87.9   | 88.1   |
| Harvested area                    | 82.3                         | 89.1   | 87.9   | 87.5   | 87.0   | 86.6   | 86.5   | 86.5   | 86.6   | 86.6   | 86.8   |
| <b>Yield</b>                      | (Bushels per harvested acre) |        |        |        |        |        |        |        |        |        |        |
|                                   | 50.2                         | 50.3   | 50.8   | 51.3   | 51.9   | 52.4   | 53.0   | 53.6   | 54.1   | 54.7   | 55.3   |
| <b>Supply</b>                     | (Million bushels)            |        |        |        |        |        |        |        |        |        |        |
| Beginning stocks                  | 4,695                        | 4,648  | 4,691  | 4,743  | 4,794  | 4,840  | 4,901  | 4,968  | 5,030  | 5,089  | 5,158  |
| Production                        | 525                          | 142    | 204    | 230    | 259    | 275    | 296    | 313    | 320    | 331    | 340    |
| Imports                           | 4,135                        | 4,484  | 4,465  | 4,492  | 4,513  | 4,543  | 4,584  | 4,633  | 4,689  | 4,736  | 4,796  |
|                                   | 35                           | 22     | 22     | 22     | 22     | 22     | 22     | 22     | 22     | 22     | 22     |
| <b>Domestic use</b>               | 2,326                        | 2,344  | 2,348  | 2,357  | 2,377  | 2,396  | 2,425  | 2,449  | 2,475  | 2,503  | 2,534  |
| Crush                             | 2,201                        | 2,214  | 2,217  | 2,225  | 2,242  | 2,259  | 2,287  | 2,309  | 2,333  | 2,359  | 2,389  |
| Seed and residual                 | 125                          | 130    | 131    | 133    | 135    | 136    | 139    | 140    | 142    | 143    | 145    |
| <b>Exports</b>                    | 2,227                        | 2,100  | 2,113  | 2,127  | 2,143  | 2,148  | 2,163  | 2,199  | 2,224  | 2,247  | 2,269  |
| <b>Total use</b>                  | 4,553                        | 4,444  | 4,461  | 4,484  | 4,519  | 4,544  | 4,588  | 4,648  | 4,699  | 4,749  | 4,803  |
| <b>Ending stocks</b>              | 142                          | 204    | 230    | 259    | 275    | 296    | 313    | 320    | 331    | 340    | 355    |
| CCC inventory                     | 0                            | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Under loan                        | 18                           | 32     | 35     | 39     | 43     | 46     | 49     | 50     | 51     | 52     | 53     |
| Other stocks                      | 124                          | 172    | 195    | 220    | 232    | 249    | 264    | 270    | 281    | 288    | 302    |
| <b>Prices, program provisions</b> | (Dollars per bushel)         |        |        |        |        |        |        |        |        |        |        |
| Farm price                        | 11.15                        | 10.61  | 10.39  | 10.15  | 9.80   | 9.66   | 9.47   | 9.57   | 9.58   | 9.60   | 9.58   |
| Illinois processor price          | 11.47                        | 10.80  | 10.59  | 10.36  | 10.01  | 9.88   | 9.70   | 9.80   | 9.81   | 9.82   | 9.80   |
| Loan rate                         | 6.20                         | 6.20   | 6.20   | 6.20   | 6.20   | 6.20   | 6.20   | 6.20   | 6.20   | 6.20   | 6.20   |
| Reference price                   | 8.40                         | 8.40   | 8.40   | 8.53   | 8.79   | 8.95   | 8.81   | 8.73   | 8.70   | 8.65   | 8.64   |
| <b>Base area</b>                  | (Million acres)              |        |        |        |        |        |        |        |        |        |        |
|                                   | 53.9                         | 53.9   | 53.9   | 53.9   | 53.9   | 53.9   | 53.9   | 53.9   | 53.9   | 53.9   | 53.9   |
| <b>PLC program yield</b>          | (Bushels per acre)           |        |        |        |        |        |        |        |        |        |        |
|                                   | 38.9                         | 39.4   | 39.1   | 39.2   | 39.0   | 39.0   | 38.9   | 38.9   | 39.0   | 39.0   | 39.0   |
| <b>PLC participation rate</b>     | (Percent of base acres)      |        |        |        |        |        |        |        |        |        |        |
|                                   | 14.1                         | 10.6   | 12.2   | 13.4   | 15.9   | 16.2   | 13.7   | 14.1   | 14.5   | 14.6   | 15.1   |
| <b>ARC participation rate</b>     | 85.9                         | 89.4   | 87.8   | 86.6   | 84.1   | 83.8   | 86.3   | 85.9   | 85.5   | 85.4   | 84.9   |
| <b>Returns and payments</b>       | (Dollars)                    |        |        |        |        |        |        |        |        |        |        |
| Gross market revenue/a.           | 560.33                       | 531.74 | 525.43 | 519.13 | 506.29 | 504.47 | 499.89 | 511.33 | 516.66 | 523.08 | 527.41 |
| Variable expenses/a.              | 161.69                       | 168.74 | 173.12 | 177.41 | 180.23 | 182.70 | 185.41 | 188.43 | 192.30 | 196.15 | 200.06 |
| Market net return/a.              | 398.64                       | 363.00 | 352.30 | 341.72 | 326.06 | 321.77 | 314.48 | 322.90 | 324.37 | 326.93 | 327.35 |
| Marketing loan benefits/a.*       | 0.00                         | 0.32   | 1.26   | 1.64   | 1.46   | 1.45   | 3.07   | 2.54   | 2.02   | 1.91   | 2.25   |
| <b>Payments to participants</b>   |                              |        |        |        |        |        |        |        |        |        |        |
| PLC/base a.*                      | 0.00                         | 4.00   | 6.61   | 9.80   | 13.23  | 18.58  | 17.06  | 17.15  | 15.93  | 15.70  | 14.92  |
| ARC/base a.*                      | 0.19                         | 3.06   | 4.56   | 6.22   | 8.63   | 12.06  | 15.49  | 13.53  | 11.84  | 10.91  | 10.14  |
| CFAP/a.                           | 35.56                        | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   |
| Insurance net indemnities/a.*     | 3.17                         | 17.44  | 16.08  | 15.54  | 15.24  | 15.23  | 15.28  | 14.80  | 15.41  | 15.52  | 15.87  |
| <b>Crush margin</b>               | (Dollars per bushel)         |        |        |        |        |        |        |        |        |        |        |
|                                   | 1.98                         | 1.83   | 1.80   | 1.77   | 1.79   | 1.78   | 1.86   | 1.84   | 1.86   | 1.91   | 1.96   |

\* Marketing loan benefits, CFAP and insurance net indemnities are averaged across all acres. PLC and ARC payments are per participating base acre. All projections are averages across 500 stochastic outcomes.

## Soybean oil supply and use

| October-September year | 20/21             | 21/22  | 22/23  | 23/24  | 24/25  | 25/26  | 26/27  | 27/28  | 28/29  | 29/30  | 30/31  |
|------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                        | (Million pounds)  |        |        |        |        |        |        |        |        |        |        |
| <b>Supply</b>          | 27,775            | 27,731 | 27,824 | 28,027 | 28,301 | 28,589 | 28,927 | 29,215 | 29,523 | 29,833 | 30,182 |
| Beginning stocks       | 1,849             | 1,774  | 1,832  | 1,947  | 2,022  | 2,107  | 2,131  | 2,158  | 2,189  | 2,196  | 2,205  |
| Production             | 25,576            | 25,607 | 25,642 | 25,731 | 25,929 | 26,132 | 26,446 | 26,706 | 26,983 | 27,287 | 27,628 |
| Imports                | 350               | 350    | 350    | 350    | 350    | 350    | 350    | 350    | 350    | 350    | 350    |
| <b>Domestic use</b>    | 23,134            | 23,642 | 23,490 | 23,536 | 23,738 | 23,987 | 24,310 | 24,574 | 24,776 | 25,017 | 25,297 |
| Biodiesel              | 8,230             | 8,512  | 8,177  | 8,060  | 8,086  | 8,203  | 8,405  | 8,559  | 8,667  | 8,814  | 9,017  |
| Food and other         | 14,903            | 15,130 | 15,313 | 15,475 | 15,652 | 15,785 | 15,905 | 16,016 | 16,109 | 16,203 | 16,280 |
| <b>Exports</b>         | 2,867             | 2,258  | 2,388  | 2,470  | 2,456  | 2,471  | 2,458  | 2,451  | 2,550  | 2,612  | 2,672  |
| <b>Total use</b>       | 26,000            | 25,899 | 25,878 | 26,006 | 26,194 | 26,458 | 26,768 | 27,025 | 27,326 | 27,629 | 27,968 |
| <b>Ending stocks</b>   | 1,774             | 1,832  | 1,947  | 2,022  | 2,107  | 2,131  | 2,158  | 2,189  | 2,196  | 2,205  | 2,214  |
|                        | (Cents per pound) |        |        |        |        |        |        |        |        |        |        |
| <b>Price</b>           |                   |        |        |        |        |        |        |        |        |        |        |
| Decatur                | 37.85             | 37.00  | 35.33  | 34.08  | 32.87  | 32.66  | 32.39  | 32.39  | 32.68  | 32.88  | 33.13  |

All projections are averages across 500 stochastic outcomes.

## Soybean meal supply and use

| October-September year | 20/21             | 21/22  | 22/23  | 23/24  | 24/25  | 25/26  | 26/27  | 27/28  | 28/29  | 29/30  | 30/31  |
|------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                        | (Thousand tons)   |        |        |        |        |        |        |        |        |        |        |
| <b>Supply</b>          | 52,923            | 53,224 | 53,318 | 53,503 | 53,914 | 54,335 | 54,983 | 55,519 | 56,086 | 56,709 | 57,407 |
| Beginning stocks       | 341               | 361    | 382    | 386    | 392    | 399    | 405    | 409    | 410    | 413    | 416    |
| Production             | 51,982            | 52,312 | 52,385 | 52,566 | 52,971 | 53,385 | 54,027 | 54,559 | 55,124 | 55,745 | 56,441 |
| Imports                | 600               | 551    | 551    | 551    | 551    | 551    | 551    | 551    | 551    | 551    | 551    |
| <b>Domestic use</b>    | 38,325            | 38,751 | 38,689 | 38,981 | 39,441 | 39,932 | 40,480 | 40,928 | 41,381 | 41,744 | 42,128 |
| <b>Exports</b>         | 14,237            | 14,091 | 14,242 | 14,129 | 14,074 | 13,999 | 14,094 | 14,180 | 14,291 | 14,550 | 14,861 |
| <b>Total use</b>       | 52,562            | 52,842 | 52,932 | 53,111 | 53,515 | 53,930 | 54,574 | 55,109 | 55,672 | 56,294 | 56,989 |
| <b>Ending stocks</b>   | 361               | 382    | 386    | 392    | 399    | 405    | 409    | 410    | 413    | 416    | 418    |
|                        | (Dollars per ton) |        |        |        |        |        |        |        |        |        |        |
| <b>Price</b>           |                   |        |        |        |        |        |        |        |        |        |        |
| Decatur, 48% protein   | 383.33            | 353.77 | 351.58 | 346.73 | 338.45 | 333.71 | 330.43 | 333.83 | 333.61 | 335.32 | 335.55 |

All projections are averages across 500 stochastic outcomes.

## Peanut supply and use

| August-July year                    | 20/21                       | 21/22  | 22/23  | 23/24  | 24/25  | 25/26  | 26/27  | 27/28  | 28/29  | 29/30  | 30/31  |
|-------------------------------------|-----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Area</b>                         | (Million acres)             |        |        |        |        |        |        |        |        |        |        |
| Planted area                        | 1.66                        | 1.56   | 1.59   | 1.58   | 1.57   | 1.57   | 1.56   | 1.56   | 1.55   | 1.56   | 1.56   |
| Harvested area                      | 1.62                        | 1.51   | 1.55   | 1.54   | 1.52   | 1.52   | 1.52   | 1.51   | 1.51   | 1.51   | 1.51   |
| <b>Yield</b>                        | (Pounds per harvested acre) |        |        |        |        |        |        |        |        |        |        |
|                                     | 3,796                       | 4,180  | 4,235  | 4,288  | 4,346  | 4,400  | 4,455  | 4,515  | 4,566  | 4,623  | 4,677  |
| <b>Supply and use</b>               | (Million pounds)            |        |        |        |        |        |        |        |        |        |        |
| Production                          | 6,134                       | 6,298  | 6,542  | 6,577  | 6,614  | 6,682  | 6,753  | 6,829  | 6,875  | 6,979  | 7,083  |
| Imports                             | 115                         | 115    | 115    | 115    | 115    | 115    | 115    | 115    | 115    | 115    | 115    |
| Domestic use                        | 4,525                       | 4,591  | 4,702  | 4,755  | 4,847  | 4,920  | 5,002  | 5,079  | 5,143  | 5,227  | 5,309  |
| Exports                             | 1,625                       | 1,691  | 1,719  | 1,756  | 1,757  | 1,797  | 1,814  | 1,846  | 1,858  | 1,862  | 1,890  |
| Ending stocks                       | 2,217                       | 2,349  | 2,584  | 2,765  | 2,891  | 2,972  | 3,023  | 3,041  | 3,031  | 3,036  | 3,035  |
| <b>Prices, returns and payments</b> | (Dollars)                   |        |        |        |        |        |        |        |        |        |        |
| Farm price/ton                      | 426.82                      | 428.82 | 413.24 | 403.10 | 398.27 | 397.85 | 396.28 | 396.52 | 401.87 | 404.51 | 408.28 |
| Reference price/ton                 | 535.00                      | 535.00 | 535.00 | 535.00 | 535.00 | 535.00 | 535.00 | 535.00 | 535.00 | 535.00 | 535.00 |
| Market net return/a.                | 290.92                      | 361.37 | 327.12 | 305.83 | 299.57 | 301.76 | 301.24 | 304.10 | 314.51 | 320.59 | 328.18 |
| Marketing loan benefits/a.*         | 0.03                        | 15.67  | 21.75  | 27.22  | 31.37  | 33.23  | 33.64  | 32.20  | 32.17  | 31.62  | 30.11  |
| Payments to participants            |                             |        |        |        |        |        |        |        |        |        |        |
| PLC/base a.*                        | 147.90                      | 148.39 | 205.80 | 208.34 | 213.12 | 206.38 | 208.05 | 208.52 | 198.60 | 201.97 | 195.56 |
| ARC/base a.*                        | 63.16                       | 38.68  | 47.65  | 53.18  | 54.08  | 46.82  | 53.13  | 59.89  | 52.05  | 62.85  | 60.23  |
| CFAP/a.                             | 34.29                       | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   |

\* Marketing loan benefits, CFAP and insurance net indemnities are averaged across all acres. PLC and ARC payments are per participating base acre. All projections are averages across 500 stochastic outcomes.

## Sunflower seed supply and use

| September-August year               | 20/21                       | 21/22  | 22/23  | 23/24  | 24/25  | 25/26  | 26/27  | 27/28  | 28/29  | 29/30  | 30/31  |
|-------------------------------------|-----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Area</b>                         | (Million acres)             |        |        |        |        |        |        |        |        |        |        |
| Planted area                        | 1.72                        | 1.39   | 1.34   | 1.33   | 1.32   | 1.31   | 1.31   | 1.31   | 1.31   | 1.31   | 1.31   |
| Harvested area                      | 1.67                        | 1.31   | 1.27   | 1.26   | 1.25   | 1.24   | 1.24   | 1.24   | 1.24   | 1.23   | 1.24   |
| <b>Yield</b>                        | (Pounds per harvested acre) |        |        |        |        |        |        |        |        |        |        |
|                                     | 1,790                       | 1,675  | 1,683  | 1,694  | 1,706  | 1,720  | 1,730  | 1,742  | 1,755  | 1,765  | 1,775  |
| <b>Supply and use</b>               | (Million pounds)            |        |        |        |        |        |        |        |        |        |        |
| Production                          | 2,982                       | 2,199  | 2,144  | 2,131  | 2,130  | 2,143  | 2,152  | 2,166  | 2,176  | 2,180  | 2,202  |
| Imports                             | 287                         | 414    | 400    | 362    | 330    | 309    | 290    | 268    | 255    | 245    | 231    |
| Domestic use                        | 2,891                       | 2,580  | 2,457  | 2,378  | 2,328  | 2,308  | 2,291  | 2,276  | 2,266  | 2,257  | 2,257  |
| Exports                             | 147                         | 93     | 99     | 113    | 127    | 137    | 145    | 154    | 161    | 165    | 171    |
| Ending stocks                       | 426                         | 364    | 352    | 355    | 361    | 367    | 373    | 377    | 382    | 385    | 391    |
| <b>Prices, returns and payments</b> | (Dollars)                   |        |        |        |        |        |        |        |        |        |        |
| Farm price/lb                       | 0.203                       | 0.180  | 0.178  | 0.174  | 0.170  | 0.167  | 0.165  | 0.166  | 0.166  | 0.166  | 0.165  |
| Market net return/a.                | 228.55                      | 159.49 | 154.01 | 146.24 | 138.30 | 133.45 | 130.22 | 131.05 | 129.25 | 128.57 | 125.62 |
| Marketing loan benefits/a.*         | 0.00                        | 0.48   | 0.66   | 0.31   | 0.73   | 1.29   | 1.41   | 1.51   | 1.23   | 1.47   | 1.16   |
| Payments to participants            |                             |        |        |        |        |        |        |        |        |        |        |
| PLC/base a.*                        | 0.08                        | 28.30  | 30.45  | 33.04  | 37.37  | 39.96  | 41.35  | 41.08  | 41.63  | 41.08  | 42.44  |
| ARC/base a.*                        | 1.39                        | 10.00  | 11.70  | 12.40  | 13.09  | 13.37  | 14.71  | 13.52  | 13.10  | 13.18  | 14.21  |
| CFAP/a.                             | 34.70                       | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   |

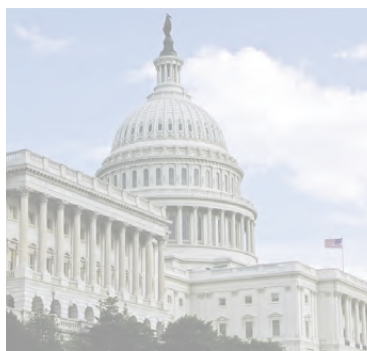
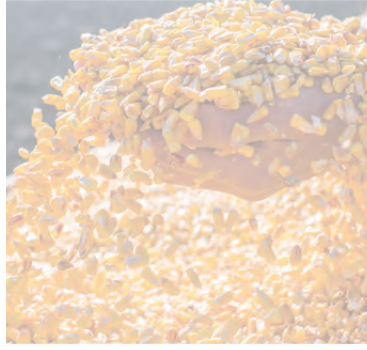
\* Marketing loan benefits, CFAP and insurance net indemnities are averaged across all acres. PLC and ARC payments are per participating base acre. All projections are averages across 500 stochastic outcomes.

## Cottonseed and canola production and prices

| Marketing year    | 20/21                               | 21/22 | 22/23 | 23/24 | 24/25 | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 |
|-------------------|-------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Production</b> | (Thousand tons, August-July year)   |       |       |       |       |       |       |       |       |       |       |
| Cottonseed        | 4,587                               | 5,768 | 5,851 | 5,826 | 5,889 | 5,947 | 5,990 | 6,025 | 6,038 | 6,034 | 6,056 |
|                   | (Million pounds, July-June year)    |       |       |       |       |       |       |       |       |       |       |
| Canola            | 3,455                               | 3,194 | 3,245 | 3,251 | 3,267 | 3,293 | 3,320 | 3,350 | 3,384 | 3,413 | 3,441 |
| <b>Prices</b>     | (Dollars per ton, August-July year) |       |       |       |       |       |       |       |       |       |       |
| Cottonseed        | 188                                 | 178   | 174   | 171   | 165   | 162   | 158   | 159   | 159   | 158   | 157   |
| Canola            | (Cents per pound, July-June year)   |       |       |       |       |       |       |       |       |       |       |
| Farm price        | 16.7                                | 16.6  | 16.3  | 16.0  | 15.6  | 15.5  | 15.3  | 15.4  | 15.5  | 15.5  | 15.5  |
| Reference price   | 20.2                                | 20.2  | 20.2  | 20.2  | 20.2  | 20.2  | 20.2  | 20.2  | 20.2  | 20.2  | 20.2  |

Cottonseed production, cottonseed prices and canola farm price projections are averages across 500 stochastic outcomes.

