The Feed

Farmer Mac's Quarterly Perspective on Agriculture

Spring 2019

FARMER MAC

FINANCING RURAL AMERICA

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ABOUT THE FEED

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

ABOUT FARMER MAC

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

Contacts

To subscribe to The Feed, please visit: www.farmermac.com/thefeed

For media inquiries:
Megan Pelaez
Director – Marketing & Communications
MPelaez@farmermac.com | 202.872.5689

For business inquiries:
Patrick Kerrigan
Vice President – Business Development
PKerrigan@farmermac.com | 202.872.5560

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A MESSAGE FROM CURT COVINGTON

For many producers and lenders, the winter months offer an opportunity for reflection in the calm before the storm of spring planting. The season also marks the start of many farm lender conferences across the country, where lenders can hear from industry experts in trade, agricultural economics, commodity marketing, and risk management. These conferences afford Farmer Mac's business and credit teams the valuable opportunity to talk with hundreds of "boots on the ground" lenders, credit officers, and CEOs to get their often-unfiltered view of credit conditions at their financial institutions and of the overall financial health of rural America. Invariably, seasoned lenders weave references to the 1980s farm financial crisis into discussions. While many of them feel there may be pain to come, few expect a repeat of the 1980s, for a number of reasons: 1) while balance sheet liquidity is shrinking, balance sheet solvency remains healthy; 2) farmers in the Midwest have come to recognize that the current commodity price cycle is, perhaps, the "new normal" and have worked hard to reduce their expenses accordingly; 3) farmers that are struggling to stay afloat continue to see opportunities to sell their land at reasonable prices into a supportive market.

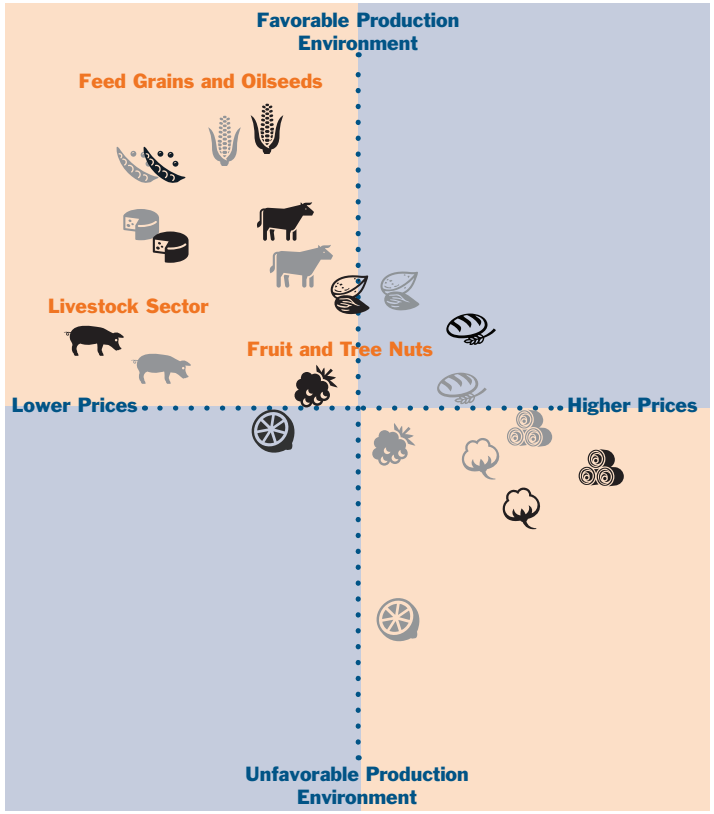
Trade remains a hot topic for many ag lenders as well. Despite retaliatory tariffs in place for many of the United States' top trading partners, many lenders were hopeful that a series of comprehensive trade agreements would be negotiated soon. Lenders are also talking about the improvements and protections offered in the 2018 Farm Bill. President Trump signed the Agricultural Improvement Act of 2018 into law this past December, which included protections for the increasingly-important federal crop insurance program and increases to the Farm Service Agency loan guarantee and direct loan programs.

In the end, lenders continue to see that the long-run strengths and opportunities in the food and farm sectors far outweigh the weaknesses and threats. In the age of amplified market volatility, we at Farmer Mac believe that a prudent and pragmatic approach to lending is important to long-term success. We continue to maintain a tempered approach to ag lending and keep a steady hand on the wheel of the secondary markets for rural credit. Whatever phase of the agricultural economic cycle we find ourselves in, Farmer Mac will remain steadfast in our mission and will continue to support the capital needs of rural America for generations to come.

Happy and healthy spring to all,

Curt Covington,
EVP - Chief Credit Officer

PRODUCTION AND MARKET PRICE PERCEPTUAL MAP



Winter 2018	Spring 2019
	ALMONDS
	CATTLE/CALVES
	CITRUS
	CORN
	COTTON
	DAIRY
	HAY
	HOGS
	SOYBEANS
	WHEAT
	WINE GRAPES

AN UPDATE ON FARM BANKRUPTCIES
(resource 1, 2, 3)

By: Robert Dinterman and Ani Katchova, The Ohio State University

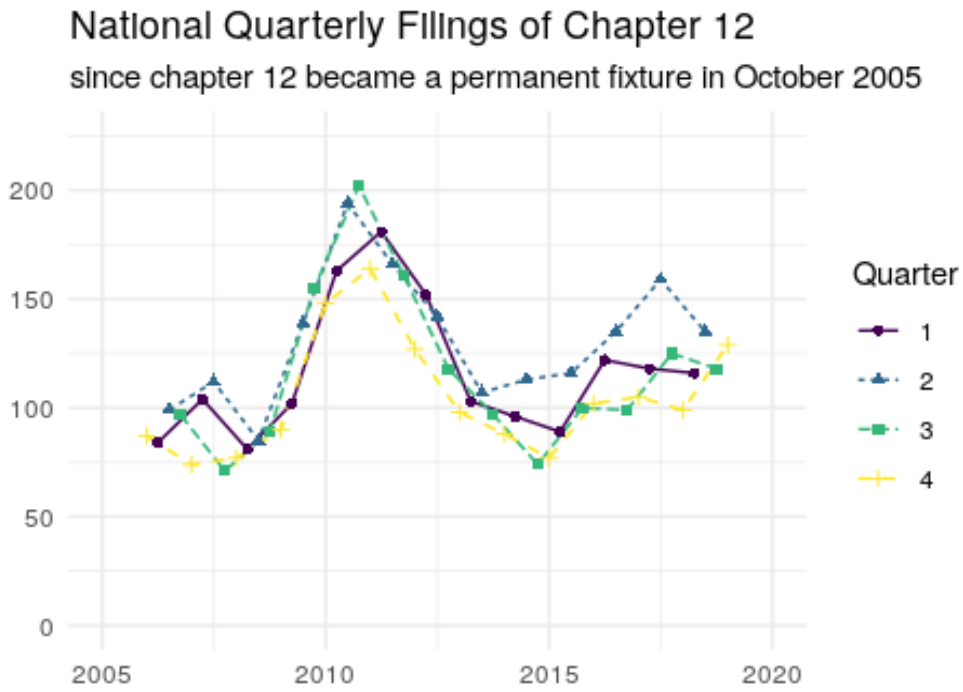
Key Highlights

National farm bankruptcy levels have stabilized below levels observed from 2009-2012.