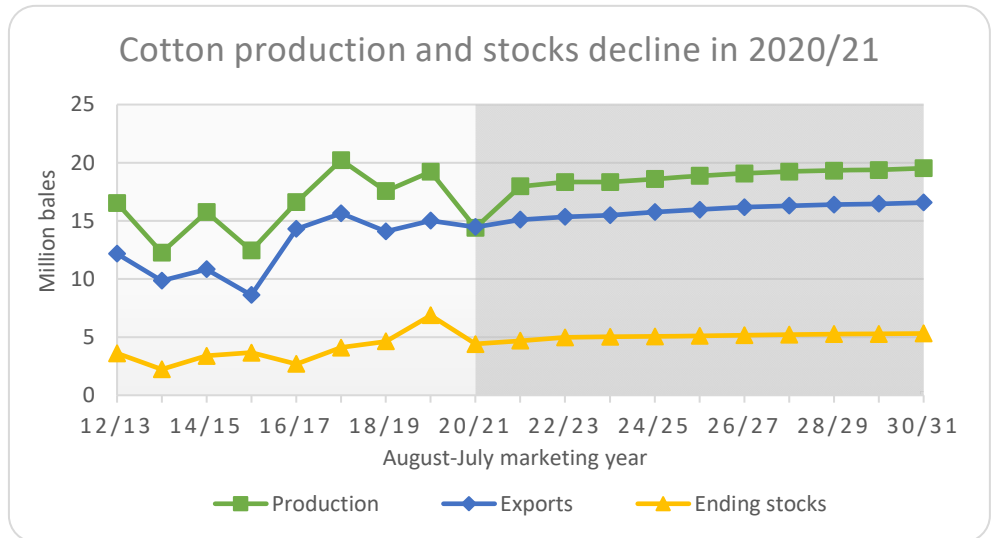




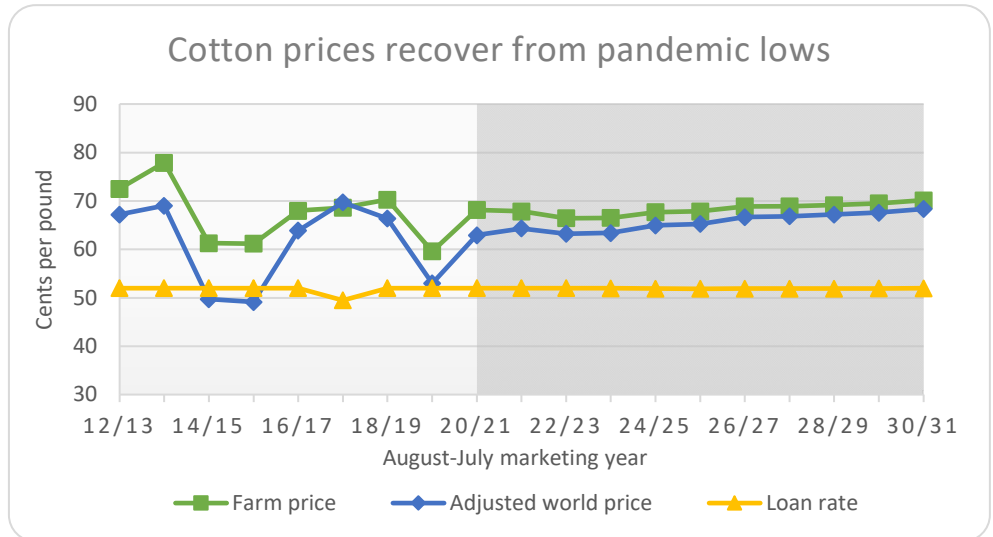
**Other crops**

## Upland cotton and seed cotton

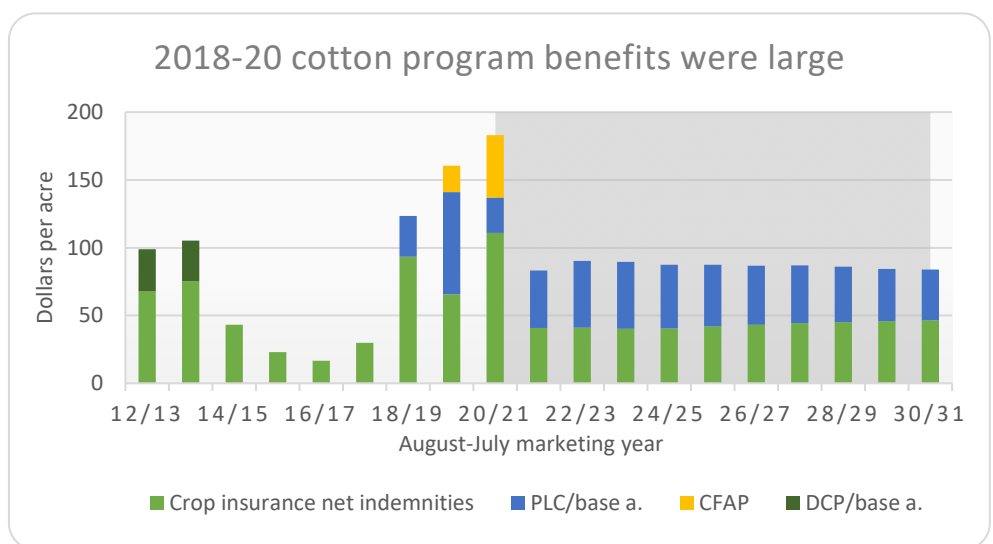
World consumption of cotton was sharply reduced by the pandemic in 2019/20, putting downward pressure on U.S. cotton exports and prices. A rebound in world cotton use and a smaller-than-expected U.S. cotton crop caused a dramatic change in cotton markets. Assuming more normal growing conditions in 2021/22, projected production rebounds. Ending stocks decline in 2020/21 but then hold relatively steady in later years.



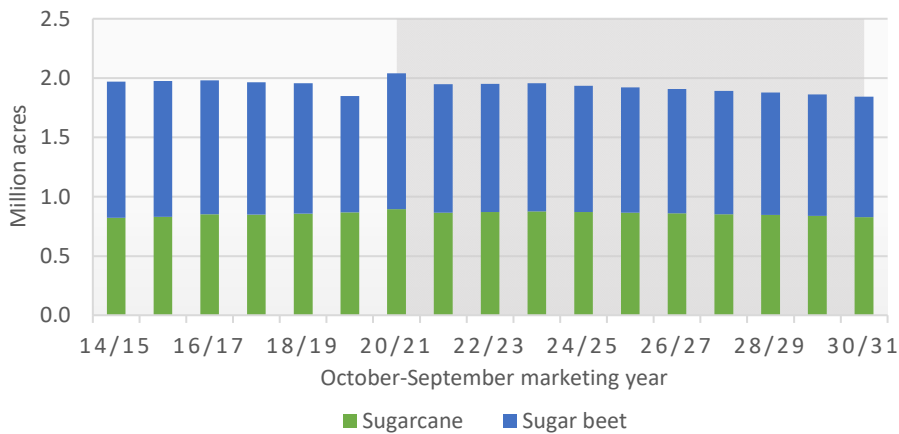
Upland cotton prices fell dramatically during the pandemic, with adjusted world prices temporarily dropping below the loan rate and thus triggering marketing loan benefits. Prices have rebounded in recent months with nearby futures prices at 86 cents per pound on March 5, 2021. If export demand continues to be strong, prices in 2021/22 could exceed the levels in these projections prepared in January 2021.



Upland cotton and seed cotton program benefits were especially large from 2018/19 to 2020/21. Natural disasters resulted in large crop insurance benefits in 2018/19 and 2020/21, and low seed cotton prices boosted PLC payments in 2019/20. The chart does not include marketing loan benefits and MFP payments, both of which were also substantial. Higher market prices and the assumed return to more normal growing conditions reduces PLC payments and crop insurance net indemnities during the projection period.



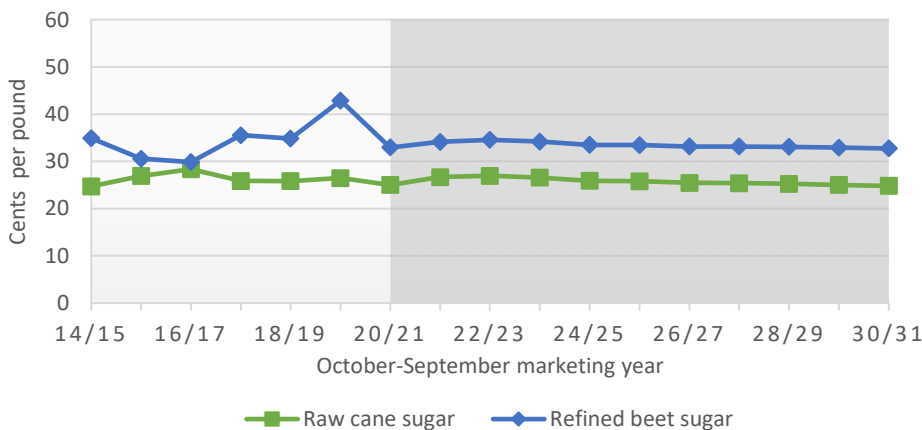
Sugar acres tip lower over time



## Sugar

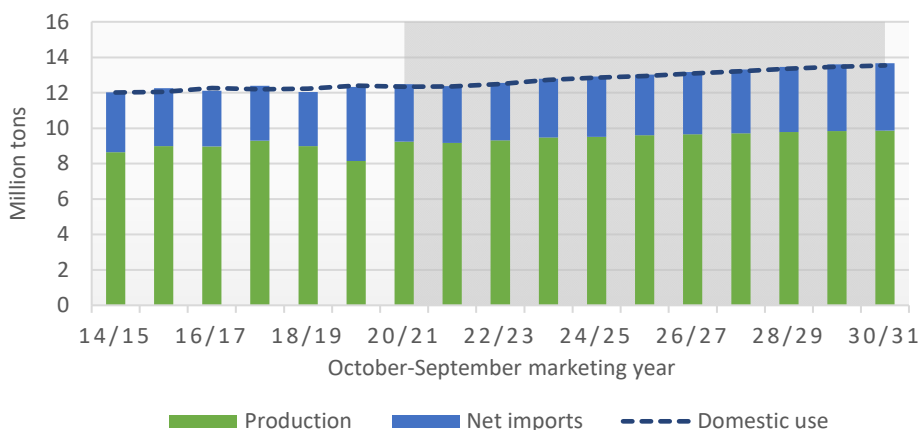
Sugar beet harvested area fell unexpectedly in 2019/20 due to poor weather, but it recovered in 2020/21 on a return to more favorable weather patterns. Both sugar beet and sugarcane acres decline slightly over the projection period.

Sugar prices return to historical spread



The short sugar beet crop in 2019/20 also led to the spread between raw and refined sugar prices rising to 16.4 cents, which was the highest it had been since 2011/12. As sugar beet acres return to more normal levels and prices fall, the spread declines back toward the level that was seen in the intervening years and remains there for the rest of the outlook.

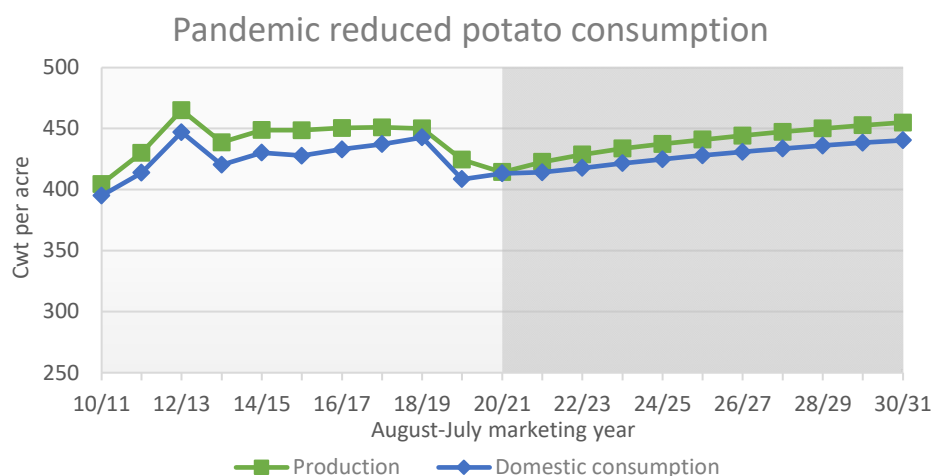
Overall U.S. sugar use tracks higher



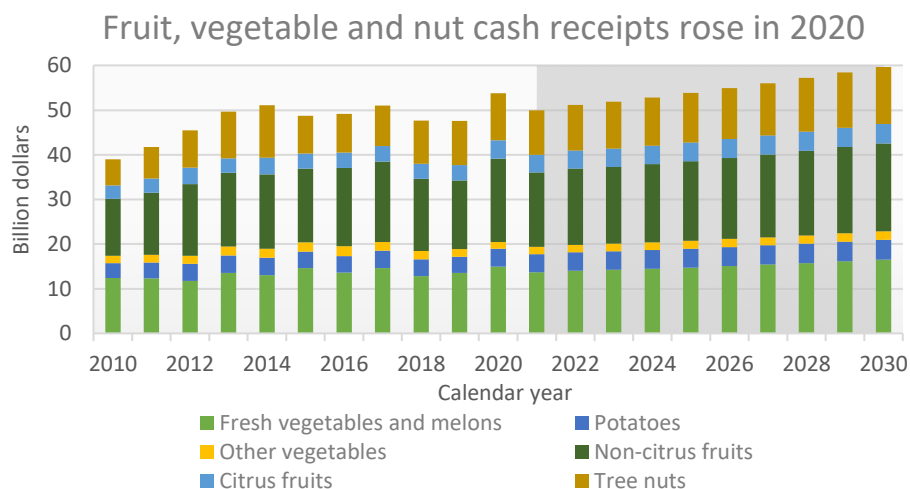
Domestic sugar use in total is projected to reach 13.7 million tons by 2030/31, though per-capita sweetener use is expected to fall over time. Additional growth in domestic sugar production helps meet that demand, but a modest expansion in sugar imports also occurs.

## Potatoes, fresh vegetables, fruits and nuts

The pandemic reduced domestic consumption of potatoes, in part because of a reduction in dining away from home. Uncertainty about the impact of the pandemic on demand caused the industry to plant 4% fewer potatoes in 2020. Pre-COVID 2020 potato planted acres were expected to expand given higher prices in 2019. Projected recovery from the pandemic could strengthen potato demand and push up prices, providing an incentive for at least a modest recovery in potato production.

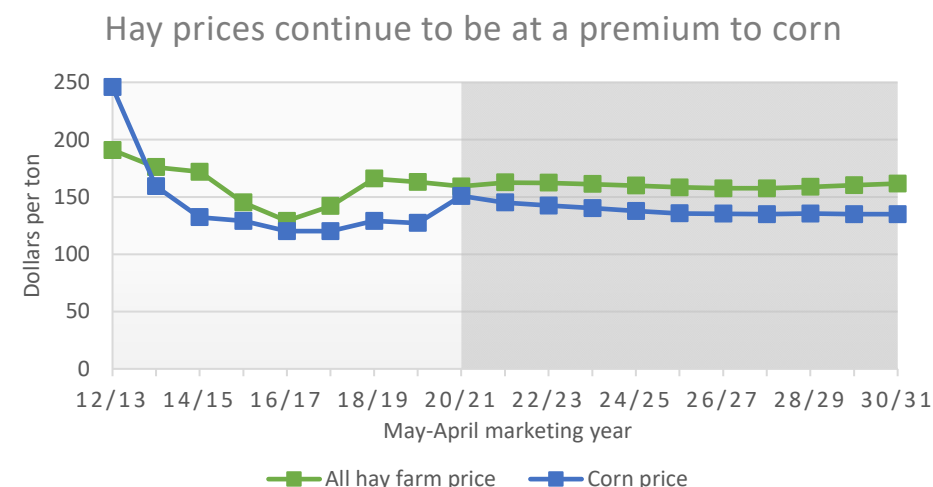


Total cash receipts for fruits, vegetables and tree nuts increased by 13% in 2020 compared to 2019. The pandemic affected both production and consumption of these products, with widely differing impacts on both supplies and prices. In 2021, projected receipts decline, but remain above the 2019 level. Receipts increase in subsequent years, and account for a growing share of total cash receipts from crop sales.



## Hay

Since 2012/13, the national all-hay price has been at a premium to the corn price when both are expressed in dollars per ton. The gap has narrowed in 2020/21, but the projections suggest a return to the more common relationship in recent years. Alfalfa prices are much higher than the all-hay price, while other hay prices are much lower.



## Upland cotton supply and use

| August-July year                  | 20/21                       | 21/22  | 22/23  | 23/24  | 24/25  | 25/26  | 26/27  | 27/28  | 28/29  | 29/30  | 30/31  |
|-----------------------------------|-----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Area</b>                       | (Million acres)             |        |        |        |        |        |        |        |        |        |        |
| Planted area                      | 11.89                       | 11.86  | 11.95  | 11.85  | 11.88  | 11.92  | 11.94  | 11.93  | 11.87  | 11.81  | 11.79  |
| Harvested area                    | 8.51                        | 9.91   | 9.99   | 9.91   | 9.94   | 9.98   | 9.99   | 9.98   | 9.93   | 9.88   | 9.86   |
| <b>Yield</b>                      | (Pounds per harvested acre) |        |        |        |        |        |        |        |        |        |        |
|                                   | 813                         | 870    | 879    | 888    | 898    | 907    | 916    | 925    | 933    | 941    | 950    |
| <b>Supply</b>                     | (Million bales)             |        |        |        |        |        |        |        |        |        |        |
| Beginning stocks                  | 6.87                        | 4.39   | 4.69   | 4.97   | 5.03   | 5.05   | 5.11   | 5.16   | 5.22   | 5.26   | 5.27   |
| Production                        | 14.40                       | 17.98  | 18.34  | 18.34  | 18.61  | 18.87  | 19.09  | 19.25  | 19.33  | 19.38  | 19.53  |
| Imports                           | 0.00                        | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   |
| <b>Use</b>                        | 16.88                       | 17.68  | 18.06  | 18.28  | 18.58  | 18.81  | 19.04  | 19.18  | 19.29  | 19.37  | 19.49  |
| Domestic mill use                 | 2.40                        | 2.58   | 2.71   | 2.79   | 2.83   | 2.85   | 2.86   | 2.88   | 2.89   | 2.90   | 2.91   |
| Exports                           | 14.48                       | 15.10  | 15.35  | 15.49  | 15.76  | 15.96  | 16.18  | 16.31  | 16.40  | 16.47  | 16.58  |
| <b>Ending stocks</b>              | 4.39                        | 4.69   | 4.97   | 5.03   | 5.05   | 5.11   | 5.16   | 5.22   | 5.26   | 5.27   | 5.31   |
| <b>Prices, program provisions</b> | (Cents per pound)           |        |        |        |        |        |        |        |        |        |        |
| Farm price                        | 68.2                        | 67.9   | 66.5   | 66.5   | 67.7   | 67.8   | 68.9   | 68.9   | 69.2   | 69.5   | 70.1   |
| Adjusted world price              | 62.9                        | 64.3   | 63.2   | 63.4   | 65.0   | 65.3   | 66.7   | 66.8   | 67.2   | 67.6   | 68.4   |
| Loan rate                         | 52.0                        | 52.0   | 52.0   | 52.0   | 51.9   | 51.9   | 51.9   | 51.9   | 51.9   | 51.9   | 52.0   |
| <b>Returns and payments</b>       | (Dollars)                   |        |        |        |        |        |        |        |        |        |        |
| Gross market revenue/a.           | 655.22                      | 691.31 | 684.45 | 688.82 | 702.89 | 709.92 | 723.18 | 731.14 | 739.15 | 748.74 | 759.94 |
| Variable expenses/a.              | 437.00                      | 451.49 | 464.19 | 475.90 | 485.90 | 495.58 | 505.39 | 515.88 | 527.57 | 540.11 | 552.98 |
| Market net return/a.              | 218.21                      | 239.82 | 220.26 | 212.92 | 216.99 | 214.34 | 217.80 | 215.26 | 211.58 | 208.64 | 206.96 |
| Marketing loan benefits/a.*       | 0.00                        | 10.58  | 10.78  | 11.59  | 9.03   | 8.40   | 7.76   | 7.55   | 5.87   | 6.36   | 5.46   |
| CFAP/a.                           | 46.03                       | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   | n.a.   |
| Insurance net indemnities/a.      | 110.93                      | 40.93  | 41.15  | 40.09  | 40.37  | 42.16  | 43.16  | 44.48  | 45.04  | 45.79  | 46.62  |

\* Marketing loan benefits, CFAP and insurance net indemnities are averaged across all acres.

All projections are averages across 500 stochastic outcomes.

## Seed cotton indicators

| August-July year                | 20/21                   | 21/22 | 22/23 | 23/24 | 24/25 | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 |
|---------------------------------|-------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                 | (Cents per pound)       |       |       |       |       |       |       |       |       |       |       |
| Marketing year average price    | 34.65                   | 34.10 | 33.47 | 33.46 | 33.86 | 33.88 | 34.29 | 34.37 | 34.50 | 34.71 | 34.99 |
| Reference price                 | 36.70                   | 36.70 | 36.70 | 36.70 | 36.70 | 36.70 | 36.70 | 36.70 | 36.70 | 36.70 | 36.70 |
|                                 | (Million acres)         |       |       |       |       |       |       |       |       |       |       |
| Base area                       | 12.96                   | 12.95 | 12.95 | 12.94 | 12.94 | 12.94 | 12.94 | 12.94 | 12.94 | 12.94 | 12.94 |
|                                 | (Pounds per acre)       |       |       |       |       |       |       |       |       |       |       |
| PLC program yield               | 1,609                   | 1,604 | 1,605 | 1,606 | 1,606 | 1,605 | 1,604 | 1,604 | 1,604 | 1,604 | 1,604 |
|                                 | (Percent of base acres) |       |       |       |       |       |       |       |       |       |       |
| PLC participation rate          | 99.1                    | 98.8  | 98.5  | 98.5  | 98.5  | 98.5  | 98.5  | 98.3  | 98.3  | 98.3  | 98.3  |
| ARC participation rate          | 0.9                     | 1.2   | 1.5   | 1.5   | 1.5   | 1.5   | 1.5   | 1.7   | 1.7   | 1.7   | 1.7   |
| <b>Payments to participants</b> | (Dollars)               |       |       |       |       |       |       |       |       |       |       |
| PLC/base a.*                    | 26.10                   | 42.18 | 49.00 | 49.56 | 46.96 | 45.24 | 43.46 | 42.51 | 41.09 | 38.48 | 37.26 |
| ARC/base a.*                    | 31.69                   | 21.04 | 17.44 | 13.15 | 12.01 | 14.09 | 16.21 | 17.98 | 17.91 | 17.74 | 17.85 |

All projections are averages across 500 stochastic outcomes.

## Sugar supply and use

| October-September year | 20/21                     | 21/22  | 22/23  | 23/24  | 24/25  | 25/26  | 26/27  | 27/28  | 28/29  | 29/30  | 30/31  |
|------------------------|---------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Area</b>            | (Million acres)           |        |        |        |        |        |        |        |        |        |        |
| Sugar cane harvested   | 0.897                     | 0.866  | 0.872  | 0.876  | 0.872  | 0.867  | 0.861  | 0.854  | 0.847  | 0.839  | 0.830  |
| Sugar beet planted     | 1.162                     | 1.102  | 1.098  | 1.100  | 1.083  | 1.076  | 1.068  | 1.058  | 1.052  | 1.043  | 1.032  |
| Sugar beet harvested   | 1.142                     | 1.082  | 1.078  | 1.080  | 1.064  | 1.056  | 1.049  | 1.039  | 1.033  | 1.024  | 1.013  |
| <b>Yield</b>           | (Tons per harvested acre) |        |        |        |        |        |        |        |        |        |        |
| Cane sugar             | 4.73                      | 4.67   | 4.72   | 4.78   | 4.84   | 4.90   | 4.96   | 5.01   | 5.07   | 5.12   | 5.18   |
| Beet sugar             | 4.37                      | 4.74   | 4.82   | 4.89   | 4.98   | 5.06   | 5.15   | 5.23   | 5.32   | 5.41   | 5.50   |
| <b>Supply and use</b>  | (Thousand tons)           |        |        |        |        |        |        |        |        |        |        |
| Production             | 9,237                     | 9,178  | 9,317  | 9,470  | 9,514  | 9,592  | 9,663  | 9,714  | 9,787  | 9,834  | 9,869  |
| Cane sugar             | 4,240                     | 4,045  | 4,120  | 4,184  | 4,220  | 4,244  | 4,266  | 4,278  | 4,294  | 4,295  | 4,295  |
| Beet sugar             | 4,997                     | 5,133  | 5,196  | 5,286  | 5,294  | 5,347  | 5,397  | 5,436  | 5,493  | 5,539  | 5,575  |
| Imports                | 3,309                     | 3,283  | 3,324  | 3,403  | 3,479  | 3,518  | 3,591  | 3,679  | 3,756  | 3,848  | 3,893  |
| Domestic use           | 12,344                    | 12,397 | 12,539 | 12,778 | 12,908 | 13,021 | 13,170 | 13,303 | 13,452 | 13,591 | 13,674 |
| Exports                | 52                        | 75     | 73     | 73     | 78     | 77     | 79     | 81     | 82     | 85     | 84     |
| Ending stocks          | 1,769                     | 1,759  | 1,788  | 1,809  | 1,817  | 1,829  | 1,833  | 1,842  | 1,851  | 1,858  | 1,862  |
| <b>Prices</b>          | (Cents per pound)         |        |        |        |        |        |        |        |        |        |        |
| N.Y. spot raw sugar    | 25.00                     | 26.68  | 26.94  | 26.57  | 25.89  | 25.81  | 25.46  | 25.38  | 25.24  | 25.03  | 24.80  |
| Refined beet sugar     | 32.97                     | 34.14  | 34.56  | 34.20  | 33.48  | 33.46  | 33.16  | 33.16  | 33.08  | 32.93  | 32.77  |

All projections are averages across 500 stochastic outcomes.