Bankruptcy filings have increased in some areas but remain relatively low.

Farm and off-farm income levels, farmland value trends, and macroeconomic factors all help determine regional differences in farm bankruptcy levels.

Figure 1: National Farm Bankruptcy Filings by Quarter and Year



Given the continued lower price environment for many commodities and trade uncertainty, there has been increased interest in farm bankruptcy rates. Chapter 12 bankruptcy, more commonly referred to as farm bankruptcy, is a bankruptcy procedure where family farmers or fisherman can restructure their debts to be repaid over a period of three to five years conditional on income and debt limit requirements being met.

Our research has shown that there are many factors that affect the regional variation of farm bankruptcies, including farmland values, commodity prices, on-farm income, the financial profile of a farmer, interest rates, and other regional economic factors. While no one factor is the root cause of bankruptcy, farmland values have a heavy influence on bankruptcy filings due to farmers typically financing the purchase of land and using that as collateral. When farmland values decline, the underlying assets of a farmer erode and makes it more advantageous for a farmer to file for bankruptcy to write down the value of their outstanding debts on farmland to its market value.

NATIONAL CHAPTER 12 FARM BANKRUPTCIES. Despite the increased interest in farm bankruptcy, by and large, the recent agricultural downturn has not manifested itself in elevated levels of farm bankruptcies nationally. Over the past few quarters Chapter 12 bankruptcy filings have been fairly stable, stabilizing somewhat above the level seen when chapter 12 became a permanent fixture of the bankruptcy code in 2005. The U.S. experienced elevated levels of chapter 12 filings towards the end of 2009 through mid-2012, but aside from the second quarter of 2017 there has not been a quarter with more than 150 chapter 12 bankruptcies filed. This is a good sign for the agricultural sector and may reflect the resilience of farmland values, which have belied the decline in net farm income in many parts of the country.

U.S. COURT CIRCUIT AND STATE CHAPTER 12 FARM BANKRUPTCIES. While there has been a stabilization of farm bankruptcies nationally, there is still substantial regional variation in the number of farm bankruptcies across the U.S. The U.S. Courts report quarterly on bankruptcies filed in each of the 94 bankruptcy court districts organized in 11 court circuits. These bankruptcy filings can be aggregated to analyze farm bankruptcy trends at the circuit court and state level.

A few circuits stand out for their recent upticks in chapter 12 filings. The 7th (Ill., Ind., Wis.), 8th (Ark., Iowa, Minn., Mo., N.D., Neb., S.D.), and 10th (Colo., Kan., N.M., Okla., Utah, Wyo.) court circuits each predominately cover states in the Plains or Corn Belt and have seen their number of farm bankruptcies rise over the last several years (Figure 2). However, these increases have been counterbalanced by reduced filings in other areas

like the 9th and 11th circuits that saw a higher number of filings back in 2010 and 2011.

These divergent trends are also evident at the state level. Wisconsin led the nation in farm bankruptcies over the past year with 49 cases filed between January 2018 through December 2018. This has been a recent trend for Wisconsin as they had 45 cases filed in 2017 and 40 in 2016. While Wisconsin has had an upward trend and has led the nation on chapter 12 filings, other states such as Kansas and Nebraska have seen larger increases year-over-year. Both Kansas and Nebraska have seen steady declines in their agricultural land values every year since their all-time highs in 2014. On the other hand, both Iowa and North Carolina also saw an all-time high for their agricultural land value in 2014 with declining and stagnating land values afterward. A year-over-year increase in chapter 12 bankruptcies has not manifested itself in these states, and in fact declined for Iowa. Many states outside of the Plains and Corn Belt have seen year-over-year declines in Chapter 12 bankruptcy filings.

Differences in recent farm bankruptcy trends across states highlight the importance of considering state-specific factors like farm income conditions and changes in farmland values. At the same time, not all bankruptcies filed by farmers are chapter 12, and so the measure of chapter 12 as farm bankruptcies underreports the number of bankruptcies that farms undertake. Chapter 12 is the preferable option for a farmer filing for bankruptcy if they wish to continue farming, although only farms with fewer than $4,153,150 in debts can qualify for chapter 12 bankruptcy. However, larger farms may file for chapter 7 or chapter 11 bankruptcy because the size and scope of the operation led to the use of more debt than allowed when filing chapter 12 bankruptcy.

It is also important to note that chapter 12 bankruptcies are only one indicator of the financial health of the agricultural sector and it is a testament to farmers' resiliency that there have not been more chapter 12s filed over the past 5 years of declining net farm incomes.

Figure 2: Farm Bankruptcies have Trended Higher in Several Court Circuits in the Plains and Midwest

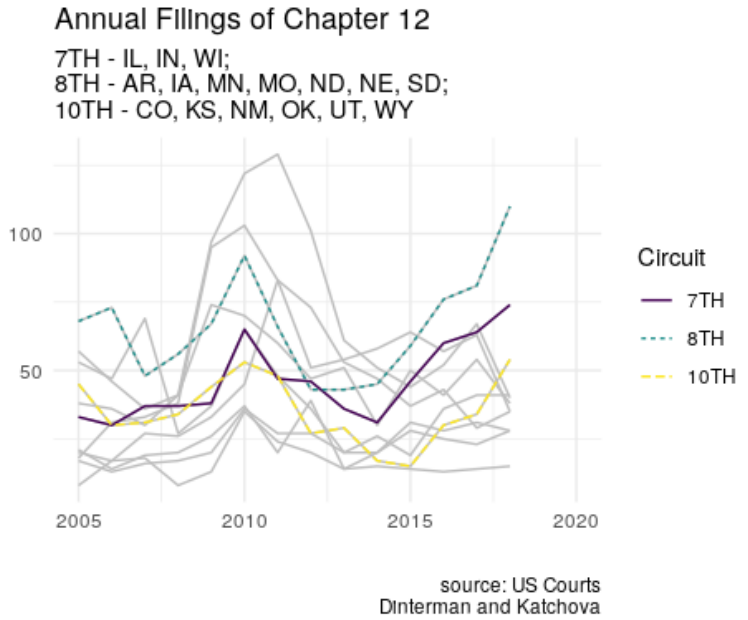
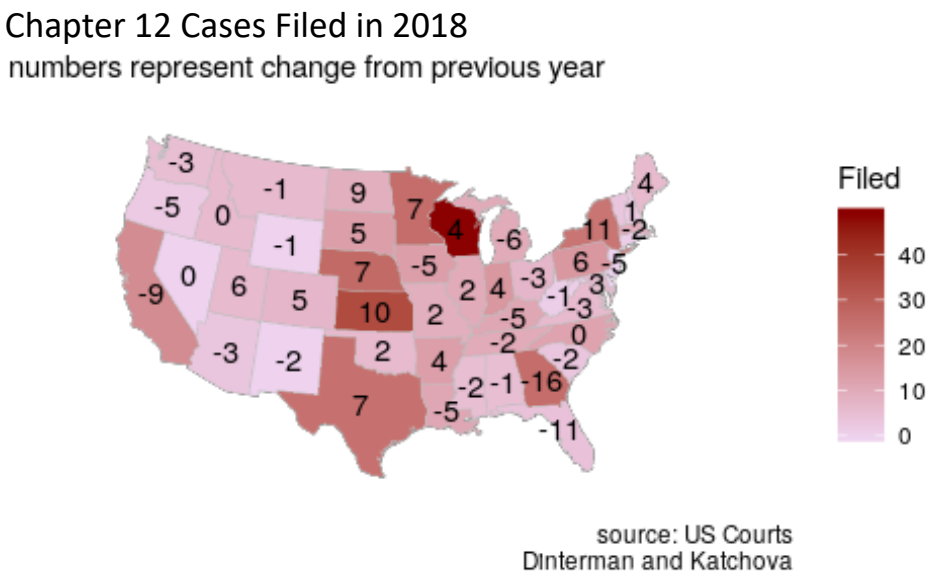