## Potato supply and use

| August-July year       | 20/21                              | 21/22 | 22/23 | 23/24 | 24/25 | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 |
|------------------------|------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Area</b>            | (Thousand acres)                   |       |       |       |       |       |       |       |       |       |       |
| Planted area           | 921                                | 933   | 937   | 938   | 937   | 935   | 932   | 929   | 926   | 922   | 918   |
| Harvested area         | 914                                | 924   | 928   | 929   | 927   | 925   | 923   | 920   | 917   | 913   | 909   |
| <b>Yield</b>           | (Hundredweight per harvested acre) |       |       |       |       |       |       |       |       |       |       |
|                        | 453                                | 457   | 462   | 467   | 472   | 476   | 481   | 486   | 491   | 496   | 500   |
| <b>Supply and use</b>  | (Million hundredweight)            |       |       |       |       |       |       |       |       |       |       |
| Production             | 414                                | 423   | 429   | 434   | 437   | 441   | 444   | 447   | 450   | 453   | 455   |
| Imports                | 69                                 | 66    | 65    | 66    | 66    | 67    | 68    | 69    | 70    | 71    | 71    |
| Domestic disappearance | 413                                | 414   | 418   | 422   | 425   | 428   | 431   | 434   | 436   | 438   | 440   |
| Exports                | 70                                 | 74    | 76    | 78    | 79    | 80    | 82    | 83    | 84    | 85    | 86    |
| <b>Farm price</b>      | (Dollars per hundredweight)        |       |       |       |       |       |       |       |       |       |       |
|                        | 9.68                               | 9.95  | 9.82  | 9.80  | 9.80  | 9.82  | 9.84  | 9.88  | 9.92  | 9.95  | 10.02 |

All projections are averages across 500 stochastic outcomes.

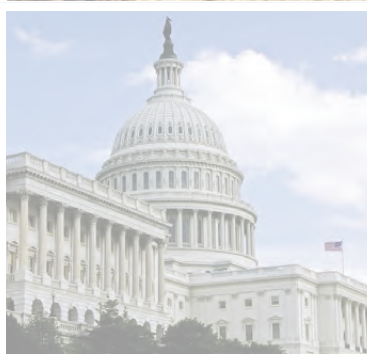
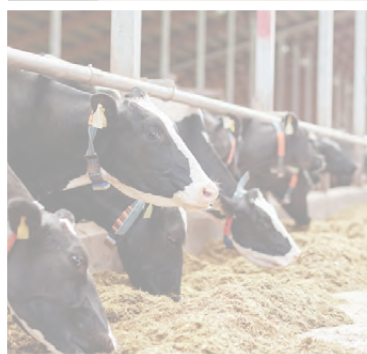
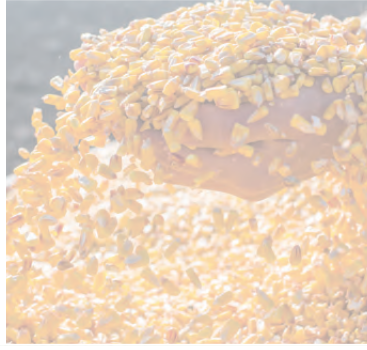
## Fruit and vegetable prices and cash receipts

| Calendar year                  | 2020                    | 2021   | 2022   | 2023   | 2024   | 2025   | 2026   | 2027   | 2028   | 2029   | 2030   |
|--------------------------------|-------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Producer price indices</b>  | (Price index, 1982=100) |        |        |        |        |        |        |        |        |        |        |
| Fresh vegetables               | 266.5                   | 251.7  | 261.4  | 264.9  | 269.5  | 274.3  | 279.1  | 283.9  | 288.8  | 293.8  | 298.6  |
| Non-citrus fruits              | 119.1                   | 115.6  | 117.7  | 116.8  | 117.3  | 118.0  | 118.7  | 119.4  | 120.3  | 121.2  | 121.9  |
| Citrus fruits                  | 299.4                   | 283.8  | 295.3  | 300.3  | 305.5  | 310.6  | 315.6  | 321.0  | 326.3  | 331.6  | 337.4  |
| <b>Tree nut producer price</b> | (Cents per pound)       |        |        |        |        |        |        |        |        |        |        |
|                                | 265.6                   | 258.7  | 261.0  | 263.8  | 267.5  | 271.5  | 275.6  | 279.7  | 284.0  | 288.4  | 292.8  |
| <b>Cash receipts</b>           | (Million dollars)       |        |        |        |        |        |        |        |        |        |        |
| Vegetables and melons          | 20,436                  | 19,410 | 19,805 | 20,077 | 20,395 | 20,756 | 21,144 | 21,551 | 21,983 | 22,431 | 22,878 |
| Fresh vegetables and melons    | 14,970                  | 13,722 | 14,056 | 14,246 | 14,500 | 14,790 | 15,105 | 15,437 | 15,789 | 16,156 | 16,518 |
| Potatoes                       | 4,020                   | 4,030  | 4,099  | 4,124  | 4,161  | 4,201  | 4,242  | 4,286  | 4,329  | 4,371  | 4,418  |
| Other vegetables               | 1,446                   | 1,659  | 1,650  | 1,706  | 1,735  | 1,766  | 1,797  | 1,829  | 1,865  | 1,903  | 1,941  |
| Fruits and nuts                | 33,394                  | 30,529 | 31,395 | 31,808 | 32,427 | 33,097 | 33,789 | 34,506 | 35,261 | 36,038 | 36,802 |
| Non-citrus fruits              | 18,700                  | 16,655 | 17,122 | 17,225 | 17,504 | 17,825 | 18,163 | 18,521 | 18,911 | 19,316 | 19,698 |
| Citrus fruits                  | 4,154                   | 3,921  | 4,065  | 4,111  | 4,153  | 4,189  | 4,220  | 4,249  | 4,274  | 4,296  | 4,319  |
| Tree nuts                      | 10,541                  | 9,953  | 10,208 | 10,472 | 10,770 | 11,083 | 11,407 | 11,736 | 12,076 | 12,426 | 12,785 |

## Hay supply and use

| May-April year            | 20/21  | 21/22  | 22/23  | 23/24  | 24/25             | 25/26  | 26/27  | 27/28  | 28/29  | 29/30  | 30/31  |
|---------------------------|--------|--------|--------|--------|-------------------|--------|--------|--------|--------|--------|--------|
|                           |        |        |        |        | (Million acres)   |        |        |        |        |        |        |
| <b>Harvested area</b>     | 52.2   | 51.9   | 52.0   | 52.0   | 52.0              | 51.9   | 51.9   | 51.8   | 51.8   | 51.9   | 52.0   |
|                           |        |        |        |        | (Tons per acre)   |        |        |        |        |        |        |
| <b>Yield</b>              | 2.43   | 2.42   | 2.43   | 2.43   | 2.44              | 2.44   | 2.45   | 2.46   | 2.46   | 2.47   | 2.47   |
|                           |        |        |        |        | (Million tons)    |        |        |        |        |        |        |
| <b>Supply and use</b>     |        |        |        |        |                   |        |        |        |        |        |        |
| Production                | 126.8  | 125.5  | 126.2  | 126.4  | 126.7             | 126.9  | 127.2  | 127.4  | 127.7  | 128.0  | 128.4  |
| Domestic disappearance    | 121.5  | 121.1  | 121.0  | 121.1  | 121.2             | 121.3  | 121.5  | 121.7  | 122.1  | 122.4  | 122.8  |
| Net exports               | 4.9    | 4.9    | 5.0    | 5.0    | 5.1               | 5.2    | 5.3    | 5.3    | 5.4    | 5.4    | 5.5    |
| Ending stocks             | 20.9   | 20.4   | 20.6   | 20.9   | 21.3              | 21.7   | 22.1   | 22.4   | 22.5   | 22.7   | 22.8   |
|                           |        |        |        |        | (Dollars per ton) |        |        |        |        |        |        |
| <b>All hay farm price</b> | 159.10 | 162.69 | 162.36 | 161.28 | 159.81            | 158.38 | 157.54 | 157.51 | 158.78 | 160.29 | 161.64 |

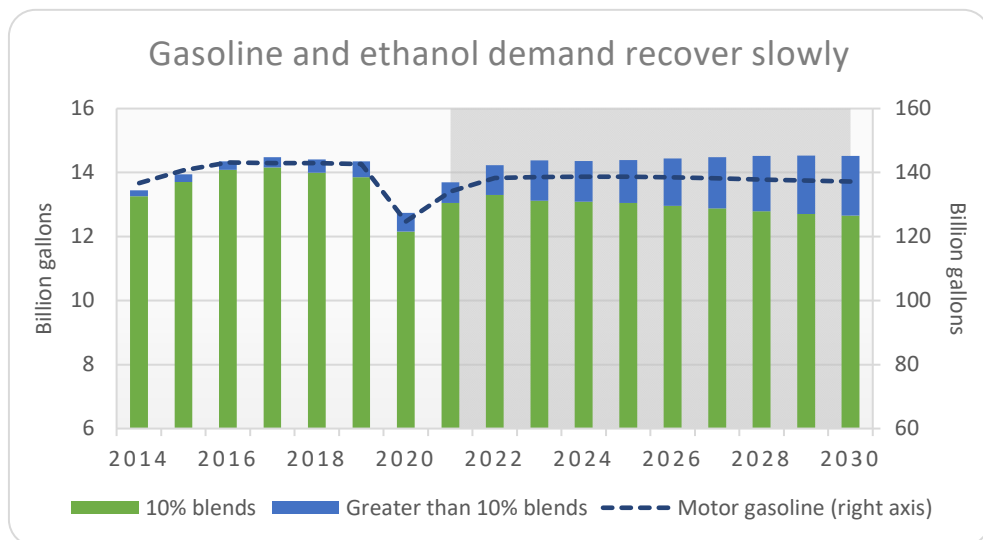
All projections are averages across 500 stochastic outcomes.



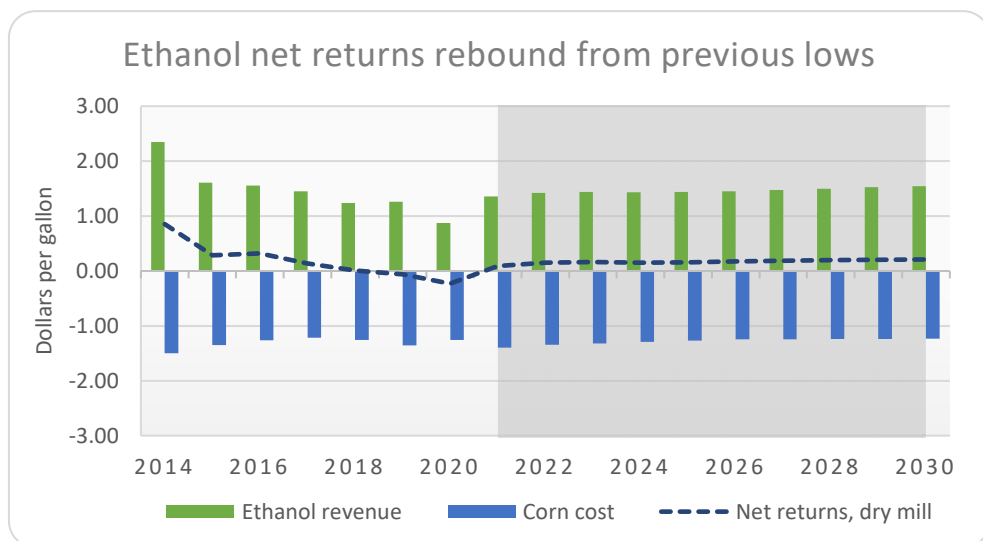
# Biofuels

## Ethanol

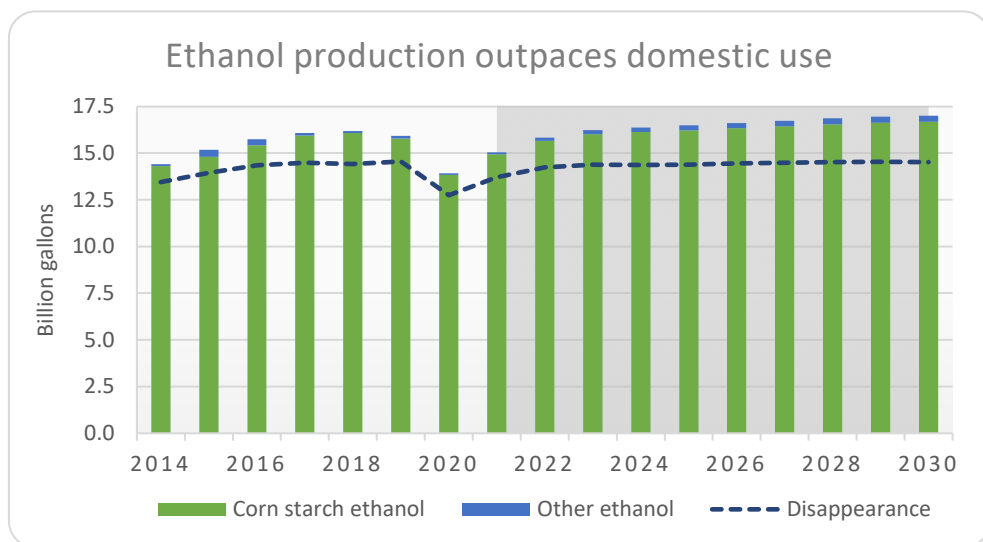
Motor fuel demand in 2020 was battered by the effects of the COVID-19 pandemic, but some recovery is expected in 2021 as those effects subside. While gasoline use does not reach pre-pandemic levels in the projection period, expansion in mid-level ethanol blends such as E15 lead to slow but steady growth in domestic ethanol use.



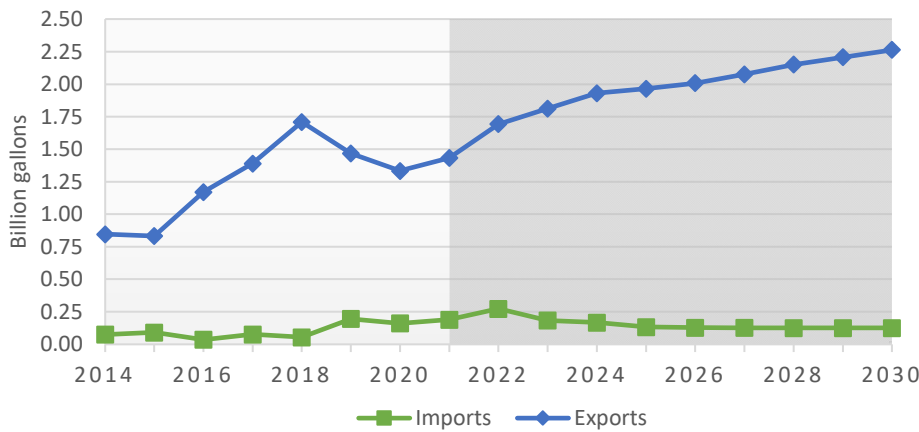
A rebound in ethanol demand and the subsequent rise in rack prices more than offsets the higher outlook for feedstock (i.e., corn) costs. This leads to a recovery in ethanol net returns, which are projected to rise from \$0.09/gallon in 2021 to \$0.21/gallon in 2030.



In addition to a recovery in domestic fuel demand, rising export demand for ethanol drives production to levels higher than what was seen prior to the pandemic. Production levels are projected to reach 16.7 billion gallons by 2030.

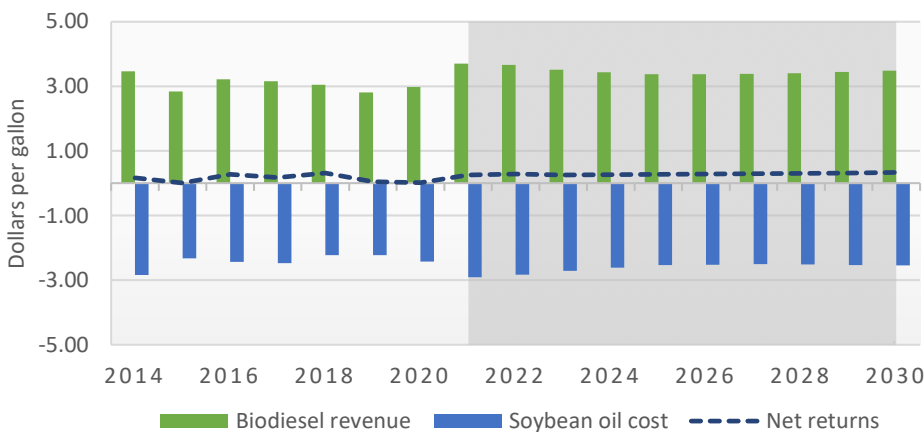


### Ethanol exports follow crude oil prices higher



Ethanol exports are projected to have only a slight recovery in 2021 before returning in 2022 to the 2018 record level of 1.7 billion gallons. Then, as petroleum prices and global incomes rise, ethanol demand is expected to pick up and push exports to over 2.25 billion gallons by 2030. Ethanol imports remain low as the RFS requirements for advanced biofuels are expected to be met primarily with additional biomass-based diesel.

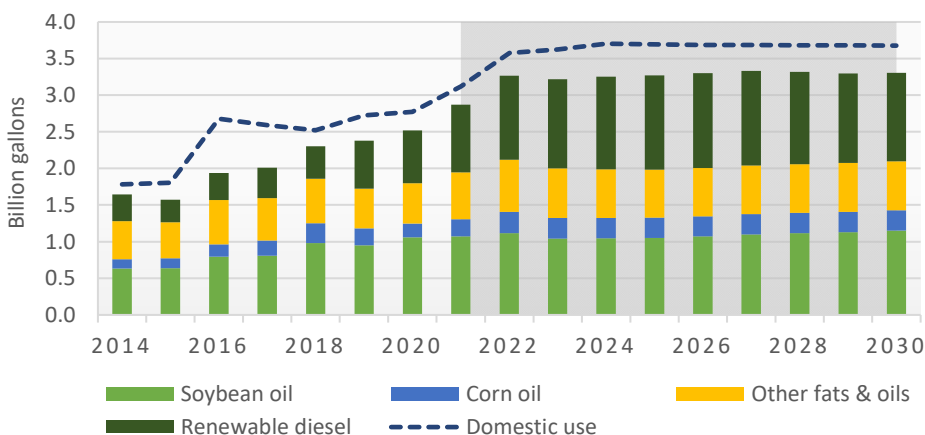
### Biodiesel net returns recover quickly



### Biomass-based diesel

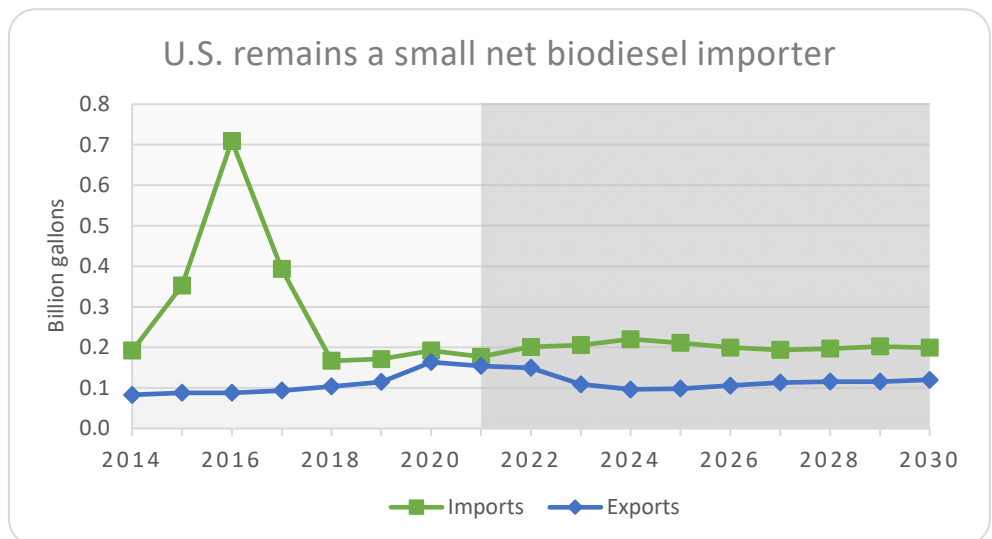
The continuing biodiesel blenders credit, in addition to increasing RFS requirements for biomass-based diesel beyond 2021, lead to a quick recovery in biodiesel net returns similar to what was seen in 2015-16. From there, moderating feedstock costs lead to a rise in nominal net returns.

### Biodiesel production plateaus after 2026



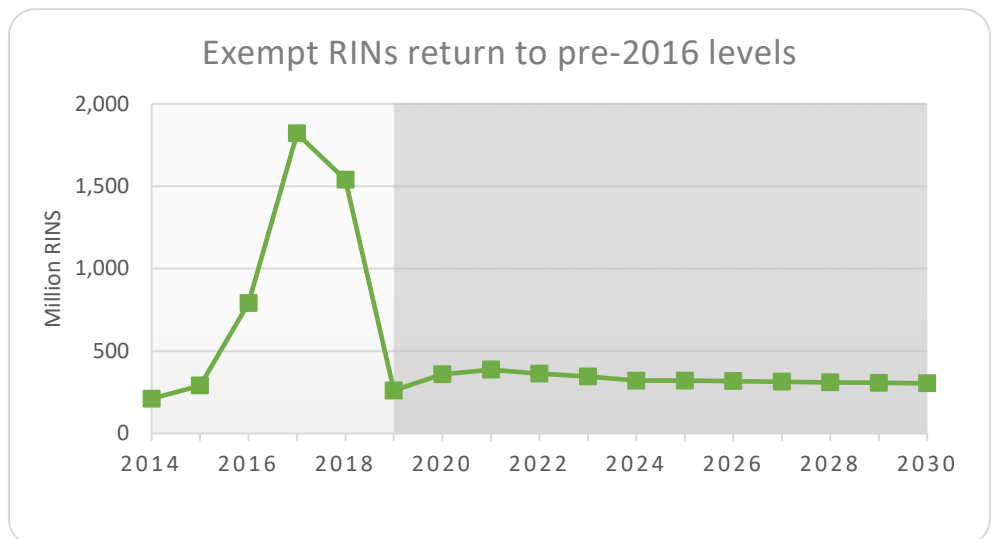
Unlike ethanol, biomass-based diesel production increased slightly in 2020 despite the pandemic. This growth is expected to continue with production exceeding 3 billion gallons in 2022 and topping out at over 3.3 billion gallons by 2026. Methyl-ester derived from soybean oil and renewable diesel each make up about 35% of total domestic biodiesel production over the projection period. Methyl-ester from corn oil and other fats and oils makes up the remaining share with little expansion expected to occur.