Figure 3: State Farm Bankruptcy Filings



FARMLAND RETURN PROFILES BY STATE
(resource 4, 5)

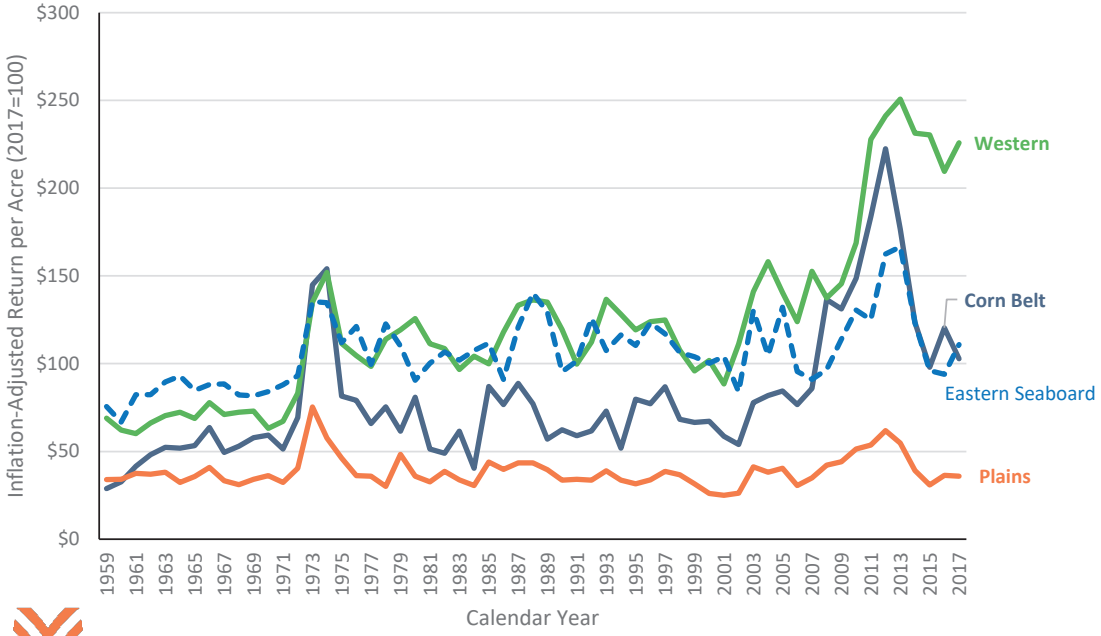
Key Highlights

Operator returns average more than rental returns for farmland in most states.

Net operating profit per acre in the Corn Belt is down from 2012 peaks but remains above the historical average.

Land returns in Western states tend to be higher than in other regions due to the higher value goods produced and unique production risks.

Figure 4: Inflation-Adjusted Farmland Net Operating Income per Acre by U.S. Region



Source: USDA ERS, State Cash Receipts and Expenses; Author's Calculations

HISTORICAL OPERATING RETURNS BY REGION. Different regions of the U.S. offer vastly different soil types, climates, and technology, which leads to different blends of agricultural production. For example, the silty clay loam soil covering Iowa, combined with advanced seed technology, makes corn and soybeans the logical choice for nearly 90 percent of farmland in the state. Conversely, the varied soil types, micro-climates, and long growing seasons in California gives growers the ability to produce more than 200 different crops. Regardless of the crop grown, all production experiences price volatility and changing cost of production, giving rise to net income volatility.

Using state-level USDA cash receipt, expense, and acreage data, Figure 4 highlights the historical trends in regional inflation-adjusted net operating income (NOI) per acre. Each region's NOI tended to increase in the two major farm profitability expansions in the 1970s and 2010s, but the timing and magnitude of changes vary by region. Average profitability in the Corn Belt swelled in 2012 due to widespread drought and the high grain prices and crop insurance payments that followed. Since 2012, average NOI in the Corn Belt has fallen by more than $100 per acre, predominantly in grain-intensive states like Iowa and Illinois. The inflation-adjusted NOI in Illinois peaked in 2012 at over $440 per acre (6.6 percent of average land values in the state), but registered just $223 in 2017 (3.0 percent of average land values). NOI for Western agriculture has increased significantly since 2007 due to an increase in consumer preference for fruits, vegetables, and particularly nuts. In California, inflation-adjusted NOI peaked in 2013 at $723 per acre (9.9 percent of average land values) and had only fallen to $622 per acre in 2017 (7.1 percent of average land values). Overall, NOI in the Plains region has been lower than in other areas, primarily due to lower yields and greater land use for pasture. Finally, farmland in Eastern states has

experienced very stable NOI returns for operators, with NOI increasing at the pace of inflation.

RENTAL RETURNS COMPARED. In addition to revenues and expenses, the USDA surveys thousands of farmers per year to estimate average cash rental rates at the state and county level. Naturally, operating returns tend to be higher than rental returns as operators would not rent land for more than they expect to earn farming it. However, there are periods and states where rental returns are more consistent with or even higher than operating profits. For example, the real operator returns in Corn Belt states averaged more than 2.5 percent higher-than-average real after-tax rental returns from 2008 to 2013. Since 2013, cash rents in the Corn Belt increased, and the gap between operating rates and rental returns narrowed and even inverted for some states in 2016 and 2017. For most states, returns from rental income are lower than operating returns, but they also exhibit lower volatility from year to year. Cash rents tend to be sticky as many operators will enter into multi-year contracts at fixed and semi-fixed prices.

Figure 5 plots each state's average real operating profit against its average after-tax cash rental return from 1994 to 2017. The size of each bubble is related to the total value of agricultural real estate in the state. Most states fall near the identity line where operating returns are near or slightly higher than rental returns. Southeastern states like Florida, Georgia, and North Carolina tend to have lower rental rates, but Mountain and Plains states like Idaho, Colorado, and Arizona tend to have higher rental rates (likely due to the higher rents associated with irrigated cropland, a quirk of the survey data reported by the USDA). Average operating returns to California farmland has far outpaced rental returns due to the large returns on nut crops and other orchard crops. States with a higher percentage of their cash receipts tied to permanent crops like these tend to have higher returns, a result of the higher margins achieved by fruits, nuts, and vegetables, and the additional investments required in the trees and vines to produce the crops.

CONCLUSIONS. For most regions, average NOI per acre followed the expansions and contractions of the commodity price booms in the 1970s and 2010s. Corn Belt per-acre returns have lowered from the most recent agricultural expansion, but the current profitability is at a higher level than in 25 years. Western agriculture is currently producing significantly higher average profitability from both an average NOI per acre as well as a percentage of average land values. The disparity is likely because Western agricultural production is focused on farm products closer to the consumer (i.e., fruits, nuts, and vegetables), and those states tend to show higher profitability than those in grain-intensive states. However, higher returns are not without higher associated risk; Western growers have several unique risks to manage, including water access issues, lack of generic commodity markets (e.g. you can't buy apple futures on the CME), and a labor-intensive process that is highly reliant on the U.S. immigration system to manage workflow. In general, average returns for cash rent at the state and regional levels tend to normalize with the returns to operators as landlords increase rents to share in the increased profitability. Declines in state-average NOI for operators also lead to declines in average cash rents, but rents tend to be sticky and take time to show up in the data. Average rental returns offer lower volatility compared to operating returns, but that also limits upside potential from year to year as increases in NOI are absorbed into rental rates over several future periods.