Biomass-based diesel imports are projected to average 201 million gallons, which is similar to the level seen in 2014 before the surge in imports from Argentina occurred. Biodiesel exports increased slightly even in to 2020, but they are expected to decline to average of 118 million gallons going forward.

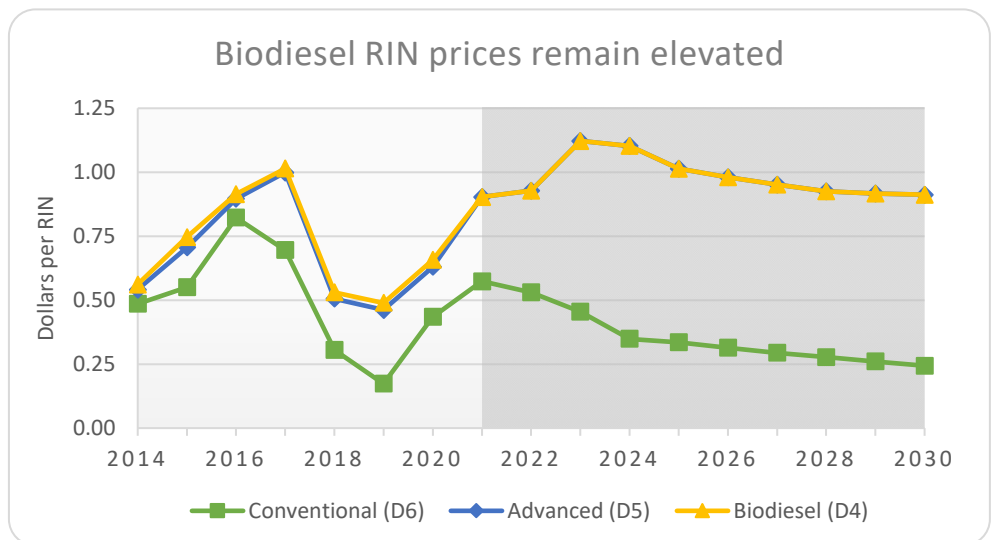


## Renewable Fuel Standard

Small-refinery exemptions are not yet finalized for 2019 or 2020, but this outlook assumes the number of renewable identification numbers (RINs) exempted will return to levels seen prior to 2016-18. This is a key uncertainty as this issue is still being litigated.



RIN prices tumbled in 2018-19 as details regarding small-refinery exemptions emerged along with discussions of potential policy changes. In the wake of the 10th Circuit court ruling in 2020, RIN prices reversed that trend and are projected to continue to rise in the near term. In the time since these projections were produced, RIN prices have seen steady increases and now exceed the near-term projections by a wide margin in the case of D6 RINs. These markets are volatile and these projections could look quite different in the next outlook update.





## Ethanol supply and use

| Calendar year                 | 2020                 | 2021    | 2022    | 2023    | 2024    | 2025    | 2026    | 2027    | 2028    | 2029    | 2030    |
|-------------------------------|----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| <b>Petroleum fuel prices</b>  |                      |         |         |         |         |         |         |         |         |         |         |
|                               | (Dollars per barrel) |         |         |         |         |         |         |         |         |         |         |
| Petroleum, W. Texas Interm.   | 39.24                | 45.53   | 52.34   | 54.24   | 56.02   | 59.25   | 64.15   | 69.28   | 73.24   | 76.00   | 78.09   |
| Petroleum, refiners' acquis.  | 37.41                | 38.96   | 49.09   | 55.13   | 56.56   | 59.10   | 62.98   | 66.77   | 70.47   | 73.11   | 75.05   |
|                               | (Dollars per gallon) |         |         |         |         |         |         |         |         |         |         |
| Unl. gasoline, FOB Omaha      | 1.30                 | 1.46    | 1.72    | 1.88    | 1.92    | 1.99    | 2.09    | 2.19    | 2.29    | 2.36    | 2.41    |
| Unleaded gasoline, retail     | 2.17                 | 2.15    | 2.41    | 2.57    | 2.60    | 2.67    | 2.77    | 2.88    | 2.98    | 3.05    | 3.11    |
|                               | (Million gallons)    |         |         |         |         |         |         |         |         |         |         |
| <b>Motor gasoline use*</b>    | 124,750              | 134,076 | 138,288 | 138,642 | 138,712 | 138,665 | 138,507 | 138,225 | 137,852 | 137,506 | 137,239 |
| <b>Ethanol supply and use</b> |                      |         |         |         |         |         |         |         |         |         |         |
| Production                    | 13,825               | 14,929  | 15,652  | 16,013  | 16,131  | 16,224  | 16,326  | 16,438  | 16,546  | 16,617  | 16,667  |
| From corn                     | 13,735               | 14,799  | 15,468  | 15,787  | 15,876  | 15,947  | 16,031  | 16,126  | 16,219  | 16,274  | 16,310  |
| Other conventional            | 88                   | 117     | 170     | 211     | 240     | 261     | 278     | 294     | 309     | 323     | 338     |
| Cellulosic                    | 2                    | 13      | 14      | 15      | 16      | 16      | 17      | 18      | 19      | 19      | 20      |
| Imports                       | 161                  | 190     | 273     | 183     | 167     | 132     | 128     | 127     | 125     | 125     | 125     |
| Domestic disappearance        | 12,741               | 13,695  | 14,235  | 14,383  | 14,366  | 14,389  | 14,444  | 14,485  | 14,518  | 14,530  | 14,524  |
| Exports                       | 1,333                | 1,432   | 1,693   | 1,812   | 1,930   | 1,966   | 2,009   | 2,076   | 2,150   | 2,208   | 2,265   |
| Ending stocks                 | 850                  | 842     | 840     | 840     | 842     | 844     | 846     | 849     | 852     | 856     | 860     |
|                               | (Dollars per gallon) |         |         |         |         |         |         |         |         |         |         |
| <b>Ethanol prices</b>         | (Dollars per gallon) |         |         |         |         |         |         |         |         |         |         |
| Conventional rack, Omaha      | 0.87                 | 1.35    | 1.42    | 1.44    | 1.43    | 1.44    | 1.45    | 1.47    | 1.50    | 1.52    | 1.54    |
| Other advanced rack           | 1.07                 | 1.68    | 1.82    | 2.11    | 2.19    | 2.12    | 2.11    | 2.13    | 2.14    | 2.18    | 2.21    |
| Effective retail              | 1.30                 | 1.47    | 1.58    | 1.67    | 1.77    | 1.78    | 1.82    | 1.86    | 1.91    | 1.95    | 1.99    |
| Ethanol/gasoline retail       | 60%                  | 69%     | 66%     | 65%     | 68%     | 67%     | 66%     | 65%     | 64%     | 64%     | 64%     |
| <b>RIN values</b>             |                      |         |         |         |         |         |         |         |         |         |         |
| Conventional ethanol          | 0.43                 | 0.57    | 0.53    | 0.45    | 0.35    | 0.34    | 0.31    | 0.29    | 0.28    | 0.26    | 0.24    |
| Advanced ethanol              | 0.63                 | 0.90    | 0.93    | 1.12    | 1.10    | 1.01    | 0.98    | 0.95    | 0.93    | 0.92    | 0.91    |

\* Includes fuel ethanol

All projections are averages across 500 stochastic outcomes.

## Renewable Fuel Standard

| Calendar year              | 2020              | 2021   | 2022   | 2023   | 2024   | 2025   | 2026   | 2027   | 2028   | 2029   | 2030   |
|----------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Applicable standard</b> |                   |        |        |        |        |        |        |        |        |        |        |
| Overall                    | 11.56%            | 11.81% | 12.06% | 12.31% | 12.56% | 12.81% | 13.06% | 13.31% | 13.56% | 13.81% | 14.06% |
| Advanced biofuels          | 2.93%             | 2.94%  | 3.19%  | 3.21%  | 3.23%  | 3.25%  | 3.27%  | 3.29%  | 3.31%  | 3.33%  | 3.35%  |
| Cellulosic biofuel         | 0.34%             | 0.35%  | 0.37%  | 0.38%  | 0.39%  | 0.40%  | 0.42%  | 0.43%  | 0.44%  | 0.45%  | 0.47%  |
| Biomass-based diesel       | 2.10%             | 2.10%  | 2.12%  | 2.14%  | 2.16%  | 2.18%  | 2.20%  | 2.22%  | 2.24%  | 2.26%  | 2.28%  |
| <b>Required volume</b>     |                   |        |        |        |        |        |        |        |        |        |        |
|                            | (Million gallons) |        |        |        |        |        |        |        |        |        |        |
| Overall                    | 18,887            | 19,740 | 20,310 | 20,356 | 20,421 | 20,449 | 20,478 | 20,504 | 20,530 | 20,561 | 20,597 |
| Advanced biofuels          | 4,787             | 5,126  | 5,683  | 5,706  | 5,738  | 5,764  | 5,786  | 5,808  | 5,829  | 5,856  | 5,887  |
| Cellulosic biofuel         | 458               | 472    | 475    | 478    | 481    | 484    | 487    | 490    | 493    | 497    | 500    |
| Biomass-based diesel       | 3,431             | 3,658  | 3,774  | 3,801  | 3,834  | 3,863  | 3,890  | 3,916  | 3,942  | 3,971  | 4,004  |
| Gaps: Conventional         | 14,100            | 14,614 | 14,627 | 14,650 | 14,682 | 14,686 | 14,691 | 14,697 | 14,701 | 14,705 | 14,710 |
| Advanced                   | 898               | 996    | 1,434  | 1,427  | 1,423  | 1,416  | 1,409  | 1,401  | 1,394  | 1,388  | 1,384  |

All projections are averages across 500 stochastic outcomes.

## Biomass-based diesel sector

| Calendar year                                          | 2020  | 2021  | 2022  | 2023  | 2024  | 2025  | 2026  | 2027  | 2028  | 2029  | 2030  |
|--------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Biomass-based diesel supply</b> (Million gallons)   |       |       |       |       |       |       |       |       |       |       |       |
| Production                                             | 2,518 | 2,872 | 3,264 | 3,217 | 3,251 | 3,271 | 3,302 | 3,329 | 3,317 | 3,296 | 3,306 |
| From soybean oil                                       | 1,060 | 1,072 | 1,117 | 1,044 | 1,048 | 1,051 | 1,070 | 1,099 | 1,116 | 1,129 | 1,150 |
| From corn oil                                          | 187   | 236   | 291   | 279   | 277   | 276   | 276   | 278   | 278   | 278   | 277   |
| From other fats and oils                               | 553   | 638   | 713   | 677   | 666   | 659   | 659   | 663   | 665   | 668   | 672   |
| From cellulosic diesel                                 | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
| Renewable diesel                                       | 718   | 926   | 1,143 | 1,217 | 1,261 | 1,285 | 1,296 | 1,290 | 1,258 | 1,222 | 1,206 |
| Net imports                                            | 269   | 259   | 320   | 409   | 451   | 424   | 385   | 357   | 365   | 383   | 371   |
| <b>Biomass-based diesel use</b>                        |       |       |       |       |       |       |       |       |       |       |       |
| Domestic disappearance                                 | 2,772 | 3,121 | 3,577 | 3,622 | 3,700 | 3,693 | 3,686 | 3,685 | 3,681 | 3,679 | 3,676 |
| Ending stocks                                          | 180   | 190   | 198   | 201   | 203   | 205   | 205   | 206   | 206   | 206   | 206   |
| <b>Fuel prices and tax credit</b> (Dollars per gallon) |       |       |       |       |       |       |       |       |       |       |       |
| Biodiesel, rack                                        | 2.98  | 3.71  | 3.66  | 3.51  | 3.44  | 3.38  | 3.38  | 3.39  | 3.41  | 3.44  | 3.48  |
| #2 Diesel, refiner sales                               | 1.26  | 1.39  | 1.66  | 1.81  | 1.86  | 1.92  | 2.03  | 2.12  | 2.22  | 2.29  | 2.35  |
| #2 Diesel, retail                                      | 2.56  | 2.49  | 2.77  | 2.95  | 2.99  | 3.06  | 3.16  | 3.26  | 3.36  | 3.43  | 3.49  |
| Biodiesel tax credit                                   | 1.00  | 1.00  | 1.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| <b>RIN values</b>                                      |       |       |       |       |       |       |       |       |       |       |       |
| Per RIN gallon                                         | 0.66  | 0.90  | 0.93  | 1.12  | 1.10  | 1.01  | 0.98  | 0.95  | 0.93  | 0.92  | 0.91  |
| Per physical gallon                                    | 0.99  | 1.35  | 1.39  | 1.68  | 1.65  | 1.52  | 1.47  | 1.43  | 1.39  | 1.37  | 1.37  |

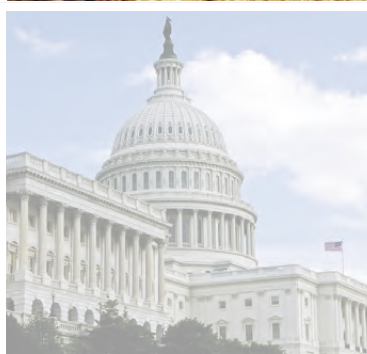
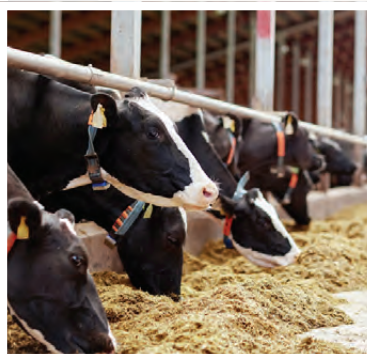
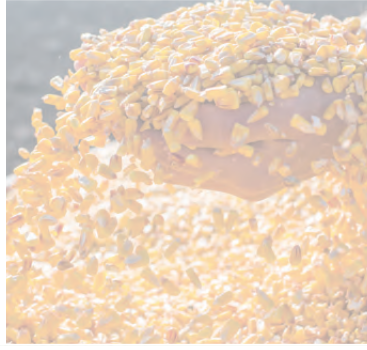
All projections are averages across 500 stochastic outcomes.

## Biofuel plant returns

| Calendar year                                               | 2020  | 2021  | 2022  | 2023  | 2024  | 2025  | 2026  | 2027  | 2028  | 2029  | 2030  |
|-------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Biodiesel costs and returns</b> (Dollars per gallon)     |       |       |       |       |       |       |       |       |       |       |       |
| Biodiesel value                                             | 2.98  | 3.71  | 3.66  | 3.51  | 3.44  | 3.38  | 3.38  | 3.39  | 3.41  | 3.44  | 3.48  |
| Glycerin value                                              | 0.06  | 0.06  | 0.06  | 0.06  | 0.06  | 0.06  | 0.06  | 0.06  | 0.06  | 0.06  | 0.06  |
| Soyoil cost                                                 | -2.43 | -2.91 | -2.83 | -2.71 | -2.61 | -2.54 | -2.52 | -2.51 | -2.51 | -2.53 | -2.55 |
| Other operating costs                                       | -0.60 | -0.61 | -0.61 | -0.62 | -0.62 | -0.63 | -0.64 | -0.64 | -0.65 | -0.66 | -0.67 |
| Net operating return                                        | 0.01  | 0.26  | 0.28  | 0.25  | 0.26  | 0.27  | 0.28  | 0.30  | 0.31  | 0.32  | 0.33  |
| <b>Corn milling for ethanol</b> (Million gallons)           |       |       |       |       |       |       |       |       |       |       |       |
| Corn wet milled for ethanol                                 | 502   | 520   | 539   | 549   | 552   | 553   | 555   | 557   | 559   | 560   | 562   |
| Corn dry milled for ethanol                                 | 4,254 | 4,572 | 4,785 | 4,881 | 4,901 | 4,916 | 4,935 | 4,958 | 4,979 | 4,988 | 4,990 |
| (Share de-oiling DDGS)                                      | 89%   | 89%   | 90%   | 90%   | 91%   | 91%   | 91%   | 91%   | 91%   | 91%   | 91%   |
| <b>Dry mill ethanol costs, returns</b> (Dollars per gallon) |       |       |       |       |       |       |       |       |       |       |       |
| Ethanol value                                               | 0.87  | 1.35  | 1.42  | 1.44  | 1.43  | 1.44  | 1.45  | 1.47  | 1.50  | 1.52  | 1.54  |
| Distillers grains value                                     | 0.54  | 0.53  | 0.48  | 0.48  | 0.47  | 0.46  | 0.45  | 0.45  | 0.45  | 0.45  | 0.45  |
| Corn oil value*                                             | 0.08  | 0.10  | 0.10  | 0.09  | 0.08  | 0.08  | 0.08  | 0.07  | 0.07  | 0.07  | 0.06  |
| Corn cost                                                   | -1.26 | -1.39 | -1.34 | -1.32 | -1.29 | -1.27 | -1.25 | -1.24 | -1.24 | -1.24 | -1.23 |
| Fuel and electricity cost                                   | -0.07 | -0.11 | -0.11 | -0.12 | -0.13 | -0.14 | -0.14 | -0.15 | -0.15 | -0.17 | -0.18 |
| Other operating costs                                       | -0.39 | -0.39 | -0.40 | -0.40 | -0.41 | -0.41 | -0.41 | -0.42 | -0.42 | -0.43 | -0.43 |
| Net operating return                                        | -0.23 | 0.09  | 0.15  | 0.16  | 0.15  | 0.16  | 0.17  | 0.19  | 0.20  | 0.20  | 0.21  |

\* Weighted by share of dry mills de-oiling DDGS

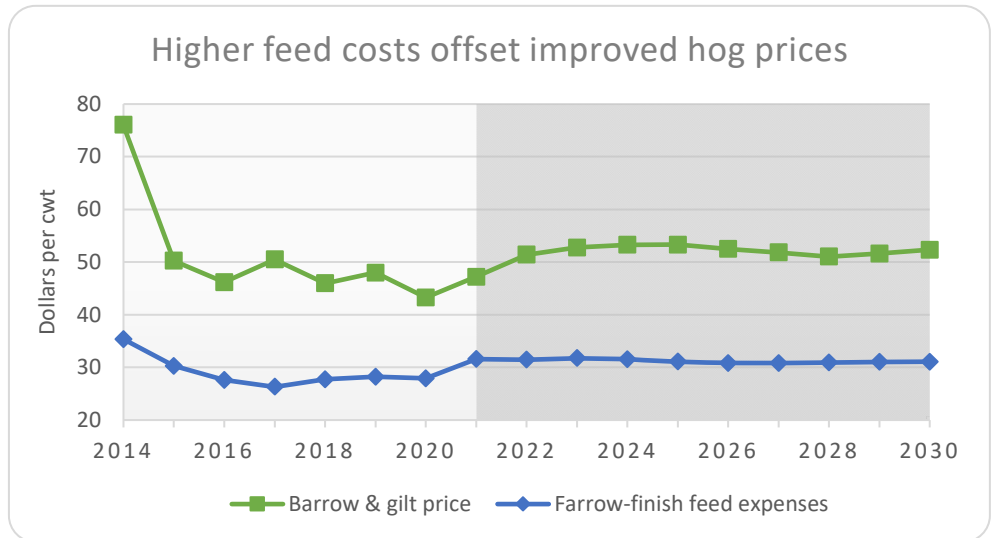
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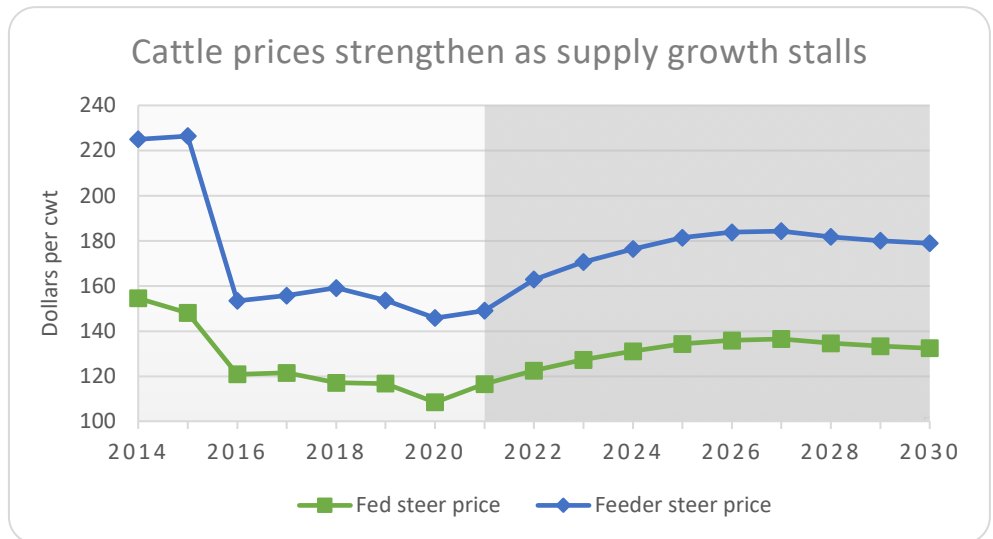
# Livestock & dairy

## Cattle and hogs

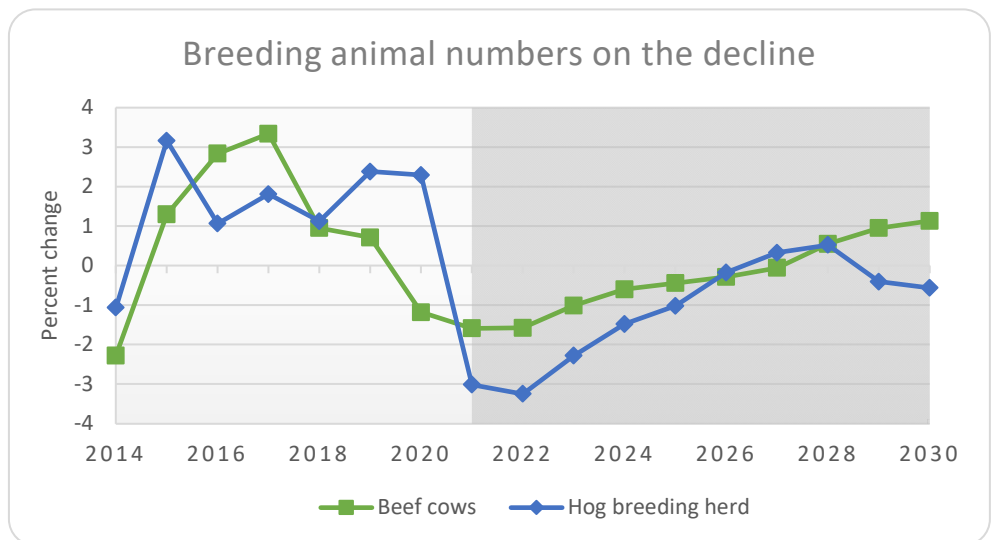
Hog prices are projected to increase in 2021 and 2022 as pork supply growth slows. Uncertainty remains high regarding the speed and extent to which China recovers from the ASF outbreak and this leaves a wide possible range for U.S. pork export and hog price projections. Higher feed costs will pressure profitability even as hog prices rise. Farrow-finish profitability this year will be similar to 2020, with a better financial outlook expected for hog production in 2022.



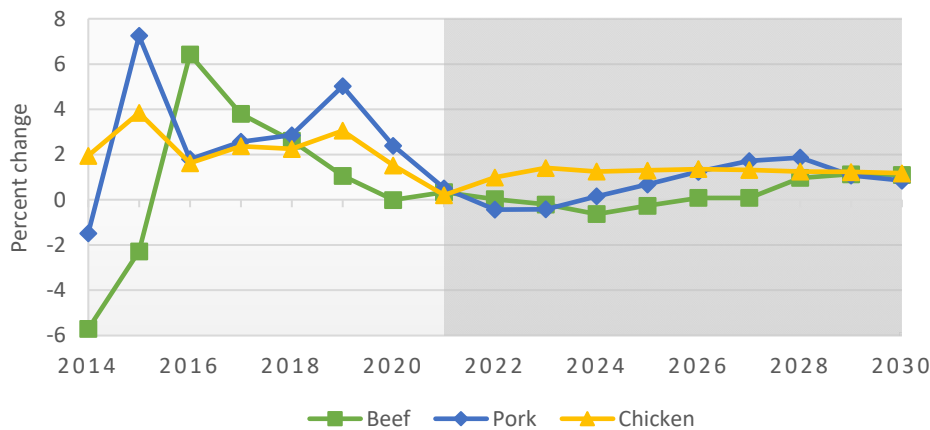
Fed cattle prices will recover in 2021 to near the levels of 2018 and 2019 following last year's decline. Feeder steer prices will also increase, but higher corn costs will impact the demand for feeder animals and keep cow-calf returns below the recent five-year average. Beef demand, particularly for higher-quality product, has held up better than expected given dining away from home restrictions. With beef supplies flat to declining during the liquidation phase of the cattle cycle, prices are projected to increase through the medium term.



The size of U.S. beef cow herd declined for the second straight year in 2021, and sow inventories have now been below year ago levels for the last three quarterly surveys. Breeding animal numbers were expected to decline due to lower profitability in 2020, but the recent rise in feed costs has likely accelerated the liquidation. Beef cow numbers have also been affected by the growing area of drought conditions, particularly in the Southwest. If the drought persists or worsens through the spring and summer, the herd could decline even more.



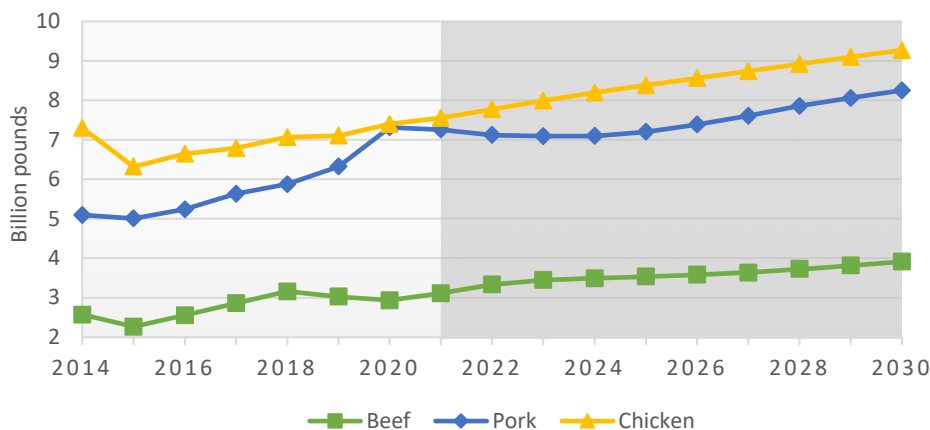
### Meat production growth to slow



### Meat

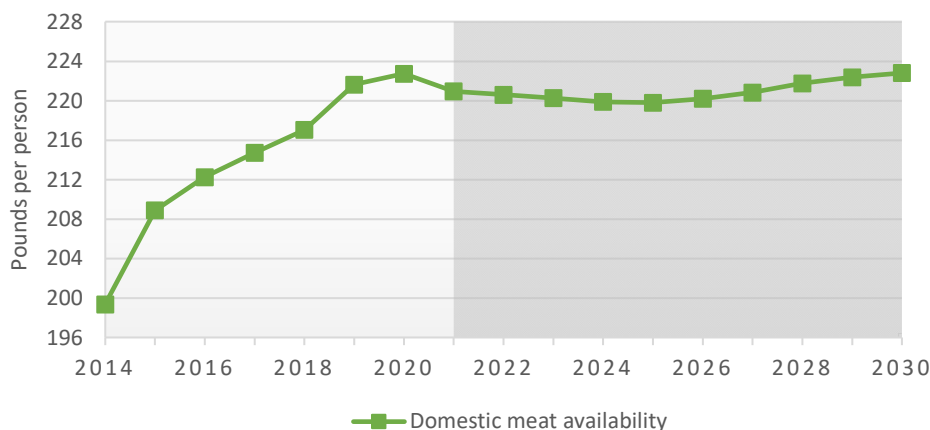
The sum of beef, pork and chicken production increased by 2.5 – 3.0% every year from 2015-2019 and was up an additional 1.3% in 2020. Even though meat exports grew during this time, much of the additional production has ended up in the domestic market. Beginning this year, meat production is projected to grow less than the rate of U.S. population growth. This will support prices into the medium term, though ultimately the combination of demand and supply will determine industry profitability.

### Beef export growth resumes as pork levels off



Pork exports jumped by nearly 1 billion pounds in 2020, with all the increase accounted for by increased shipments to China. With ASF recovery in China projected to continue throughout 2021, pork exports into that market will begin to decline. Growth in beef exports is expected to resume this year after two years of declines, as the global economy recovers from the effects of COVID-19 and a weaker dollar makes U.S. beef more competitive in international markets. Chicken export growth is also projected to continue.

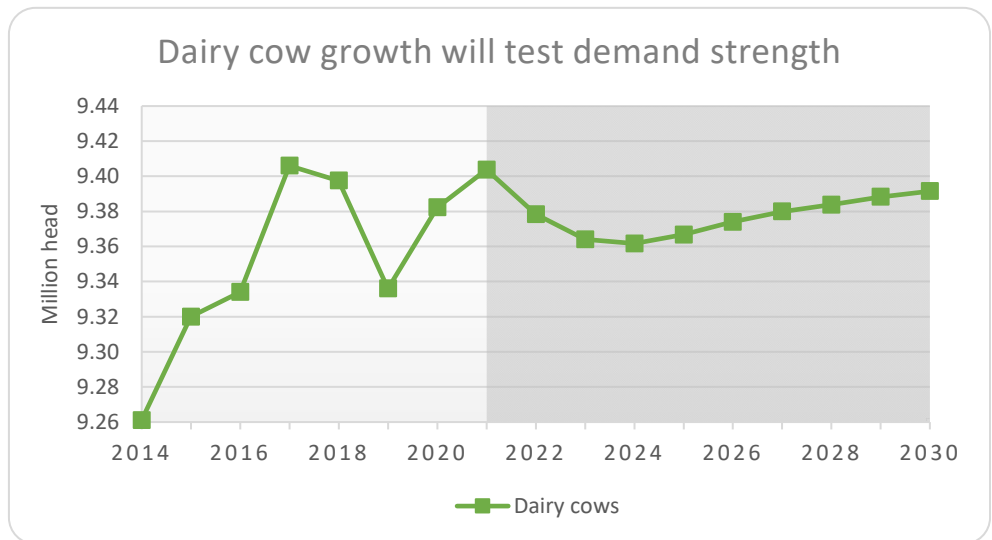
### Domestic meat supplies remain plentiful



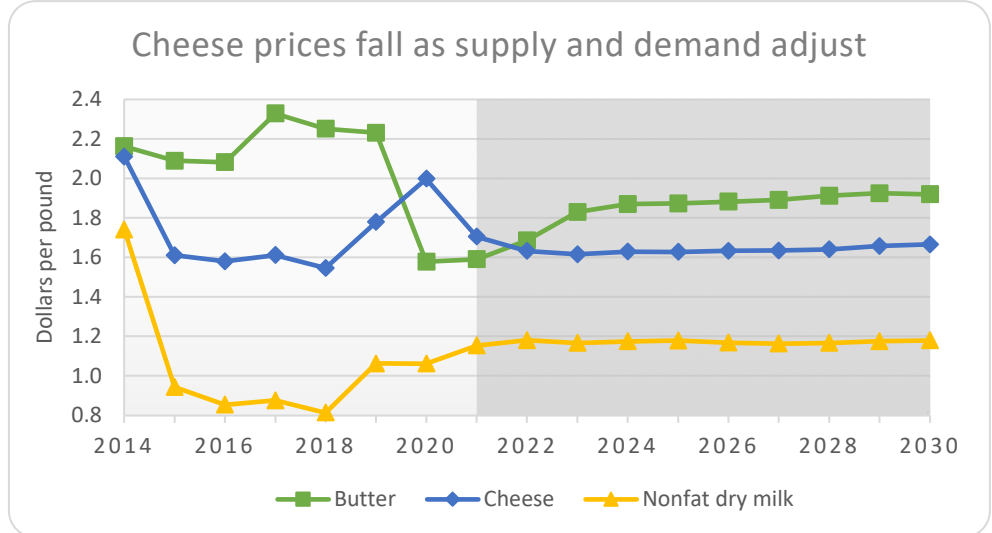
Even as per-capita domestic meat supplies retreat from the record level of 2020, they will remain at the high end of the historical range. This implies a need for strong domestic meat demand to handle relatively large domestic meat supplies if prices are to increase. The extent to which consumers return to pre-COVID 19 dining out behaviors as pandemic recovery continues, the potential for further stimulus payments and the effects of rising gasoline prices on consumer disposable income are a few of the many factors that will determine meat demand strength and prices.

## Dairy

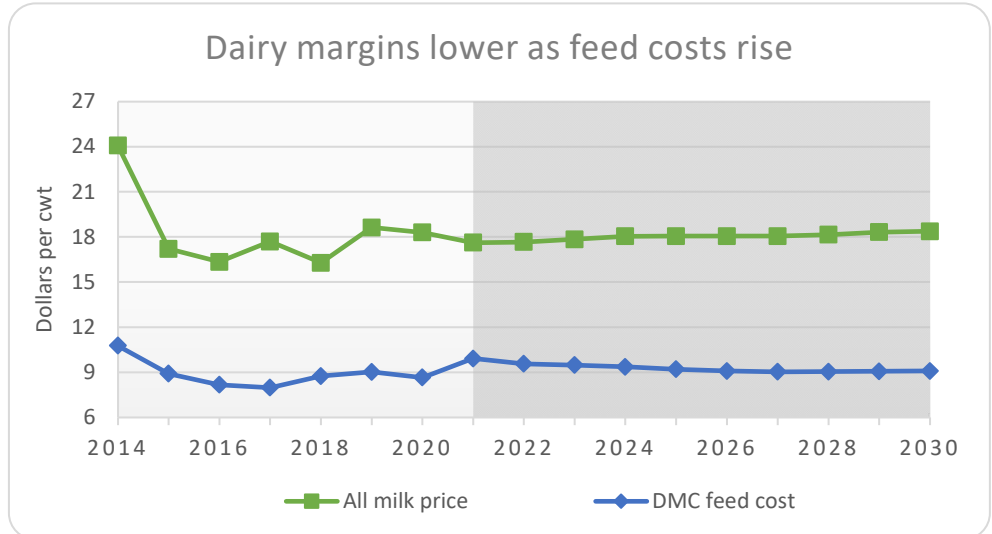
Following three months of dairy cow inventory declines last spring, producers have added nearly 100 thousand additional cows to the herd in recent months. With government purchasing support to the dairy sector unlikely to match last year's level in 2021, and consumer finances remaining somewhat uncertain in many households, it appears likely that the industry will be in an oversupply situation at times this year. Lower profitability will lead to fewer cow numbers in the next few years.



Wholesale cheese prices averaged \$2.00 per pound in 2020 with monthly averages ranging from \$1.10 to \$2.71 per pound as pandemic-related consumer demand shifts, government purchases of dairy products, and supply constraints contributed to high price levels and increased volatility. With additional cheese processing capacity and a projected decline in government purchases, cheese prices decline in 2021. Nonfat dry milk prices show marginal improvement on strong international demand, while butter prices struggle to recover.



The combination of abundant milk supplies relative to demand and higher feed costs will lead to lower profitability for most dairy producers in 2021. The milk margin above feed costs for the Dairy Margin Coverage Program (DMC) is projected to average below \$8.00 in 2021, with some months well below the annual average level. Higher feed costs account for the largest portion of the margin decline, though lower milk price is also a factor.





## Cattle and hogs

| Calendar year                 | 2020                        | 2021   | 2022   | 2023   | 2024   | 2025   | 2026   | 2027   | 2028   | 2029   | 2030   |
|-------------------------------|-----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>CATTLE</b>                 |                             |        |        |        |        |        |        |        |        |        |        |
|                               | (Million head)              |        |        |        |        |        |        |        |        |        |        |
| Beef cows (Jan. 1)            | 31.3                        | 30.8   | 30.3   | 30.0   | 29.8   | 29.7   | 29.6   | 29.6   | 29.8   | 30.1   | 30.4   |
| Dairy cows (Jan. 1)           | 9.3                         | 9.4    | 9.4    | 9.4    | 9.4    | 9.4    | 9.4    | 9.4    | 9.4    | 9.4    | 9.4    |
| Cattle and calves (Jan. 1)    | 94.4                        | 94.7   | 94.0   | 93.2   | 92.5   | 92.0   | 91.8   | 91.7   | 91.9   | 92.1   | 92.4   |
| Cattle on feed (Jan. 1)       | 14.7                        | 14.7   | 14.6   | 14.2   | 13.8   | 13.5   | 13.3   | 13.2   | 13.3   | 13.3   | 13.4   |
| Calf crop                     | 35.8                        | 35.4   | 35.0   | 34.8   | 34.6   | 34.5   | 34.5   | 34.5   | 34.8   | 35.1   | 35.4   |
| Cattle slaughter              | 33.2                        | 33.7   | 33.5   | 33.2   | 32.9   | 32.6   | 32.4   | 32.3   | 32.4   | 32.6   | 32.8   |
| Cattle imports                | 2.1                         | 2.1    | 2.1    | 2.1    | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    | 2.3    | 2.3    |
| Cattle exports                | 0.3                         | 0.3    | 0.3    | 0.3    | 0.3    | 0.3    | 0.3    | 0.3    | 0.3    | 0.3    | 0.3    |
| <b>Prices</b>                 |                             |        |        |        |        |        |        |        |        |        |        |
| Total all grades,             | (Dollars per hundredweight) |        |        |        |        |        |        |        |        |        |        |
| 5-area direct steers          | 108.46                      | 116.61 | 122.48 | 127.28 | 131.13 | 134.36 | 135.93 | 136.55 | 134.61 | 133.34 | 132.44 |
| 600-650#, Oklahoma City       |                             |        |        |        |        |        |        |        |        |        |        |
| feeder steers                 | 145.83                      | 149.08 | 162.88 | 170.63 | 176.41 | 181.43 | 183.83 | 184.36 | 181.82 | 180.10 | 178.97 |
| Utility cows, Sioux Falls     | 58.50                       | 60.56  | 64.73  | 66.34  | 67.80  | 70.28  | 71.50  | 71.80  | 70.15  | 68.91  | 67.93  |
| <b>Cow-calf returns</b>       |                             |        |        |        |        |        |        |        |        |        |        |
|                               | (Dollars per cow)           |        |        |        |        |        |        |        |        |        |        |
| Receipts                      | 732.62                      | 771.55 | 834.24 | 868.06 | 894.71 | 917.62 | 928.09 | 927.21 | 914.57 | 905.60 | 898.58 |
| Feed expenses                 | 422.15                      | 426.91 | 423.58 | 425.85 | 427.67 | 427.27 | 426.10 | 426.20 | 428.87 | 431.61 | 434.87 |
| Non-feed expenses             | 291.77                      | 297.87 | 310.09 | 319.42 | 327.05 | 334.60 | 341.50 | 348.33 | 354.19 | 360.64 | 367.67 |
| Net returns                   | 18.70                       | 46.78  | 100.56 | 122.80 | 139.99 | 155.75 | 160.49 | 152.69 | 131.51 | 113.35 | 96.04  |
| <b>HOGS</b>                   |                             |        |        |        |        |        |        |        |        |        |        |
|                               | (Million head)              |        |        |        |        |        |        |        |        |        |        |
| Hogs for breeding (Dec. 1*)   | 6.47                        | 6.28   | 6.07   | 5.93   | 5.85   | 5.79   | 5.78   | 5.79   | 5.82   | 5.80   | 5.77   |
| Market hogs (Dec. 1*)         | 71.8                        | 71.2   | 70.9   | 69.9   | 69.4   | 69.3   | 69.6   | 70.2   | 71.1   | 71.8   | 72.1   |
| Sows farrowed                 | 12.64                       | 12.41  | 12.12  | 11.94  | 11.83  | 11.80  | 11.83  | 11.91  | 11.96  | 11.92  | 11.87  |
| Pig crop                      | 139.4                       | 138.7  | 137.0  | 136.3  | 136.3  | 137.1  | 138.7  | 140.9  | 142.8  | 143.5  | 144.1  |
| Barrow and gilt slaughter     | 127.8                       | 128.1  | 127.3  | 126.2  | 125.9  | 126.2  | 127.3  | 129.1  | 131.0  | 132.0  | 132.7  |
| Hog imports                   | 5.2                         | 5.2    | 5.3    | 5.3    | 5.3    | 5.3    | 5.3    | 5.3    | 5.3    | 5.3    | 5.3    |
| Hog exports                   | 0.1                         | 0.1    | 0.1    | 0.1    | 0.1    | 0.1    | 0.1    | 0.1    | 0.1    | 0.1    | 0.1    |
| <b>Prices</b>                 |                             |        |        |        |        |        |        |        |        |        |        |
| Natl. base 51-52% lean equiv. | (Dollars per hundredweight) |        |        |        |        |        |        |        |        |        |        |
| barrows & gilts               | 43.25                       | 47.18  | 51.37  | 52.75  | 53.25  | 53.29  | 52.46  | 51.79  | 51.01  | 51.60  | 52.32  |
| <b>Farrow-finish returns</b>  |                             |        |        |        |        |        |        |        |        |        |        |
| Receipts                      | 46.96                       | 50.95  | 55.20  | 56.60  | 57.10  | 57.14  | 56.30  | 55.62  | 54.83  | 55.44  | 56.16  |
| Feed expenses                 | 27.91                       | 31.56  | 31.45  | 31.73  | 31.52  | 31.07  | 30.81  | 30.80  | 30.88  | 31.01  | 31.04  |
| Non-feed expenses             | 19.85                       | 20.32  | 20.86  | 21.21  | 21.40  | 21.62  | 21.91  | 22.22  | 22.56  | 22.89  | 23.21  |
| Net returns                   | -0.80                       | -0.94  | 2.89   | 3.66   | 4.18   | 4.45   | 3.58   | 2.60   | 1.39   | 1.54   | 1.91   |

\* Preceding year

All projections are averages across 500 stochastic outcomes.