Figure 5: Average State-level Operating Returns vs. Rental Returns (1994-2017)

Source: USDA ERS, State Cash Receipts and Expenses; USDA NASS Cash Rent Survey; Author's Calculations

2018 FARM BILL TWEAKS AND UPDATES
(resource 6, 7, 8)

Key Highlights

The Agricultural Improvement Act of 2018 (Farm Bill) tweaks federal agricultural policy.

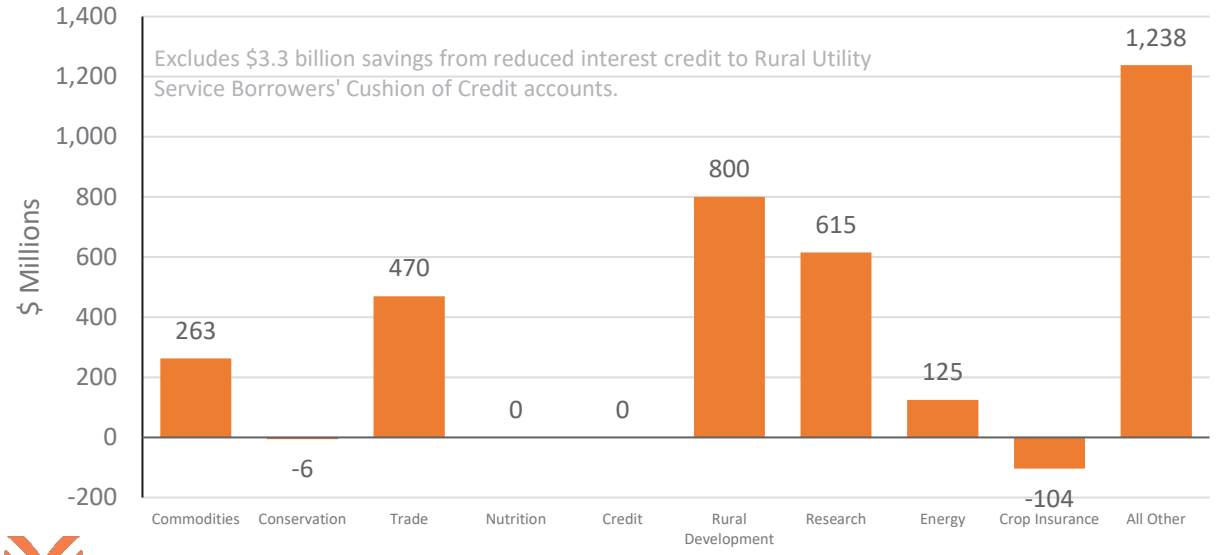
Farmers will have greater flexibility to choose between the Agricultural Risk Coverage and Price Loss Coverage commodity payment programs.

Increased USDA direct and guaranteed loan lending limits and budgetary authority should make it easier for more borrowers to access credit through these programs.

Industrial hemp was removed from the list of control substances, but there are still many issues to resolve before the commodity becomes lendable.

Changing economic conditions, farmer preferences, and availability of credit have led to changes in the farm debt landscape. Analyzing these changes can provide farmers, industry participants, and policymakers with a better understanding of current farm financial conditions and lending dynamics. In early December, Congress passed the Agricultural Improvement Act of 2018, more commonly referred to as the 2018 Farm Bill. The Farm Bill's passage is the culmination of years of listening sessions and policy discussions that ultimately resulted in a bipartisan agreement to bridge the differences between the Senate and House versions of the bill. The final $867 billion legislation sets federal food and agricultural policy for the next five years for an assortment of programs including farm commodity and credit programs, agricultural research, conservation, rural development, and food stamps.

Figure 6: Estimated Change in Farm Bill Expenditures from 2019-2028 by Policy Area



Source: Congressional Budget Office

The current Farm Bill also comes at a time when trade uncertainty is contributing to continued sluggishness in the agricultural economy and leading to calls for expanded income support for farmers. However, legislative rules require most bills to be budget neutral, meaning that Congressional negotiators seeking increased spending for one Farm Bill policy area must offset the expenditure with cost savings elsewhere. Accordingly, Congressional negotiators had to determine how to balance enhancements to the farm safety net with other policy priorities, while maintaining support for the Farm Bill among a diverse coalition of constituents.

To allow for increased spending elsewhere, the 2018 Farm Bill saves $3.3 billion by reducing the interest rate used to credit Rural Utility Service (RUS) Borrowers' Cushion of Credit accounts. Figure 6 summarizes the Congressional Budget Office's estimate of how other federal expenditures covered by the Farm Bill will change over the 2019-2028 period. Because of the RUS savings, the bill was able to include additional funds in most other policy areas.

Although the 2018 Farm Bill includes additional funding in many policy areas, the legislation focuses on tweaking existing programs rather than wholesale changes. Still, the enacted legislation contains a myriad of farm program changes that are likely to benefit agricultural producers and their lenders.

COMMODITY AND INCOME SUPPORT PAYMENTS. The 2018 Farm Bill makes several tweaks to farm commodity payment programs, which should provide additional support for agricultural producers. The legislation reauthorizes the Agricultural Risk Coverage (ARC) and Price Loss Coverage (PLC) programs that

were enacted in the 2014 Farm Bill but makes several changes. With these noteworthy changes, farmers will be allowed to make a new commodity-by-commodity ARC or PLC election in 2019, and starting in 2021, they will be allowed to re-elect their preferred commodity payment program annually, providing greater flexibility to maximize the payments they receive.