## Meat sector

| Calendar year                 | 2020                                           | 2021   | 2022   | 2023   | 2024   | 2025   | 2026   | 2027   | 2028   | 2029   | 2030   |
|-------------------------------|------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Beef</b>                   | (Million pounds)                               |        |        |        |        |        |        |        |        |        |        |
| Production                    | 27,222                                         | 27,313 | 27,321 | 27,266 | 27,093 | 27,022 | 27,044 | 27,067 | 27,329 | 27,638 | 27,942 |
| Imports                       | 3,375                                          | 3,125  | 3,083  | 3,085  | 3,116  | 3,143  | 3,188  | 3,228  | 3,240  | 3,236  | 3,223  |
| Domestic use                  | 27,614                                         | 27,342 | 27,070 | 26,902 | 26,719 | 26,630 | 26,643 | 26,653 | 26,828 | 27,043 | 27,238 |
| Exports                       | 2,935                                          | 3,110  | 3,332  | 3,446  | 3,492  | 3,533  | 3,583  | 3,635  | 3,727  | 3,816  | 3,913  |
| Ending stocks                 | 690                                            | 676    | 678    | 681    | 680    | 682    | 689    | 696    | 710    | 724    | 738    |
| <b>Pork</b>                   |                                                |        |        |        |        |        |        |        |        |        |        |
| Production                    | 28,314                                         | 28,459 | 28,336 | 28,217 | 28,260 | 28,452 | 28,805 | 29,299 | 29,847 | 30,167 | 30,422 |
| Imports                       | 912                                            | 940    | 943    | 961    | 973    | 980    | 989    | 995    | 998    | 995    | 997    |
| Domestic use                  | 22,098                                         | 22,085 | 22,165 | 22,090 | 22,134 | 22,225 | 22,395 | 22,669 | 22,969 | 23,092 | 23,158 |
| Exports                       | 7,314                                          | 7,255  | 7,121  | 7,092  | 7,097  | 7,200  | 7,384  | 7,607  | 7,855  | 8,058  | 8,251  |
| Ending stocks                 | 460                                            | 519    | 513    | 509    | 510    | 518    | 532    | 551    | 573    | 584    | 593    |
| <b>Broiler</b>                |                                                |        |        |        |        |        |        |        |        |        |        |
| Production                    | 44,096                                         | 44,187 | 44,625 | 45,255 | 45,820 | 46,415 | 47,046 | 47,666 | 48,261 | 48,854 | 49,426 |
| Domestic use                  | 36,944                                         | 36,722 | 36,993 | 37,393 | 37,754 | 38,165 | 38,612 | 39,056 | 39,470 | 39,884 | 40,287 |
| Exports                       | 7,399                                          | 7,549  | 7,772  | 7,990  | 8,195  | 8,379  | 8,560  | 8,737  | 8,919  | 9,099  | 9,267  |
| Ending stocks                 | 835                                            | 891    | 887    | 892    | 895    | 899    | 905    | 911    | 916    | 920    | 924    |
| <b>Turkey</b>                 |                                                |        |        |        |        |        |        |        |        |        |        |
| Production                    | 5,743                                          | 5,719  | 5,800  | 5,877  | 5,919  | 5,952  | 5,984  | 6,012  | 6,034  | 6,055  | 6,076  |
| Domestic use                  | 5,199                                          | 5,146  | 5,214  | 5,285  | 5,327  | 5,357  | 5,383  | 5,408  | 5,429  | 5,448  | 5,467  |
| Exports                       | 573                                            | 590    | 598    | 604    | 610    | 616    | 622    | 626    | 628    | 630    | 632    |
| Ending stocks                 | 225                                            | 229    | 238    | 247    | 249    | 249    | 249    | 248    | 246    | 244    | 241    |
| <b>Wholesale prices</b>       | (Dollars per hundredweight or cents per pound) |        |        |        |        |        |        |        |        |        |        |
| Boxed beef cutout             | 236.52                                         | 236.42 | 243.81 | 249.45 | 257.72 | 265.48 | 269.10 | 271.76 | 269.86 | 268.89 | 268.44 |
| Pork cutout                   | 77.46                                          | 79.97  | 86.37  | 89.39  | 91.49  | 92.27  | 91.48  | 90.97  | 90.36  | 92.15  | 94.42  |
| National wholesale broiler    | 73.23                                          | 83.42  | 88.28  | 89.26  | 90.73  | 92.10  | 92.71  | 93.56  | 94.50  | 95.65  | 96.81  |
| Natl. wholesale turkey hens   | 106.38                                         | 107.46 | 103.99 | 100.77 | 100.12 | 100.67 | 100.95 | 101.52 | 102.19 | 103.21 | 104.08 |
| <b>Retail prices</b>          | (Dollars per pound)                            |        |        |        |        |        |        |        |        |        |        |
| Beef                          | 6.54                                           | 6.50   | 6.61   | 6.80   | 7.01   | 7.22   | 7.39   | 7.51   | 7.48   | 7.45   | 7.44   |
| Pork                          | 4.03                                           | 4.05   | 4.26   | 4.42   | 4.53   | 4.60   | 4.59   | 4.57   | 4.56   | 4.66   | 4.78   |
| Broiler                       | 1.99                                           | 2.02   | 2.08   | 2.12   | 2.14   | 2.17   | 2.20   | 2.22   | 2.25   | 2.28   | 2.32   |
| Turkey                        | 1.71                                           | 1.73   | 1.71   | 1.69   | 1.68   | 1.70   | 1.73   | 1.75   | 1.78   | 1.81   | 1.85   |
| <b>Per-capita consumption</b> | (Pounds, retail)                               |        |        |        |        |        |        |        |        |        |        |
| Beef                          | 58.7                                           | 58.0   | 57.2   | 56.5   | 55.8   | 55.3   | 55.1   | 54.8   | 54.8   | 55.0   | 55.1   |
| Pork                          | 52.0                                           | 51.9   | 51.9   | 51.5   | 51.3   | 51.2   | 51.3   | 51.7   | 52.1   | 52.1   | 51.9   |
| Broiler                       | 96.3                                           | 95.5   | 95.8   | 96.4   | 96.8   | 97.3   | 97.9   | 98.5   | 99.0   | 99.5   | 100.0  |
| Turkey                        | 15.8                                           | 15.6   | 15.7   | 15.9   | 15.9   | 15.9   | 15.9   | 15.9   | 15.9   | 15.8   | 15.8   |
| Total                         | 222.7                                          | 220.9  | 220.6  | 220.3  | 219.9  | 219.8  | 220.2  | 220.8  | 221.8  | 222.4  | 222.8  |

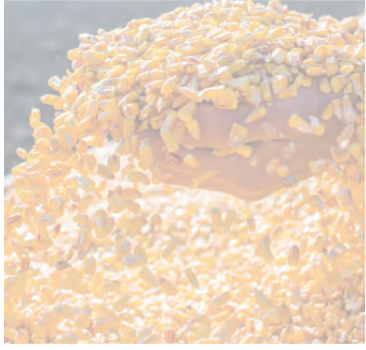
All projections are averages across 500 stochastic outcomes.

## Dairy sector

| Calendar year                    | 2020                        | 2021   | 2022   | 2023   | 2024   | 2025   | 2026   | 2027   | 2028   | 2029   | 2030   |
|----------------------------------|-----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Milk supply</b>               |                             |        |        |        |        |        |        |        |        |        |        |
| Dairy cows (thousand head)       | 9,382                       | 9,404  | 9,378  | 9,364  | 9,362  | 9,367  | 9,374  | 9,380  | 9,384  | 9,388  | 9,391  |
| California                       | 1,722                       | 1,721  | 1,712  | 1,704  | 1,699  | 1,696  | 1,694  | 1,692  | 1,690  | 1,689  | 1,687  |
| Wisconsin                        | 1,259                       | 1,258  | 1,257  | 1,257  | 1,257  | 1,258  | 1,258  | 1,258  | 1,257  | 1,256  | 1,255  |
| New York                         | 626                         | 625    | 623    | 621    | 620    | 618    | 617    | 616    | 615    | 614    | 613    |
| Idaho                            | 645                         | 653    | 654    | 657    | 660    | 662    | 666    | 669    | 672    | 675    | 677    |
| Pennsylvania                     | 482                         | 478    | 473    | 469    | 466    | 463    | 461    | 458    | 456    | 454    | 452    |
| Minnesota                        | 446                         | 445    | 444    | 445    | 446    | 447    | 448    | 449    | 450    | 450    | 451    |
| Texas                            | 595                         | 615    | 629    | 642    | 654    | 666    | 676    | 685    | 693    | 700    | 706    |
| Michigan                         | 430                         | 432    | 432    | 433    | 434    | 436    | 438    | 441    | 444    | 447    | 450    |
| New Mexico                       | 330                         | 331    | 330    | 330    | 331    | 332    | 332    | 332    | 332    | 333    | 334    |
| Ohio                             | 254                         | 255    | 254    | 253    | 253    | 252    | 252    | 251    | 251    | 250    | 249    |
| Rest of U.S.                     | 2,594                       | 2,589  | 2,570  | 2,554  | 2,543  | 2,536  | 2,532  | 2,527  | 2,523  | 2,520  | 2,517  |
| Milk yield (lbs per cow)         | 23,774                      | 23,945 | 24,259 | 24,544 | 24,900 | 25,117 | 25,393 | 25,672 | 26,012 | 26,224 | 26,502 |
| Milk production (bil. lbs)       | 223.1                       | 225.2  | 227.5  | 229.8  | 233.1  | 235.3  | 238.0  | 240.8  | 244.1  | 246.2  | 248.9  |
| <b>Min. FMMO class prices</b>    |                             |        |        |        |        |        |        |        |        |        |        |
|                                  | (Dollars per hundredweight) |        |        |        |        |        |        |        |        |        |        |
| Class I mover                    | 16.91                       | 16.11  | 16.14  | 16.36  | 16.57  | 16.59  | 16.58  | 16.59  | 16.68  | 16.85  | 16.90  |
| Class II                         | 14.29                       | 15.07  | 15.61  | 16.10  | 16.34  | 16.38  | 16.33  | 16.32  | 16.44  | 16.57  | 16.58  |
| Class III                        | 18.16                       | 16.16  | 15.67  | 15.62  | 15.81  | 15.80  | 15.84  | 15.85  | 15.94  | 16.14  | 16.22  |
| Class IV                         | 13.49                       | 14.37  | 14.91  | 15.40  | 15.64  | 15.68  | 15.63  | 15.62  | 15.74  | 15.87  | 15.88  |
| <b>All milk price</b>            | 18.30                       | 17.62  | 17.67  | 17.84  | 18.04  | 18.06  | 18.06  | 18.06  | 18.15  | 18.32  | 18.37  |
| <b>Actual dairy prod. margin</b> | 9.64                        | 7.71   | 8.10   | 8.36   | 8.68   | 8.85   | 8.97   | 9.02   | 9.11   | 9.25   | 9.29   |
| <b>Wholesale prices</b>          |                             |        |        |        |        |        |        |        |        |        |        |
|                                  | (Dollars per pound)         |        |        |        |        |        |        |        |        |        |        |
| Butter, CME                      | 1.58                        | 1.59   | 1.69   | 1.83   | 1.87   | 1.87   | 1.88   | 1.89   | 1.91   | 1.92   | 1.92   |
| Cheese, Amer., 40#, CME          | 2.00                        | 1.70   | 1.63   | 1.62   | 1.63   | 1.63   | 1.63   | 1.63   | 1.64   | 1.66   | 1.67   |
| Nonfat dry milk, AA              | 1.06                        | 1.15   | 1.18   | 1.17   | 1.17   | 1.18   | 1.17   | 1.16   | 1.17   | 1.18   | 1.18   |
| <b>Dairy product production</b>  |                             |        |        |        |        |        |        |        |        |        |        |
|                                  | (Million pounds)            |        |        |        |        |        |        |        |        |        |        |
| American cheese                  | 5,353                       | 5,493  | 5,584  | 5,659  | 5,757  | 5,829  | 5,911  | 5,992  | 6,082  | 6,148  | 6,226  |
| Other cheese                     | 7,837                       | 8,005  | 8,124  | 8,229  | 8,372  | 8,479  | 8,607  | 8,737  | 8,886  | 9,000  | 9,124  |
| Butter                           | 2,104                       | 2,132  | 2,177  | 2,237  | 2,295  | 2,321  | 2,369  | 2,414  | 2,470  | 2,493  | 2,533  |
| Nonfat dry milk                  | 2,545                       | 2,656  | 2,710  | 2,784  | 2,857  | 2,936  | 3,026  | 3,110  | 3,190  | 3,257  | 3,344  |
| <b>Dairy product exports</b>     |                             |        |        |        |        |        |        |        |        |        |        |
| American cheese                  | 152                         | 177    | 190    | 197    | 203    | 207    | 209    | 211    | 213    | 214    | 217    |
| Other cheese                     | 628                         | 658    | 676    | 691    | 705    | 718    | 730    | 741    | 753    | 764    | 776    |
| Butter                           | 43                          | 64     | 76     | 76     | 79     | 82     | 84     | 0      | 85     | 87     | 89     |
| Nonfat dry milk                  | 1,815                       | 1,884  | 1,929  | 1,986  | 2,042  | 2,111  | 2,183  | 2,250  | 2,314  | 2,373  | 2,441  |
| <b>Per-capita consumption</b>    |                             |        |        |        |        |        |        |        |        |        |        |
|                                  | (Pounds)                    |        |        |        |        |        |        |        |        |        |        |
| Butter                           | 6.2                         | 6.5    | 6.6    | 6.7    | 6.9    | 6.9    | 7.0    | 7.1    | 7.2    | 7.3    | 7.3    |
| Nonfat dry milk                  | 2.2                         | 2.3    | 2.3    | 2.4    | 2.4    | 2.4    | 2.5    | 2.5    | 2.5    | 2.6    | 2.6    |
| Total cheese                     | 38.3                        | 39.0   | 39.5   | 39.8   | 40.3   | 40.5   | 40.9   | 41.3   | 41.7   | 42.0   | 42.3   |
| American                         | 15.7                        | 16.1   | 16.3   | 16.5   | 16.6   | 16.7   | 16.9   | 17.0   | 17.2   | 17.3   | 17.4   |
| Other                            | 22.6                        | 23.0   | 23.2   | 23.4   | 23.7   | 23.8   | 24.0   | 24.3   | 24.5   | 24.7   | 24.9   |
| Total fluid milk                 | 157.9                       | 156.1  | 154.6  | 152.6  | 150.9  | 149.4  | 147.8  | 146.4  | 144.9  | 143.3  | 141.8  |

All projections are averages across 500 stochastic outcomes.

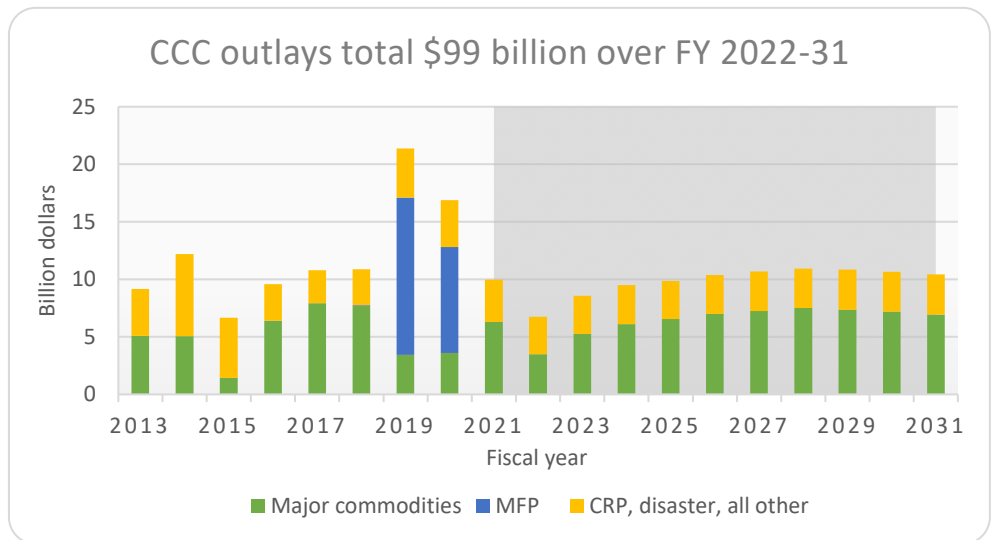




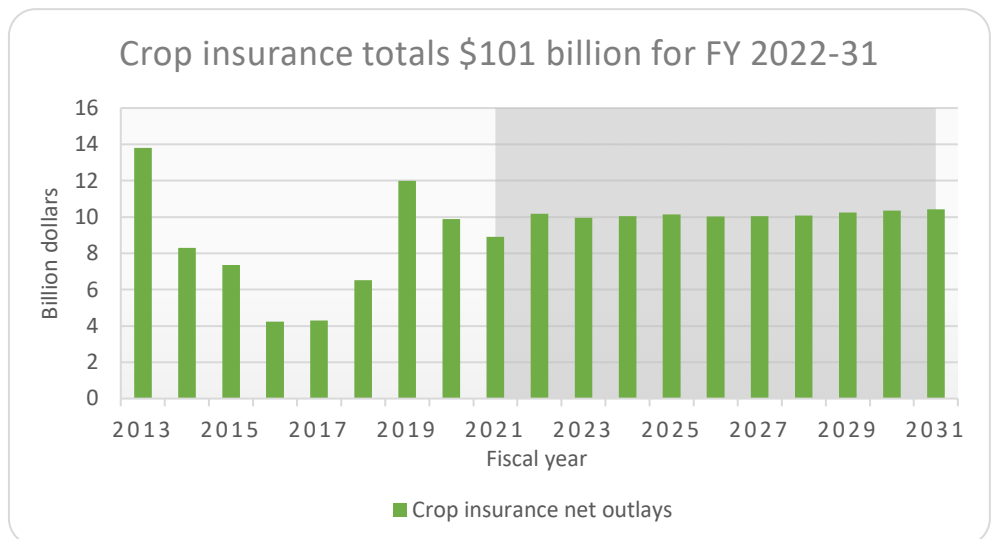
# Aggregate indicators

## Government costs

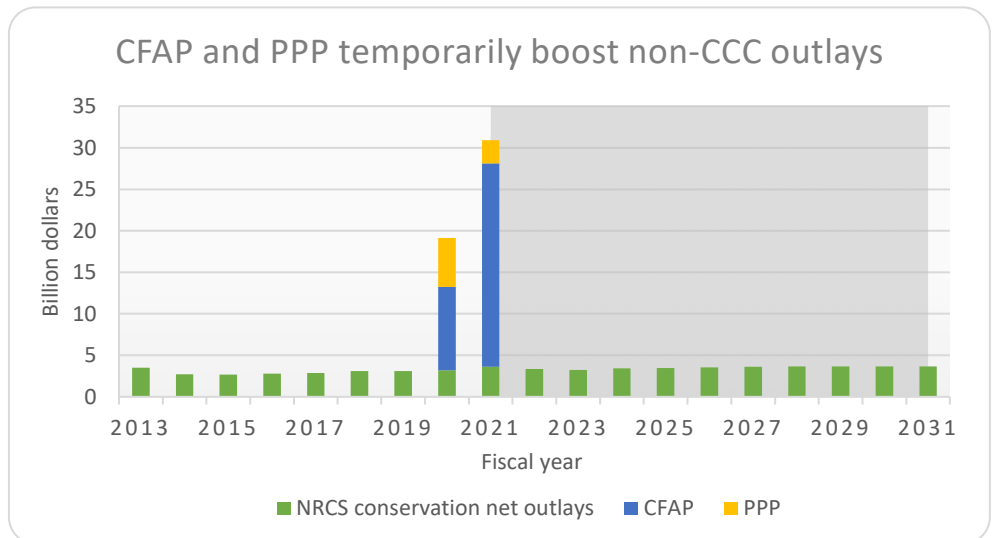
Net Commodity Credit Corporation (CCC) outlays peaked in FY 2019 because of \$13.7 billion in MFP payments, and a second round of MFP payments kept outlays elevated in FY 2020. Net CCC outlays drop below \$7 billion in FY 2022, given modest ARC and PLC payments for crops harvested in 2020. Between FY 2022 and FY 2031, net CCC outlays total \$99 billion, with major commodity programs accounting for \$65 billion.



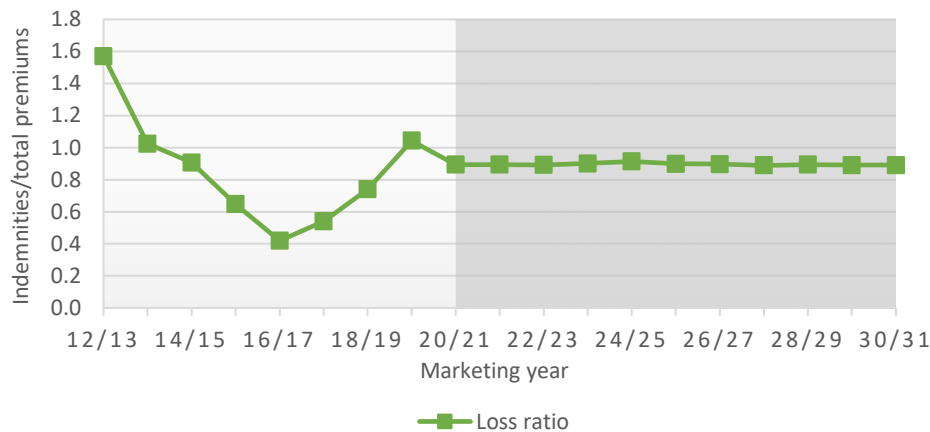
Spring flooding and other natural disasters increased federal spending on the crop insurance program in FY 2019 and FY 2020. Higher market prices increase the value of crops insured and thus the value of premium subsidies and other program costs in FY 2022. Normal variability, particularly in yields, results in a projected average loss ratio of about 0.9 in the projection period, subject to large swings due to weather and other factors. Program fiscal costs total \$101 billion between FY 2022 and FY 2031.



CFAP is not treated as part of CCC outlays, and PPP was not operated by USDA, but both provided substantial benefits to farmers in FY 2020 and FY 2021. The Natural Resources Conservation Service (NRCS) operates several mandatory conservation programs. The Congressional Budget Office estimated in February 2021 that spending on those programs would total \$35 billion over FY 2022 to FY 2031. The conservation reserve is managed by the Farm Service Agency, and its outlays are included in the CCC accounts.



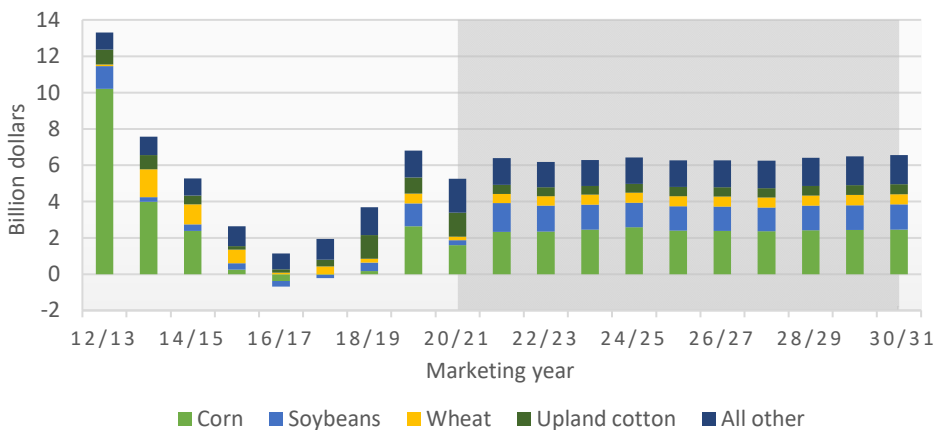
### Crop insurance loss ratio returns to normal



### Crop insurance

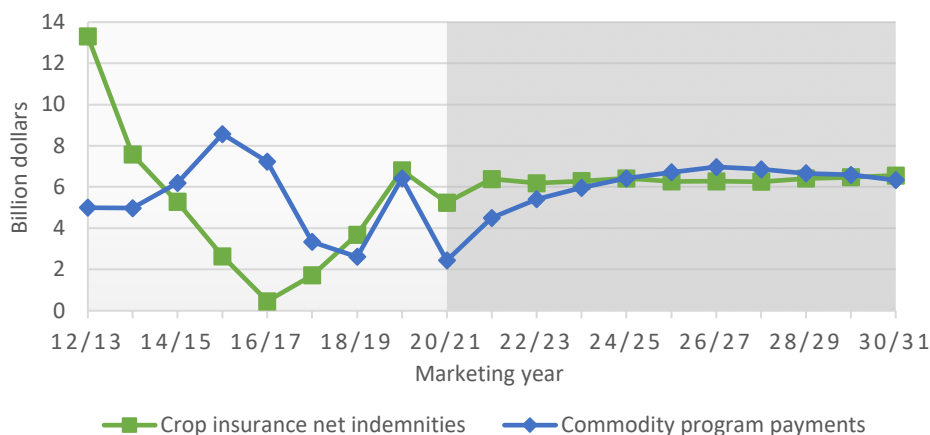
Crop insurance indemnity payments for losses were unusually low from 2015-2018, but increased because of widespread flooding in 2019. The loss ratio (indemnity payments divided by total premiums, including both producer-paid and government subsidized premiums) was just over 1.0 in 2019, but year-to-date information suggests a slightly lower loss ratio in 2020. In the projection period, the distribution of yields, indemnities and premiums results in an average loss ratio of about 0.9.