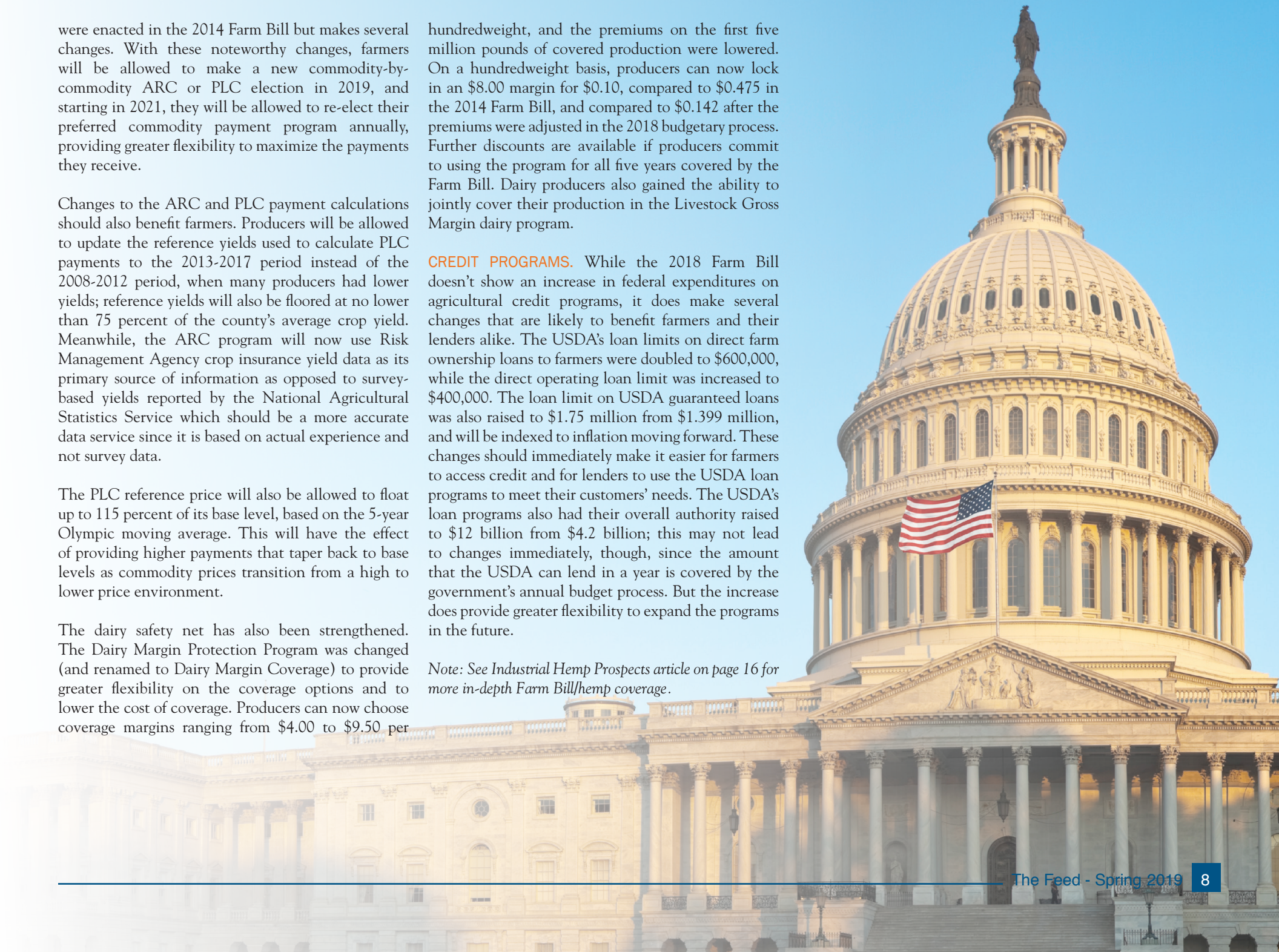
Changes to the ARC and PLC payment calculations should also benefit farmers. Producers will be allowed to update the reference yields used to calculate PLC payments to the 2013-2017 period instead of the 2008-2012 period, when many producers had lower yields; reference yields will also be floored at no lower than 75 percent of the county's average crop yield. Meanwhile, the ARC program will now use Risk Management Agency crop insurance yield data as its primary source of information as opposed to survey-based yields reported by the National Agricultural Statistics Service which should be a more accurate data service since it is based on actual experience and not survey data.

The PLC reference price will also be allowed to float up to 115 percent of its base level, based on the 5-year Olympic moving average. This will have the effect of providing higher payments that taper back to base levels as commodity prices transition from a high to lower price environment.

The dairy safety net has also been strengthened. The Dairy Margin Protection Program was changed (and renamed to Dairy Margin Coverage) to provide greater flexibility on the coverage options and to lower the cost of coverage. Producers can now choose coverage margins ranging from $4.00 to $9.50 per hundredweight, and the premiums on the first five million pounds of covered production were lowered. On a hundredweight basis, producers can now lock in an $8.00 margin for $0.10, compared to $0.475 in the 2014 Farm Bill, and compared to $0.142 after the premiums were adjusted in the 2018 budgetary process. Further discounts are available if producers commit to using the program for all five years covered by the Farm Bill. Dairy producers also gained the ability to jointly cover their production in the Livestock Gross Margin dairy program.

CREDIT PROGRAMS. While the 2018 Farm Bill doesn't show an increase in federal expenditures on agricultural credit programs, it does make several changes that are likely to benefit farmers and their lenders alike. The USDA's loan limits on direct farm ownership loans to farmers were doubled to $600,000, while the direct operating loan limit was increased to $400,000. The loan limit on USDA guaranteed loans was also raised to $1.75 million from $1.399 million, and will be indexed to inflation moving forward. These changes should immediately make it easier for farmers to access credit and for lenders to use the USDA loan programs to meet their customers' needs. The USDA's loan programs also had their overall authority raised to $12 billion from $4.2 billion; this may not lead to changes immediately, though, since the amount that the USDA can lend in a year is covered by the government's annual budget process. But the increase does provide greater flexibility to expand the programs in the future.

Note: See Industrial Hemp Prospects article on page 16 for more in-depth Farm Bill/hemp coverage.



2019 FARM INCOME UPDATE

(resource 9)

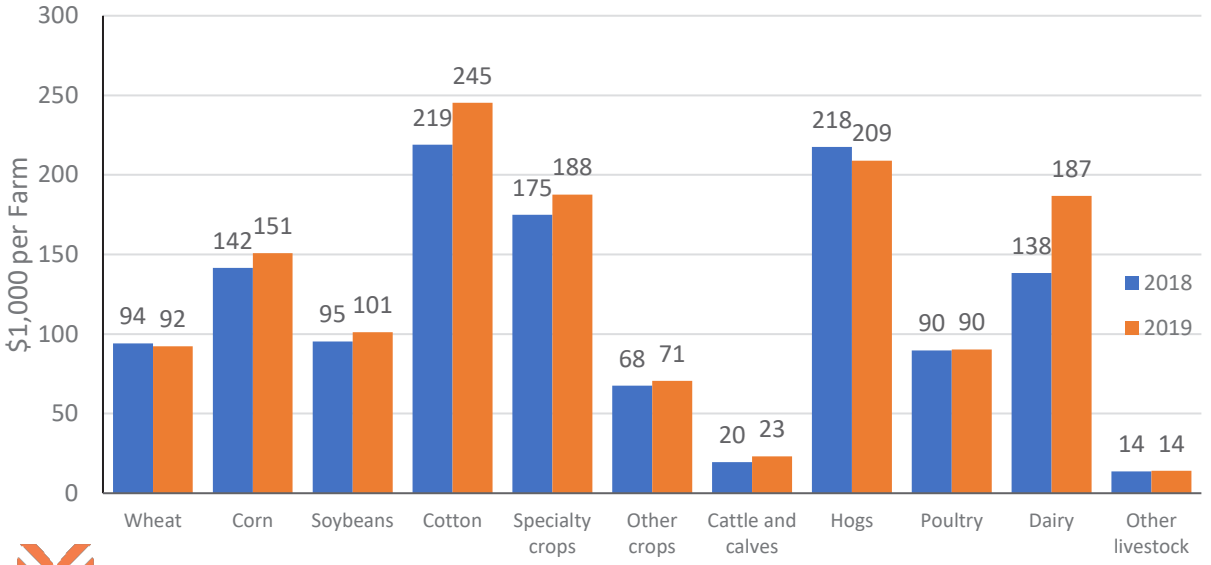
Key Highlights

The USDA predicts net farm income to rise by 10 percent in 2019, while net cash income is projected to increase by 4.7 percent.