### Net indemnities rebound with loss ratio



Net indemnities are the difference between indemnity payments for losses and producer-paid premiums. Like the loss ratio, net indemnities can vary dramatically from one year to the next. In spite of a similar loss ratio to that in 2020/21, net indemnities increase in 2021/22 because higher prices increase crop insurance liabilities. In the projection period, net indemnities average about \$6.4 billion per year.

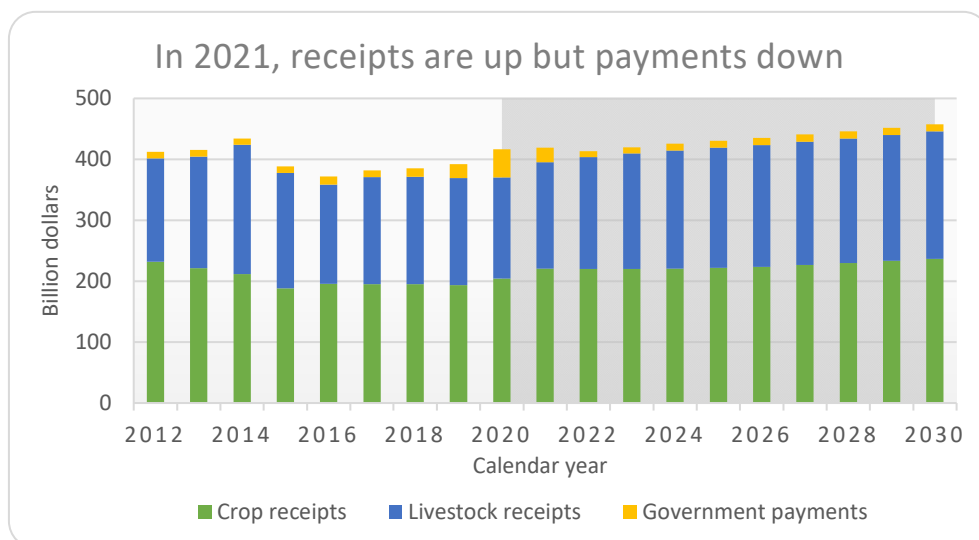
### Commodity, crop insurance benefits are similar



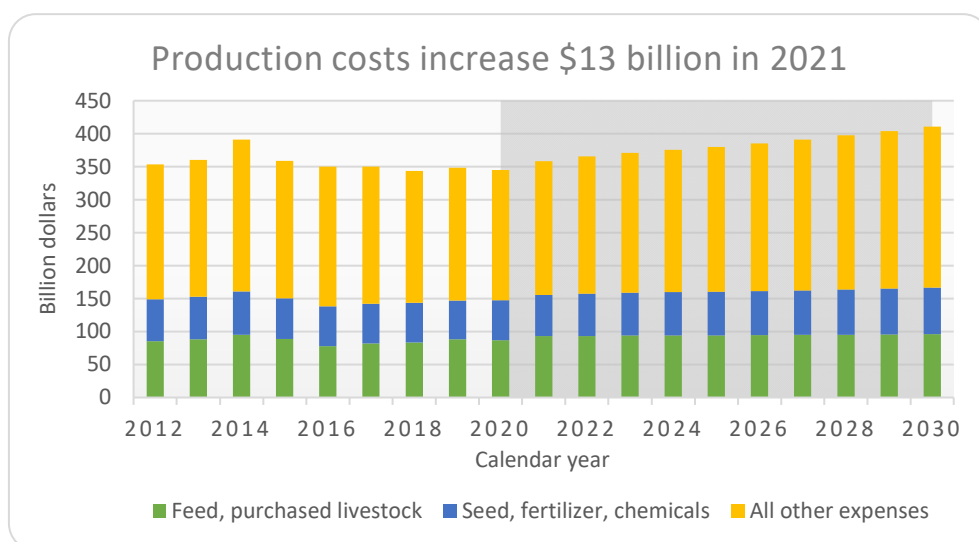
Crop insurance net indemnities can be much greater or smaller than payments under farm bill crop commodity programs (currently ARC, PLC, and marketing loans; the chart excludes ad hoc programs like MFP and CFAP). Over the next ten years, projected average commodity program payments and crop insurance net indemnities are very similar. In any given year, results can differ greatly. For example, years with high yields and low prices generally result in high PLC payments but low crop insurance net indemnities.

## Farm income, expenses

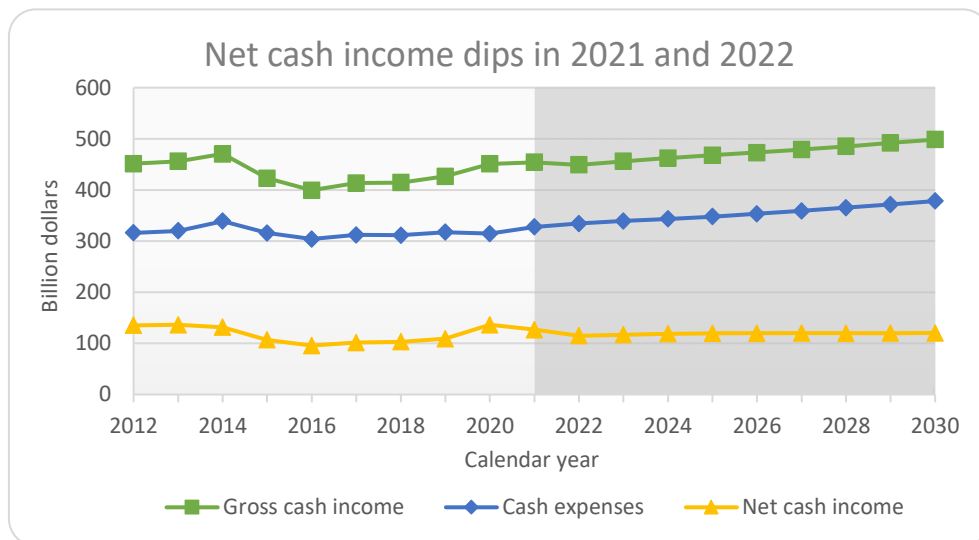
In 2020, the pandemic resulted in a reduction in farm cash receipts from livestock sales, but crop receipts and government payments both increased. Crop and livestock receipts increase by a total of \$25 billion in 2021, but projected government payments decline by \$22 billion in the assumed absence of new programs. In later years, receipts increase at a modest pace, while payments are relatively stable.



Farm production expenses dipped slightly in 2020, largely because of lower interest rates and fuel prices. In 2021, total expenses increase by \$13 billion (4%) with higher costs for feed and fertilizer accounting for most of the increase. Projected production expenses increase by an average of 1.8% per year from 2021 to 2030, reflecting increasing production and modest increases in most input prices.



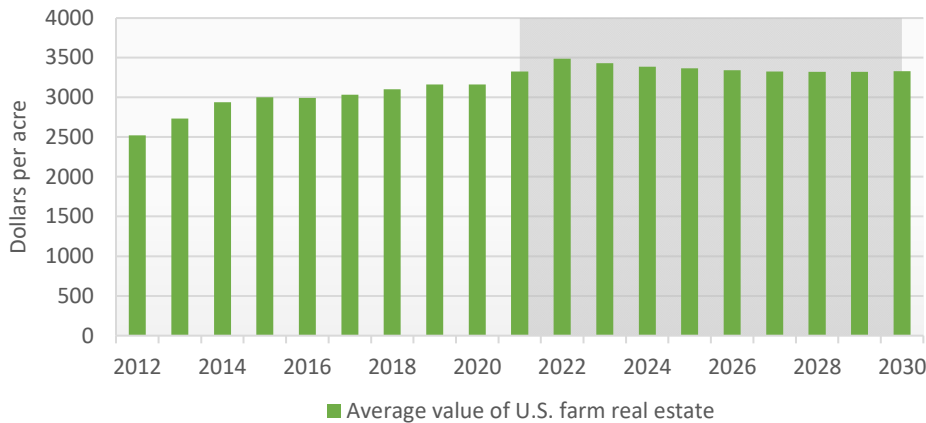
Net cash income for the farm sector increased in 2020, primarily because of a large increase in government payments and a smaller increase in crop receipts. It declines in 2021, as the decline in government payments and the increase in production expenses outweigh the increase in cash receipts. Net cash income drops again in 2022, in part because of a further decline in payments.



Net farm income is an alternative measure that accounts for non-money income, depreciation and inventory value changes.



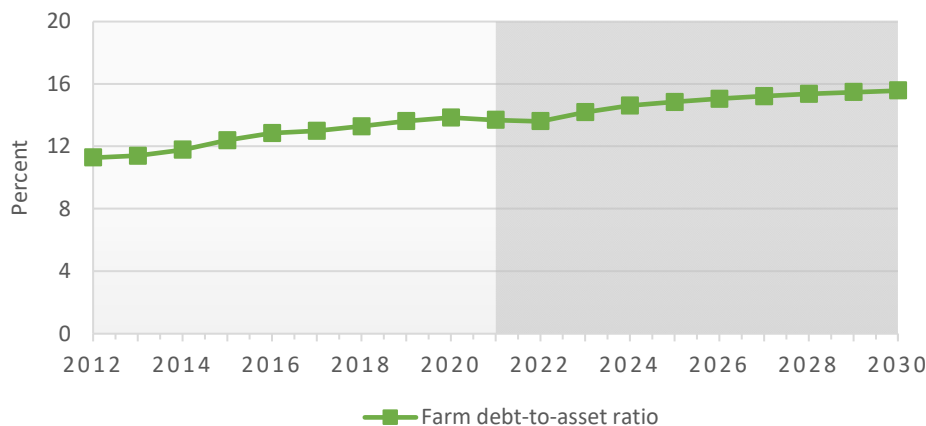
### Farmland values increase in 2021 and 2022



### Farm assets and debt

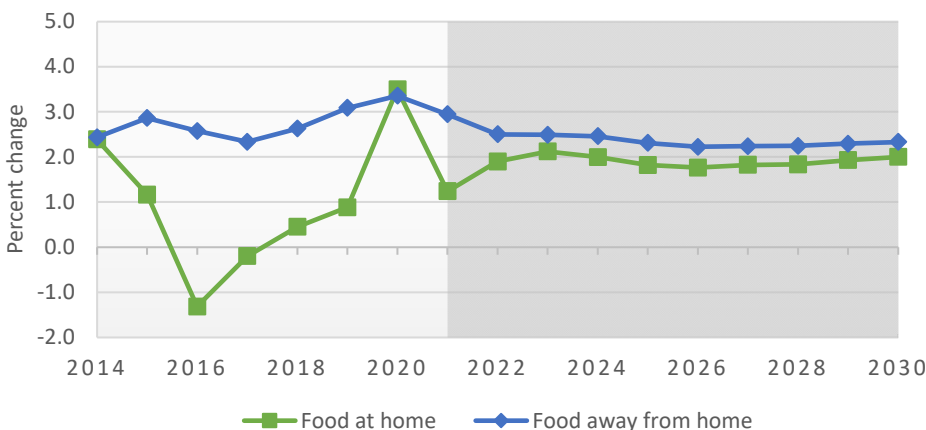
Reports suggest farmland values in many parts of the country are increasing. Recent increases in farm income and reductions in interest rates support 5% projected increases in farm real estate value in both 2021 and 2022. In later years, declines in real net farm income and increases in interest rates put downward pressure on farmland value.

### Farm debt-to-asset ratio stabilizes for 2 years



The national average farm debt-to-asset ratio dropped to its lowest level in decades in 2012, but then increased in every year through 2020. The projected increase in farm asset values in 2021 and 2022 allows the debt-to-asset ratio to stabilize, actually dipping very slightly in both years. After 2022, continued increases in farm debt cause the ratio to resume its increase, suggesting that long-term concerns about the status of farm finances remain.

### Food costs moderate as pandemic effects wane



### Consumer food prices

Even as the farm value of many products declined in 2020, food inflation reached its highest level since 2011 as industry participants incurred higher costs and disruptions to normal operations due to COVID-19. Growth in the consumer price index for food, particularly for food consumed at home, is projected to moderate in 2021 as adjustment to and recovery from the effects of COVID-19 continues. Consumer inflation for meat and dairy products is projected near zero in 2021 following sharp increases last year.

## Net government outlays

| Fiscal year                           | 2021              | 2022   | 2023   | 2024   | 2025   | 2026   | 2027   | 2028   | 2029   | 2030   | 2031   |
|---------------------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Feed grains</b>                    | (Million dollars) |        |        |        |        |        |        |        |        |        |        |
| Corn                                  | 1,138             | 70     | 1,470  | 2,045  | 2,354  | 2,652  | 2,767  | 2,923  | 2,930  | 2,912  | 2,891  |
| Sorghum                               | 260               | 2      | 98     | 130    | 149    | 163    | 167    | 166    | 162    | 162    | 162    |
| Barley                                | 57                | 71     | 94     | 101    | 112    | 123    | 127    | 131    | 134    | 133    | 132    |
| Oats                                  | 3                 | 3      | 9      | 9      | 9      | 9      | 9      | 10     | 10     | 10     | 10     |
| <b>Food grains</b>                    |                   |        |        |        |        |        |        |        |        |        |        |
| Wheat                                 | 1,737             | 1,289  | 1,163  | 1,177  | 1,223  | 1,300  | 1,297  | 1,319  | 1,342  | 1,324  | 1,282  |
| Rice                                  | 332               | 360    | 434    | 390    | 365    | 340    | 300    | 253    | 221    | 197    | 174    |
| <b>Oilseeds</b>                       |                   |        |        |        |        |        |        |        |        |        |        |
| Soybeans                              | 693               | 39     | 191    | 286    | 392    | 534    | 753    | 891    | 791    | 702    | 612    |
| Peanuts                               | 409               | 381    | 389    | 502    | 517    | 535    | 520    | 525    | 526    | 504    | 482    |
| Other oilseeds                        | 115               | 65     | 101    | 109    | 117    | 129    | 135    | 139    | 137    | 137    | 137    |
| <b>Other selected commodities</b>     |                   |        |        |        |        |        |        |        |        |        |        |
| Upland cotton                         | 966               | 492    | 686    | 777    | 758    | 717    | 692    | 666    | 637    | 624    | 629    |
| Dairy                                 | 597               | 712    | 637    | 574    | 548    | 503    | 499    | 492    | 468    | 491    | 450    |
| <b>Subtotal, selected commodities</b> | 6,307             | 3,483  | 5,271  | 6,098  | 6,544  | 7,005  | 7,266  | 7,514  | 7,357  | 7,195  | 6,959  |
| <b>Conservation reserve</b>           | 1,880             | 1,996  | 2,034  | 2,070  | 2,028  | 2,015  | 2,023  | 2,023  | 2,024  | 2,024  | 2,024  |
| <b>Other CCC</b>                      |                   |        |        |        |        |        |        |        |        |        |        |
| Disaster payments, NAP                | 760               | 691    | 684    | 682    | 677    | 677    | 682    | 682    | 682    | 682    | 693    |
| All other net CCC outlays             | 1,044             | 586    | 588    | 644    | 631    | 674    | 702    | 705    | 781    | 757    | 757    |
| <b>Net CCC outlays</b>                | 9,991             | 6,756  | 8,578  | 9,494  | 9,880  | 10,372 | 10,673 | 10,925 | 10,844 | 10,658 | 10,433 |
| <b>NRCS conservation</b>              | 3,616             | 3,343  | 3,254  | 3,432  | 3,476  | 3,538  | 3,643  | 3,666  | 3,682  | 3,669  | 3,669  |
| <b>Crop insurance</b>                 | 8,903             | 10,169 | 9,961  | 10,054 | 10,132 | 10,027 | 10,042 | 10,075 | 10,237 | 10,342 | 10,424 |
| <b>Selected other non-CCC</b>         |                   |        |        |        |        |        |        |        |        |        |        |
| Coronavirus food assist. (CFAP)       | 24,500            | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Paycheck protection (PPP)             | 2,800             | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Other non-CCC emergency               | 1,386             | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| <b>Total mandatory outlays</b>        | 51,196            | 20,268 | 21,792 | 22,980 | 23,488 | 23,936 | 24,358 | 24,666 | 24,763 | 24,669 | 24,526 |

Notes: "NRCS Conservation" denotes mandatory spending on conservation programs authorized by the 2002, 2008, 2014 and 2018 farm bills that is not included in reported CCC outlays. "NAP" is the Noninsured Crop Disaster Assistance Program. CFAP is the Coronavirus Food Assistance Program. Fiscal years begin on October 1 of the previous calendar year (FY 2021: Oct. 1, 2020-Sep. 30, 2021).

All projections are averages across 500 stochastic outcomes.

## Selected direct government payments

| Marketing year                  | 20/21         | 21/22        | 22/23        | 23/24        | 24/25        | 25/26        | 26/27        | 27/28        | 28/29        | 29/30        | 30/31        |
|---------------------------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| (Million dollars)               |               |              |              |              |              |              |              |              |              |              |              |
| ARC payments                    | 77            | 424          | 512          | 607          | 812          | 1,047        | 1,377        | 1,280        | 1,146        | 1,118        | 1,033        |
| PLC payments                    | 2,362         | 3,880        | 4,611        | 5,001        | 5,289        | 5,320        | 5,236        | 5,223        | 5,185        | 5,174        | 4,983        |
| Marketing loans                 | 0             | 201          | 283          | 356          | 322          | 345          | 358          | 354          | 333          | 296          | 313          |
| Coronavirus food assist. (CFAP) | 24,500        | n.a.         | n.a.         | n.a.         | n.a.         | n.a.         | n.a.         | n.a.         | n.a.         | n.a.         | n.a.         |
| <b>Total</b>                    | <b>26,939</b> | <b>4,504</b> | <b>5,406</b> | <b>5,964</b> | <b>6,423</b> | <b>6,712</b> | <b>6,970</b> | <b>6,857</b> | <b>6,664</b> | <b>6,588</b> | <b>6,330</b> |

Note: Includes selected payments for feed grains, food grains, oilseeds, and cotton.

All projections are averages across 500 stochastic outcomes.

## Crop insurance

| Year                     | 2020   | 2021   | 2022   | 2023   | 2024   | 2025   | 2026   | 2027   | 2028   | 2029   | 2030   |
|--------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| (Million dollars)        |        |        |        |        |        |        |        |        |        |        |        |
| <b>Total premiums</b>    | 10,056 | 12,255 | 11,900 | 11,888 | 11,871 | 11,911 | 11,981 | 12,105 | 12,293 | 12,499 | 12,668 |
| Producer-paid premiums   | 3,745  | 4,561  | 4,426  | 4,425  | 4,420  | 4,434  | 4,460  | 4,506  | 4,577  | 4,655  | 4,718  |
| Premium subsidies        | 6,311  | 7,694  | 7,473  | 7,463  | 7,452  | 7,477  | 7,521  | 7,599  | 7,716  | 7,844  | 7,950  |
| <b>Total indemnities</b> | 8,990  | 10,948 | 10,611 | 10,709 | 10,843 | 10,704 | 10,737 | 10,763 | 10,985 | 11,133 | 11,278 |
| <b>Loss ratio</b>        | 0.89   | 0.89   | 0.89   | 0.90   | 0.91   | 0.90   | 0.90   | 0.89   | 0.89   | 0.89   | 0.89   |
| <b>Net indemnities</b>   | 5,245  | 6,387  | 6,184  | 6,284  | 6,423  | 6,271  | 6,277  | 6,257  | 6,408  | 6,478  | 6,560  |
| Corn                     | 1,603  | 2,339  | 2,340  | 2,453  | 2,586  | 2,408  | 2,381  | 2,367  | 2,420  | 2,431  | 2,447  |
| Soybeans                 | 263    | 1,577  | 1,434  | 1,380  | 1,345  | 1,339  | 1,340  | 1,299  | 1,354  | 1,363  | 1,398  |
| Wheat                    | 194    | 507    | 524    | 548    | 557    | 552    | 545    | 546    | 549    | 562    | 559    |
| Upland cotton            | 1,319  | 485    | 492    | 475    | 480    | 503    | 515    | 530    | 535    | 541    | 550    |
| All other                | 1,866  | 1,479  | 1,395  | 1,427  | 1,456  | 1,469  | 1,495  | 1,514  | 1,551  | 1,581  | 1,606  |
| <b>Net outlays</b>       | 9,894  | 8,903  | 10,169 | 9,961  | 10,054 | 10,132 | 10,027 | 10,042 | 10,075 | 10,237 | 10,342 |

All projections are averages across 500 stochastic outcomes.

## Farm cash receipts

| Calendar year       | 2020   | 2021   | 2022   | 2023   | 2024   | 2025   | 2026   | 2027   | 2028   | 2029   | 2030   |
|---------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| (Billion dollars)   |        |        |        |        |        |        |        |        |        |        |        |
| Feed grains         | 58.23  | 68.36  | 67.48  | 67.15  | 67.04  | 67.00  | 67.24  | 67.89  | 68.78  | 69.72  | 70.51  |
| Food grains         | 11.67  | 12.19  | 12.21  | 12.29  | 12.36  | 12.47  | 12.61  | 12.73  | 12.81  | 12.90  | 13.01  |
| Oilseeds            | 40.92  | 50.29  | 48.12  | 47.34  | 46.40  | 45.60  | 45.15  | 45.60  | 46.41  | 46.93  | 47.43  |
| Cotton              | 6.50   | 7.13   | 7.28   | 7.31   | 7.42   | 7.57   | 7.68   | 7.80   | 7.85   | 7.90   | 7.97   |
| Sugar               | 3.22   | 2.77   | 2.85   | 2.87   | 2.85   | 2.84   | 2.84   | 2.84   | 2.85   | 2.85   | 2.84   |
| Other crops         | 83.38  | 79.96  | 81.91  | 83.06  | 84.49  | 86.05  | 87.69  | 89.39  | 91.20  | 93.07  | 94.92  |
| Cattle              | 62.01  | 65.60  | 70.19  | 73.21  | 75.02  | 76.80  | 78.04  | 78.57  | 78.00  | 77.90  | 78.10  |
| Hogs                | 21.08  | 22.97  | 24.76  | 25.27  | 25.52  | 25.70  | 25.61  | 25.70  | 25.78  | 26.34  | 26.90  |
| Dairy products      | 40.62  | 39.38  | 39.86  | 40.65  | 41.70  | 42.12  | 42.63  | 43.13  | 43.93  | 44.74  | 45.36  |
| Poultry, eggs       | 35.79  | 39.48  | 41.66  | 42.49  | 43.69  | 44.79  | 45.65  | 46.66  | 47.69  | 48.86  | 49.97  |
| Other livestock     | 6.95   | 7.11   | 7.44   | 7.65   | 7.85   | 8.04   | 8.22   | 8.39   | 8.54   | 8.72   | 8.91   |
| Total cash receipts | 370.38 | 395.22 | 403.74 | 409.28 | 414.35 | 418.99 | 423.34 | 428.70 | 433.84 | 439.93 | 445.93 |

All projections are averages across 500 stochastic outcomes.