Most major commodity specializations are projected to have higher net cash income levels in 2019.

Despite the rise in income, the USDA projects that the farm sector's working capital will decline and its debt-to-asset ratio will trend higher in 2019.

Figure 7: Average Farm Business Net Cash Income Increases by Production Specializations



Source: USDA, ERS Farm Income and Wealth Statistics

U.S. farmers have had to deal with a lower-income environment in recent years, but the USDA's initial 2019 projections suggest improved income levels this year. Net farm income – the most comprehensive measure of the farm sector's profitability – is projected to rise by 10 percent during the year, while net cash income is projected to rise by 4.7 percent. The improved income prospects are likely to be welcomed by farmers who have seen their profitability hampered by downward pressure on prices from ample supplies and trade uncertainty.

Over the last several years, higher yields for many crops and rising animal production have helped buoy farmers' income amidst a period of lower prices. The USDA projects that the higher quantities available for sale will continue to increase revenues for many commodities in 2019. However, an improving commodity price environment is expected to play a larger role in raising revenues this year. In addition to its sector level forecasts, the USDA also publishes forecasts for the average net cash income earned by farm businesses – that is, farms where the operator indicates that farming is their full-time occupation, or those with more than $350,000 in sales. With expense growth projected to be muted this year, the USDA's data show that net cash income will be higher for the average farm business this year. Average net cash farm income is projected to rise for all major crop farm specializations, except wheat (Figure 7). Despite higher feed cost projections, the USDA also indicates that average net cash income levels will be higher for all major livestock production specializations, other than hog operations.

Although the USDA anticipates higher income levels for many production specializations, conditions remain sluggish throughout much of the agricultural economy. The farm sector's inflation-adjusted net cash income is 37 percent below its 2012 peak and remains rangebound near its long-run average. In response to the current lower-income environment, farmers have drawn down their working capital and taken on additional debt. The USDA predicts both trends will continue in 2019. Working capital is projected to fall nearly 25 percent, and farmers' real estate and non-real estate debt is projected to grow at 5.1 and 1.9 percent, respectively. With debt rising more quickly than overall asset values, the sector's debt-to-asset ratio is expected to continue trending upward. But farm balance sheets have largely remained resilient. The USDA projects farm sector equity to rise 1.1 percent in 2019, reaching a record $2.5 trillion on continued strength in national farmland values.

TRENDS IN USDA FARM SERVICE AGENCY LENDING (resource 10)

Key Highlights

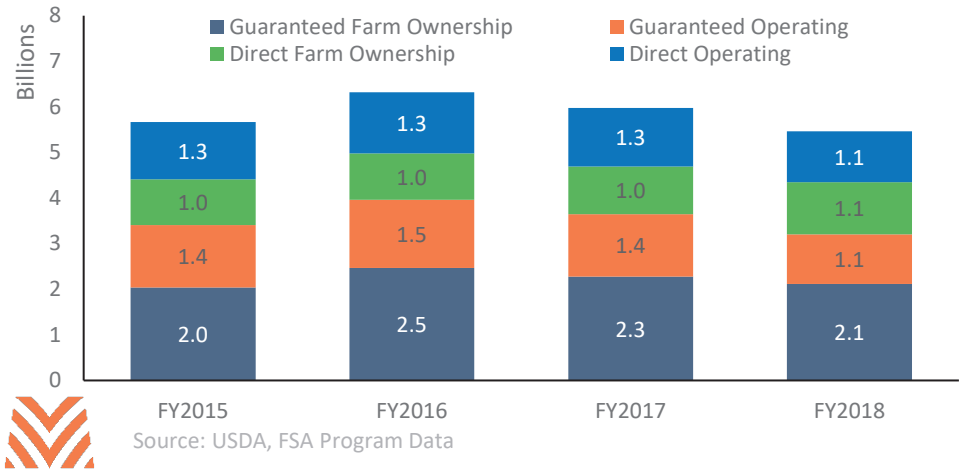
The USDA Farm Service Agency (FSA) offers several lending programs to support farmers' access to credit markets.

New originations of direct and guaranteed FSA loans fell by 8.6 percent between fiscal years 2017 and 2018.

Midwestern states account for the bulk of new FSA originations in the fiscal year 2018.

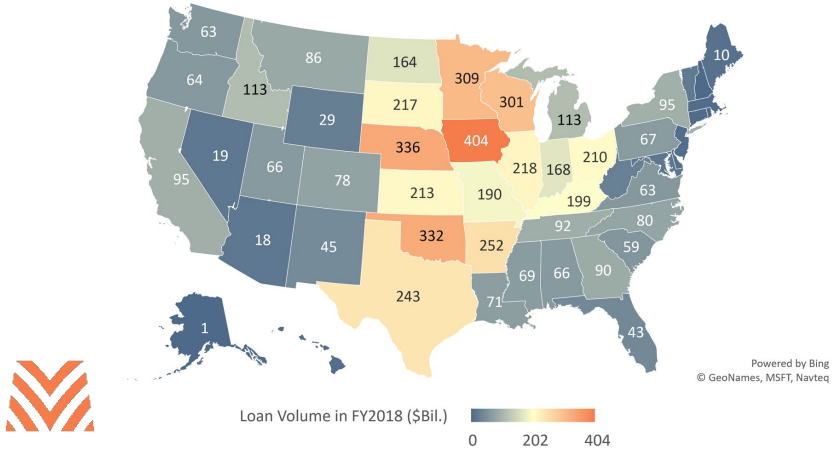
To support a robust credit environment for America's farmers and ranchers, the USDA Farm Service Agency (FSA) offers several credit options. FSA loan products include direct loans extended to farmers and ranchers using federal funds and serviced by the FSA, as well as guaranteed loans, originated by a network of ag lenders, where timely payment of the loan is guaranteed by the FSA for up to 95 percent of the loan balance. Direct loans are designed to support producers who cannot access traditional debt capital markets, while loan guarantees are designed to support family farms that have acceptable credit by traditional lender standards but still cannot obtain a loan from a lender without an FSA guarantee. Guaranteed loans are funded by the originating lender, but there is a guarantee fee paid to FSA for the credit enhancement. In general, FSA loans are either for farm ownership (i.e., purchase or refinance of farmland, buildings, or improvements) or farm operating needs. The FSA loan programs are in part targeted to, and improve credit access for, potentially marginal borrowers, including women, minorities, and first-time farmers. Large swings in new FSA loan originations could signal changes in credit markets or borrower eligibility.

Figure 8: Farm Service Agency Program Lending by Fiscal Year



Source: USDA, FSA Program Data

Figure 9: Farm Service Agency Program Originations in Fiscal Year 2018 by State



As Figure 8 shows, new originations in FSA loan programs declined in both fiscal years 2017 and 2018. New guarantees declined the most, falling nearly $0.8 billion from the peak in 2016. Direct farm ownership loans represent the only category that has increased in the last three years. The decline in new FSA loan volume is not geographically uniform. Eleven states experienced an increase in FSA lending activity in 2018 including Iowa, Illinois, Missouri, Kentucky, and South Dakota, each of which has a significant market share of FSA loan volume. Figure 9 shows the geographic distribution of loan originations in the fiscal year 2018. Midwestern states see the majority of FSA lending activity, which is a pattern typical of the last several years.

WEATHER

(resource 11, 12)

Key Highlights

The aftermath of severe winter weather throughout the Midwest and northern Plains is likely to delay spring fieldwork.

Robust winter precipitation in California will result in solid water allocations for the 2019 growing season.

The winter of 2018/19 proved to be quite severe across the northern tier of states as well as the Midwest, and it will take some time for winter's impacts to dissipate this spring. The combination of spring rains and runoff from melting snowpack has resulted in devastating flooding in many river systems throughout the Midwest. The floods conditions will gradually recede through spring, however elevated river levels will persist resulting in long-lasting impacts to the agricultural logistics chain as shipping up and down rivers is affected. Away from the areas impacted by river flooding, soil moisture will remain abnormally high which could delay spring fieldwork and impact planting decisions. Widespread delays could also result in greater plantings of soybeans than expected.

Precipitation throughout California and the West was quite robust over the winter, which will greatly alleviate drought conditions that had existed in the fall. California is drought-free for the first time since December 2011, a very good streak to break. Some mountain areas in the central Sierra Nevada received over 50 feet of snow, and as this snowpack melts, it will recharge the reservoir system. In fact, the water content equivalent of the snowpack is so great that the speed of snowmelt over the course of the spring should be monitored for potential flood impacts. Regardless, the irrigation water allocations in California should be among the highest in recent years.

2018 was a very wet year in many Eastern areas, and this trend did not relent over the winter. Soil moisture levels remain quite high from Texas through the Ohio Valley and the Eastern seaboard, which could also impact spring fieldwork in this region. Unfortunately, it appears likely that the wet pattern will remain entrenched through the spring.

Figure 10: Drought Monitor Map
(Source: USDA, NOAA, University of Nebraska-Lincoln)

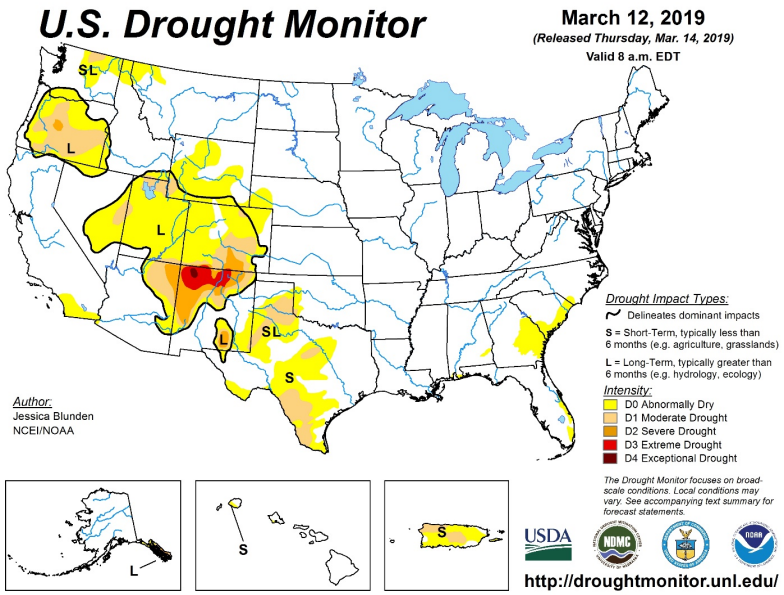
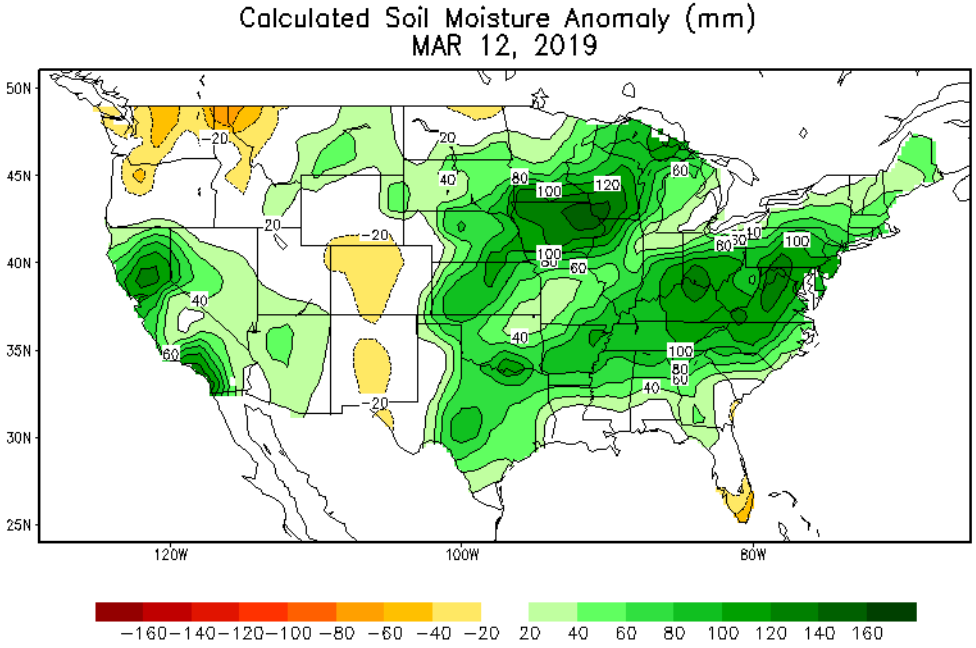


Figure 11: U.S. Soil Moisture Anomaly



CORN AND SOYBEANS

(resource 13, 14, 15, 16)

Key Highlights

2018 marked another year of high corn production, but the USDA expects strong demand to tighten stocks and support higher prices.

Record soybean production and trade uncertainty continue to weigh on prices, but strong demand from other importers and the prospect of improved Chinese trade relations provide upside.

The USDA's projections and the corn-to-soybean price ratio support a shift toward increased corn acreage, but changes in U.S.–China trade relations could impact producers' decisions between now and planting.

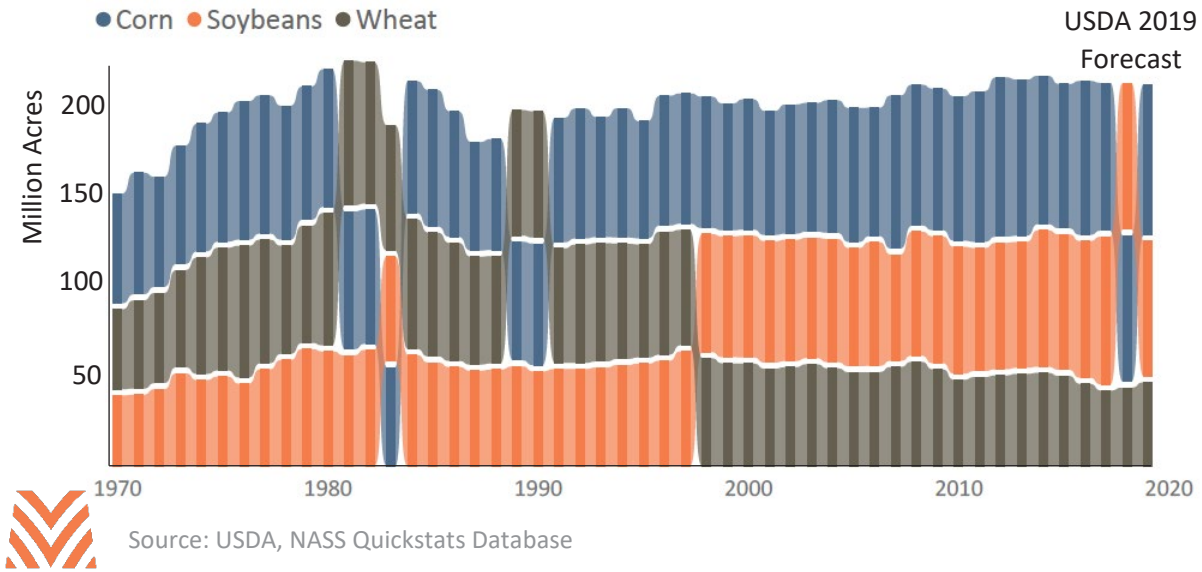
After several years of high production, the 2018 corn and soybean harvest provided another bounty of bushels for farmers to market. Favorable growing conditions allowed the national average yields for both commodities to reach near-record levels, with 176.4 and 51.6 bushels of corn and soybeans harvested per acre, respectively. While the corn and soybean industries both face the task of moving large quantities through the supply-chain, the commodities face different supply and demand fundamentals in the near term.