## Farm production expenses

| Calendar year             | 2020   | 2021   | 2022   | 2023   | 2024   | 2025   | 2026   | 2027   | 2028   | 2029   | 2030   |
|---------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| (Billion dollars)         |        |        |        |        |        |        |        |        |        |        |        |
| Feed                      | 60.11  | 65.90  | 64.08  | 63.63  | 63.22  | 62.83  | 62.72  | 63.00  | 63.66  | 64.22  | 64.77  |
| Purchased livestock       | 26.74  | 26.90  | 29.12  | 30.22  | 30.81  | 31.35  | 31.75  | 31.89  | 31.51  | 31.31  | 31.23  |
| Seed                      | 21.27  | 21.69  | 22.34  | 22.89  | 23.34  | 23.68  | 23.96  | 24.25  | 24.56  | 24.90  | 25.24  |
| Fertilizer and chemicals  | 39.22  | 41.07  | 41.92  | 42.06  | 42.24  | 42.45  | 42.70  | 43.10  | 43.77  | 44.52  | 45.33  |
| Fuels and electricity     | 17.20  | 18.20  | 19.23  | 20.38  | 20.99  | 21.72  | 22.66  | 23.58  | 24.57  | 25.42  | 26.21  |
| Interest                  | 15.39  | 15.23  | 15.50  | 15.78  | 16.08  | 16.43  | 16.83  | 17.36  | 17.97  | 18.62  | 19.27  |
| Contract and hired labor  | 35.30  | 35.89  | 37.11  | 38.25  | 39.45  | 40.68  | 42.02  | 43.39  | 44.84  | 46.32  | 47.90  |
| Capital consumption       | 28.28  | 28.46  | 29.01  | 29.21  | 29.26  | 29.29  | 29.31  | 29.34  | 29.42  | 29.53  | 29.68  |
| Rent to landlords         | 18.20  | 18.69  | 19.23  | 18.89  | 18.75  | 18.74  | 18.79  | 18.87  | 19.02  | 19.17  | 19.32  |
| All other                 | 83.49  | 86.41  | 88.37  | 90.09  | 91.56  | 93.05  | 94.66  | 96.36  | 98.21  | 100.05 | 101.91 |
| Total production expenses | 345.19 | 358.44 | 365.92 | 371.40 | 375.72 | 380.23 | 385.42 | 391.15 | 397.53 | 404.07 | 410.87 |

All projections are averages across 500 stochastic outcomes.

## Farm income indicators

| Calendar year                               | 2020              | 2021   | 2022   | 2023   | 2024   | 2025   | 2026   | 2027   | 2028   | 2029   | 2030   |
|---------------------------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                                             | (Billion dollars) |        |        |        |        |        |        |        |        |        |        |
| 1. Farm receipts                            | 404.53            | 430.08 | 439.40 | 445.38 | 451.06 | 456.12 | 460.98 | 466.94 | 472.88 | 479.78 | 486.58 |
| Crops                                       | 203.92            | 220.69 | 219.85 | 220.02 | 220.57 | 221.53 | 223.21 | 226.25 | 229.90 | 233.37 | 236.69 |
| Livestock                                   | 166.45            | 174.53 | 183.90 | 189.27 | 193.78 | 197.46 | 200.13 | 202.45 | 203.94 | 206.56 | 209.24 |
| Farm-related                                | 34.16             | 34.86  | 35.66  | 36.10  | 36.71  | 37.13  | 37.64  | 38.24  | 39.04  | 39.85  | 40.65  |
| 2. Government payments                      | 46.27             | 24.02  | 9.61   | 10.44  | 10.99  | 11.48  | 11.79  | 12.11  | 12.00  | 11.78  | 11.73  |
| 3. Gross cash income<br>(1 + 2)             | 450.80            | 454.10 | 449.01 | 455.83 | 462.05 | 467.59 | 472.77 | 479.05 | 484.88 | 491.56 | 498.31 |
| 4. Non-money income                         | 19.74             | 20.93  | 21.25  | 21.12  | 21.02  | 20.95  | 20.88  | 20.84  | 20.83  | 20.83  | 20.83  |
| 5. Value of inventory<br>Change             | -4.22             | -4.46  | -0.63  | -0.43  | -0.06  | 0.23   | 0.28   | 0.69   | 0.62   | 0.75   | 0.77   |
| 6. Gross farm income<br>(3 + 4 + 5)         | 466.32            | 470.57 | 469.63 | 476.52 | 483.01 | 488.77 | 493.93 | 500.58 | 506.34 | 513.14 | 519.91 |
| 7. Cash expenses                            | 314.56            | 327.54 | 334.16 | 339.16 | 343.36 | 347.87 | 353.07 | 358.78 | 365.10 | 371.54 | 378.18 |
| 8. Total expenses                           | 345.19            | 358.44 | 365.92 | 371.40 | 375.72 | 380.23 | 385.42 | 391.15 | 397.53 | 404.07 | 410.87 |
| 9. Net cash income<br>(3 - 7)               | 136.24            | 126.56 | 114.85 | 116.66 | 118.69 | 119.72 | 119.70 | 120.27 | 119.78 | 120.02 | 120.13 |
| 10. Realized net farm income<br>(3 + 4 - 8) | 125.34            | 116.59 | 104.35 | 105.55 | 107.35 | 108.31 | 108.23 | 108.74 | 108.19 | 108.31 | 108.27 |
| 11. Net farm income<br>(6 - 8)              | 121.13            | 112.13 | 103.71 | 105.12 | 107.29 | 108.54 | 108.51 | 109.43 | 108.81 | 109.06 | 109.04 |
| Deflated (2020 \$)                          | 122.53            | 112.13 | 102.04 | 101.55 | 101.58 | 100.63 | 98.55  | 97.36  | 94.77  | 92.96  | 90.95  |

All projections are averages across 500 stochastic outcomes.

## Land rental rates and real estate values

| Calendar year             | 2020               | 2021   | 2022   | 2023   | 2024   | 2025   | 2026   | 2027   | 2028   | 2029   | 2030   |
|---------------------------|--------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Rental rates              | (Dollars per acre) |        |        |        |        |        |        |        |        |        |        |
| Cropland                  | 139.00             | 145.14 | 149.66 | 146.70 | 145.51 | 145.41 | 145.80 | 146.52 | 147.76 | 149.19 | 150.50 |
| Pasture                   | 13.00              | 13.97  | 14.35  | 14.23  | 14.19  | 14.21  | 14.25  | 14.28  | 14.33  | 14.34  | 14.35  |
| Value of farm real estate | 3,160              | 3,323  | 3,488  | 3,430  | 3,387  | 3,363  | 3,341  | 3,326  | 3,319  | 3,321  | 3,329  |

All projections are averages across 500 stochastic outcomes.

## Land use for major crops and the conservation reserve

| Marketing year                                         | 20/21           | 21/22  | 22/23  | 23/24  | 24/25  | 25/26  | 26/27  | 27/28  | 28/29  | 29/30  | 30/31  |
|--------------------------------------------------------|-----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Planted area</b>                                    | (Million acres) |        |        |        |        |        |        |        |        |        |        |
| Corn                                                   | 90.82           | 91.33  | 91.56  | 91.20  | 91.19  | 90.98  | 90.85  | 90.81  | 90.73  | 90.68  | 90.41  |
| Soybeans                                               | 83.08           | 90.44  | 89.20  | 88.78  | 88.25  | 87.87  | 87.71  | 87.73  | 87.86  | 87.85  | 88.06  |
| Wheat                                                  | 44.35           | 45.89  | 45.27  | 45.47  | 45.56  | 45.65  | 45.57  | 45.34  | 45.07  | 44.88  | 44.73  |
| Upland cotton                                          | 11.89           | 11.86  | 11.95  | 11.85  | 11.88  | 11.92  | 11.94  | 11.93  | 11.87  | 11.81  | 11.79  |
| Sorghum                                                | 5.88            | 6.79   | 6.64   | 6.59   | 6.58   | 6.58   | 6.59   | 6.60   | 6.61   | 6.61   | 6.59   |
| Barley                                                 | 2.62            | 2.30   | 2.44   | 2.42   | 2.40   | 2.36   | 2.31   | 2.27   | 2.24   | 2.20   | 2.16   |
| Oats                                                   | 2.98            | 2.66   | 2.77   | 2.81   | 2.84   | 2.87   | 2.89   | 2.89   | 2.89   | 2.90   | 2.90   |
| Rice                                                   | 3.04            | 2.75   | 2.74   | 2.76   | 2.78   | 2.80   | 2.83   | 2.85   | 2.84   | 2.84   | 2.83   |
| Sunflowers                                             | 1.72            | 1.39   | 1.34   | 1.33   | 1.32   | 1.31   | 1.31   | 1.31   | 1.31   | 1.31   | 1.31   |
| Peanuts                                                | 1.66            | 1.56   | 1.59   | 1.58   | 1.57   | 1.57   | 1.56   | 1.56   | 1.55   | 1.56   | 1.56   |
| Sugar beets                                            | 1.16            | 1.10   | 1.10   | 1.10   | 1.08   | 1.08   | 1.07   | 1.06   | 1.05   | 1.04   | 1.03   |
| Sugar cane (harvested)                                 | 0.95            | 0.92   | 0.92   | 0.93   | 0.92   | 0.92   | 0.91   | 0.90   | 0.90   | 0.89   | 0.88   |
| <b>12 crop planted area</b>                            | 250.16          | 258.98 | 257.54 | 256.82 | 256.38 | 255.91 | 255.54 | 255.25 | 254.94 | 254.57 | 254.25 |
| <b>Hay (harvested)</b>                                 | 52.24           | 51.87  | 52.00  | 51.97  | 51.95  | 51.92  | 51.89  | 51.85  | 51.84  | 51.90  | 51.97  |
| <b>12 crops + hay</b>                                  | 302.40          | 310.85 | 309.54 | 308.79 | 308.34 | 307.83 | 307.43 | 307.10 | 306.79 | 306.47 | 306.23 |
| <b>Conservation reserve (CRP)</b>                      | 21.92           | 22.50  | 23.00  | 23.50  | 23.50  | 23.50  | 23.50  | 23.50  | 23.50  | 23.50  | 23.50  |
| <b>12 crops + hay + CRP</b>                            | 324.32          | 333.35 | 332.54 | 332.29 | 331.84 | 331.33 | 330.93 | 330.60 | 330.29 | 329.97 | 329.73 |
| <b>Double-crop soybeans</b>                            | 3.83            | 4.66   | 4.34   | 4.31   | 4.27   | 4.23   | 4.21   | 4.20   | 4.19   | 4.18   | 4.18   |
| <b>12 crops + hay + CRP<br/>- double-crop soybeans</b> | 320.49          | 328.69 | 328.20 | 327.98 | 327.57 | 327.10 | 326.72 | 326.40 | 326.10 | 325.79 | 325.54 |

All projections are averages across 500 stochastic outcomes.

## Balance sheet of the farm sector

| Calendar year           | 2020              | 2021  | 2022  | 2023  | 2024  | 2025  | 2026  | 2027  | 2028  | 2029  | 2030  |
|-------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                         | (Billion dollars) |       |       |       |       |       |       |       |       |       |       |
| <b>Assets</b>           | 3,122             | 3,254 | 3,361 | 3,297 | 3,246 | 3,227 | 3,208 | 3,198 | 3,193 | 3,196 | 3,202 |
| Real estate             | 2,569             | 2,679 | 2,802 | 2,759 | 2,727 | 2,709 | 2,693 | 2,681 | 2,676 | 2,678 | 2,684 |
| Other assets            | 553               | 575   | 558   | 538   | 520   | 517   | 515   | 516   | 517   | 518   | 519   |
| <b>Debts</b>            | 432               | 445   | 457   | 468   | 474   | 479   | 482   | 486   | 490   | 494   | 499   |
| Real estate             | 279               | 288   | 298   | 306   | 310   | 311   | 312   | 312   | 312   | 313   | 313   |
| Other debts             | 153               | 157   | 159   | 162   | 164   | 167   | 170   | 174   | 178   | 182   | 185   |
| <b>Debt/asset ratio</b> | 13.8%             | 13.7% | 13.6% | 14.2% | 14.6% | 14.8% | 15.0% | 15.2% | 15.4% | 15.5% | 15.6% |

All projections are averages across 500 stochastic outcomes.

## Consumer price indices for food

| Calendar year              | 2020            | 2021  | 2022  | 2023  | 2024  | 2025  | 2026  | 2027  | 2028  | 2029  | 2030  |
|----------------------------|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                            | (1982-84 = 100) |       |       |       |       |       |       |       |       |       |       |
| <b>Total food</b>          | 267.2           | 272.9 | 279.0 | 285.5 | 291.9 | 298.0 | 304.0 | 310.3 | 316.7 | 323.4 | 330.5 |
| (Inflation rate)           | 3.4%            | 2.1%  | 2.2%  | 2.3%  | 2.3%  | 2.1%  | 2.0%  | 2.1%  | 2.1%  | 2.1%  | 2.2%  |
| <b>Food at home</b>        | 250.2           | 253.3 | 258.1 | 263.6 | 268.9 | 273.8 | 278.6 | 283.7 | 288.9 | 294.5 | 300.4 |
| Cereal and bakery          | 282.6           | 288.5 | 294.4 | 300.6 | 306.4 | 311.8 | 317.4 | 323.6 | 330.2 | 337.1 | 344.5 |
| Meat                       | 265.2           | 265.2 | 271.3 | 278.6 | 285.6 | 292.0 | 297.8 | 303.6 | 309.0 | 314.9 | 321.2 |
| Dairy                      | 228.3           | 228.5 | 231.7 | 236.9 | 242.5 | 247.7 | 252.8 | 258.3 | 264.2 | 270.6 | 277.1 |
| Fruit and vegetables       | 304.9           | 309.5 | 313.9 | 318.5 | 323.0 | 327.1 | 331.3 | 335.7 | 340.4 | 345.3 | 350.5 |
| Other food at home         | 217.3           | 221.9 | 225.9 | 230.1 | 234.0 | 237.7 | 241.5 | 245.7 | 250.2 | 254.9 | 259.8 |
| Sugar and sweets           | 227.6           | 230.0 | 235.1 | 240.6 | 245.7 | 250.3 | 255.3 | 260.7 | 266.5 | 272.6 | 278.9 |
| Fats and oils              | 229.5           | 233.8 | 238.7 | 243.6 | 248.3 | 252.7 | 257.7 | 263.3 | 269.2 | 275.7 | 282.5 |
| Other prepared items       | 232.3           | 238.0 | 242.3 | 246.8 | 250.9 | 254.9 | 259.0 | 263.4 | 268.1 | 273.0 | 278.2 |
| Non-alc. Beverages         | 176.9           | 180.4 | 183.4 | 186.6 | 189.6 | 192.3 | 195.3 | 198.3 | 201.6 | 205.0 | 208.6 |
| <b>Food away from home</b> | 293.9           | 302.6 | 310.2 | 317.9 | 325.7 | 333.2 | 340.6 | 348.2 | 356.1 | 364.2 | 372.7 |

All projections are averages across 500 stochastic outcomes.

## Consumer expenditures for food

| Calendar year                       | 2020                 | 2021  | 2022  | 2023  | 2024  | 2025  | 2026  | 2027  | 2028  | 2029  | 2030  |
|-------------------------------------|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                     | (Dollars per person) |       |       |       |       |       |       |       |       |       |       |
| <b>Total food per capita</b>        | 5,053                | 5,443 | 5,761 | 5,976 | 6,143 | 6,304 | 6,467 | 6,637 | 6,815 | 7,002 | 7,193 |
| Food at home                        | 2,615                | 2,597 | 2,636 | 2,701 | 2,764 | 2,823 | 2,883 | 2,946 | 3,011 | 3,080 | 3,150 |
| Food away from home                 | 2,438                | 2,846 | 3,125 | 3,275 | 3,379 | 3,481 | 3,584 | 3,691 | 3,804 | 3,922 | 4,043 |
| Multiply by population for:         | (Billion dollars)    |       |       |       |       |       |       |       |       |       |       |
| <b>Total U.S. food expenditures</b> | 1,665                | 1,798 | 1,910 | 1,991 | 2,057 | 2,123 | 2,190 | 2,260 | 2,333 | 2,410 | 2,489 |

All projections are averages across 500 stochastic outcomes.



## Crop sector stochastic results

| Marketing year                        | 20/21                | 21/22 | 22/23  | 23/24  | 24/25  | 25/26  | 26/27  | 27/28  | 28/29  | 29/30  | 30/31  |
|---------------------------------------|----------------------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Corn price</b>                     |                      |       |        |        |        |        |        |        |        |        |        |
|                                       | (Dollars per bushel) |       |        |        |        |        |        |        |        |        |        |
| 90th percentile                       | 4.29                 | 5.27  | 5.22   | 5.20   | 5.21   | 4.95   | 5.03   | 4.94   | 4.91   | 5.09   | 4.91   |
| Expectation                           | 4.22                 | 4.06  | 3.99   | 3.93   | 3.85   | 3.79   | 3.79   | 3.78   | 3.79   | 3.78   | 3.78   |
| 10th percentile                       | 4.14                 | 3.07  | 2.86   | 2.81   | 2.84   | 2.82   | 2.73   | 2.70   | 2.70   | 2.71   | 2.71   |
| <b>Soybean price</b>                  |                      |       |        |        |        |        |        |        |        |        |        |
| 90th percentile                       | 11.51                | 13.32 | 13.58  | 13.11  | 12.72  | 12.50  | 12.18  | 12.73  | 12.35  | 12.31  | 12.35  |
| Expectation                           | 11.15                | 10.61 | 10.39  | 10.15  | 9.80   | 9.66   | 9.47   | 9.57   | 9.58   | 9.60   | 9.58   |
| 10th percentile                       | 10.81                | 8.07  | 7.44   | 7.20   | 7.23   | 6.99   | 6.94   | 7.00   | 7.01   | 6.87   | 6.89   |
| <b>Wheat price</b>                    |                      |       |        |        |        |        |        |        |        |        |        |
| 90th percentile                       | 4.88                 | 6.24  | 6.61   | 6.53   | 6.54   | 6.49   | 6.53   | 6.45   | 6.42   | 6.54   | 6.42   |
| Expectation                           | 4.84                 | 5.09  | 5.18   | 5.17   | 5.12   | 5.07   | 5.05   | 5.04   | 5.05   | 5.06   | 5.08   |
| 10th percentile                       | 4.80                 | 3.99  | 3.88   | 3.74   | 3.70   | 3.71   | 3.63   | 3.74   | 3.74   | 3.76   | 3.76   |
| <b>PLC payments</b>                   |                      |       |        |        |        |        |        |        |        |        |        |
|                                       | (Million dollars)    |       |        |        |        |        |        |        |        |        |        |
| 90th percentile                       | 2,517                | 9,269 | 11,711 | 12,310 | 12,466 | 11,925 | 12,780 | 13,156 | 13,571 | 12,316 | 12,571 |
| Expectation                           | 2,362                | 3,880 | 4,611  | 5,001  | 5,289  | 5,320  | 5,236  | 5,223  | 5,185  | 5,174  | 4,983  |
| 10th percentile                       | 2,214                | 778   | 855    | 903    | 884    | 881    | 696    | 772    | 730    | 701    | 632    |
| <b>ARC payments</b>                   |                      |       |        |        |        |        |        |        |        |        |        |
| 90th percentile                       | 90                   | 1,085 | 1,443  | 1,671  | 2,010  | 2,472  | 3,153  | 3,122  | 2,814  | 2,775  | 2,679  |
| Expectation                           | 77                   | 424   | 512    | 607    | 812    | 1,047  | 1,377  | 1,280  | 1,146  | 1,118  | 1,033  |
| 10th percentile                       | 65                   | 43    | 53     | 49     | 65     | 86     | 145    | 86     | 101    | 93     | 71     |
| <b>Crop insurance net indemnities</b> |                      |       |        |        |        |        |        |        |        |        |        |
| 90th percentile                       | 5,331                | 9,476 | 9,648  | 9,650  | 9,775  | 9,631  | 9,788  | 9,758  | 10,038 | 9,813  | 10,461 |
| Expectation                           | 5,245                | 6,387 | 6,184  | 6,284  | 6,423  | 6,271  | 6,277  | 6,257  | 6,408  | 6,478  | 6,560  |
| 10th percentile                       | 5,159                | 3,995 | 3,399  | 3,527  | 3,553  | 3,364  | 3,296  | 3,385  | 3,473  | 3,550  | 3,547  |

## Other stochastic results

| Year                                   | 2020              | 2021  | 2022  | 2023  | 2024  | 2025  | 2026  | 2027  | 2028  | 2029  | 2030  |
|----------------------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Net farm income (calendar year)</b> |                   |       |       |       |       |       |       |       |       |       |       |
|                                        | (Billion dollars) |       |       |       |       |       |       |       |       |       |       |
| 90th percentile                        | 121.1             | 126.1 | 121.4 | 123.3 | 126.8 | 126.3 | 128.7 | 128.1 | 130.6 | 129.3 | 129.9 |
| Expectation                            | 121.1             | 112.1 | 103.7 | 105.1 | 107.3 | 108.5 | 108.5 | 109.4 | 108.8 | 109.1 | 109.0 |
| 10th percentile                        | 121.1             | 98.0  | 86.6  | 88.1  | 89.2  | 89.5  | 88.5  | 89.6  | 87.5  | 89.4  | 86.1  |
| <b>Net CCC outlays (fiscal year)</b>   |                   |       |       |       |       |       |       |       |       |       |       |
| 90th percentile                        | 16.9              | 11.0  | 8.0   | 14.6  | 17.7  | 18.3  | 18.9  | 18.6  | 20.0  | 20.3  | 19.9  |
| Expectation                            | 16.9              | 10.0  | 6.8   | 8.6   | 9.5   | 9.9   | 10.4  | 10.7  | 10.9  | 10.8  | 10.7  |
| 10th percentile                        | 16.9              | 9.2   | 5.8   | 4.6   | 4.8   | 4.7   | 4.8   | 5.0   | 4.9   | 5.0   | 4.8   |

Note that the process used to generate these stochastic estimates considers only some possible sources of uncertainty. "True" uncertainty may be even greater than these figures suggest, especially regarding more distant projections. For example, all solutions assume a continuation of current policies.