Commodity prices and input cost conditions led producers to rotate toward soybeans last spring. This resulted in the corn crop's overall size checking in lower than last year, despite strong yields. At the same time, the USDA projects that ethanol demand, production expansion in the protein sector, and strong exports are all expected to help corn demand remain high over the course of the 2018/19 marketing year. The combination is expected to tighten corn supplies and support higher corn prices, which the USDA forecasts at $3.60 on average during the 2018/19 marketing year.

The combination of strong yields and acreage shifting into soybeans led to record soybean production in 2018. Unlike the demand for corn, demand for soybeans has not kept pace with rising supplies. Chinese tariffs led to a significant pullback in Chinese demand for U.S. soybeans (94% decline), which led to the price gap between the U.S. and South American soybeans throughout the second half of 2018. The lower price environment has helped the U.S. soybean industry realize strong export gains in other regions; however, the USDA projects prices to remain subdued at $8.60 over the course of the 2018/19 marketing year, as ample supplies and trade uncertainty weighs on the market.

While farmers must consider how to best market their 2018 crop, they are also set to face their annual planting decision amid a time of continued trade uncertainty. Current corn-to-soybean price ratios suggest farmers may to rotate acreage back to favor corn in 2019. The USDA's 10-year agricultural baseline agrees, projecting 2.9 million additional corn acres and 4.2 million fewer soybean acres will be planted in 2019 (see Figure 12). Since 1990, corn has been the top commodity by acres until soybeans took the top spot in 2018. The USDA projections show a slight uptick in wheat acres, but corn and soybeans remain the dominant commodity crops in 2019. The USDA bases these projections on the current political and market environment at the time of forecast, including the U.S.-China trade dispute. Any thawing of U.S. trade policies could change the economic prospects for soybeans and may alter farmers' planting decisions in April.

Figure 12: Major Crop Commodity Acres Planted by Year (Ranked by Commodity)



Source: USDA, NASS Quickstats Database

DAIRY

(resource 17, 18, 19)

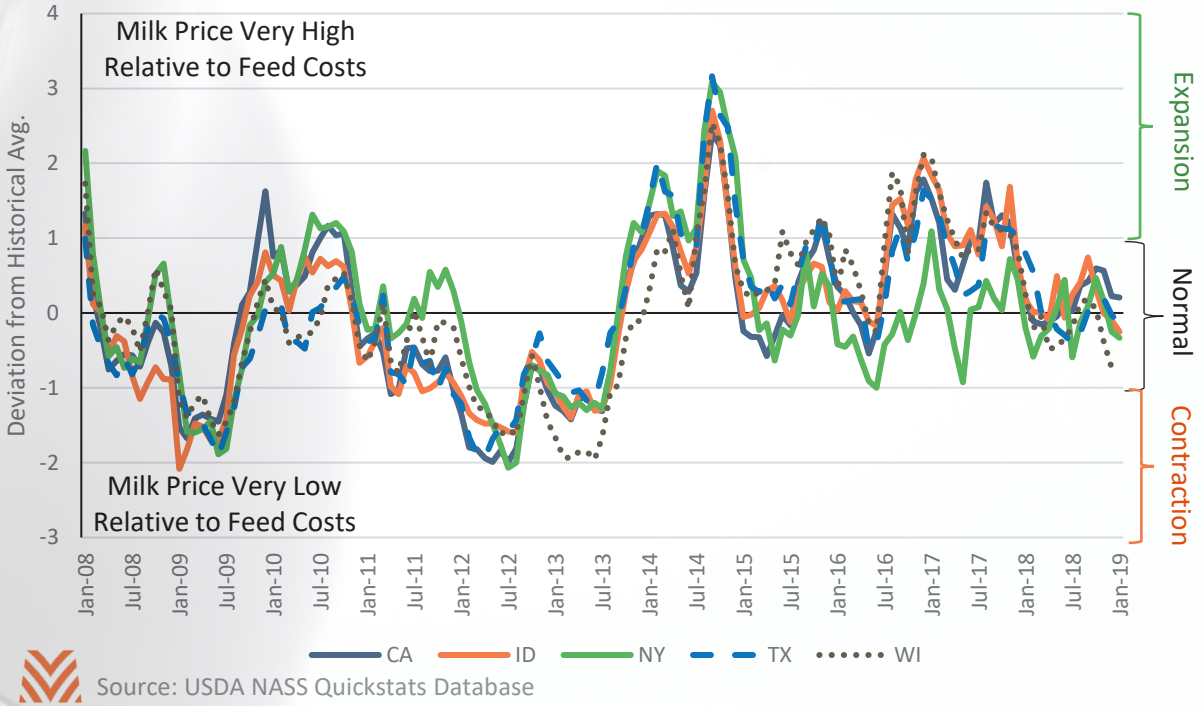
Key Highlights

Milk production is trending up in the U.S., while global supplies of dairy products are tightening.

U.S. dairy exports remain robust, despite a stronger dollar and retaliatory tariffs.

The milk-to-feed price ratio has improved in 2019 on higher milk prices and stable feed prices.

Figure 13: Top Dairy State Milk-to-Feed Price Ratio Deviations from Average



Source: USDA NASS Quickstats Database

The supply of dairy products remains mixed in early 2019. U.S. milk production rose by roughly 1.2 percent in 2018 due to greater output per cow. Supplies of U.S. cheese and butter ended 2018 at multi-year highs, despite improving demand for fattier foods. However, in January 2019, global milk production is flat compared to 2018 levels, and producers in the EU and Australia are quickly pulling back on output. Milk production in the EU is down 1 percent compared to 2018. The USDA forecasts milk production in the U.S. to increase by about 1 percent during 2019, due to greater efficiency per cow and a similar herd size compared to 2018.

Demand for dairy products is steady in early 2019. Commercial use of cheese and butter set multi-year highs in 2018, and the export demand for skim solids and powders is increasing in early 2019. International milk product prices have increased steadily throughout 2018, helping boost export demand for most U.S. dairy products. The U.S. set a new record in dairy products exported by volume in 2018, despite several trade-related headwinds. Nearly 16 percent of U.S. milk solids were exported last year, significantly higher than an average year (approximately 14 percent). Exports would have likely been even higher, but sales to China trailed off at the end of 2018 after retaliatory tariffs took effect. The biggest headwind to export demand in 2019 is the strength of the U.S. dollar, which strengthened considerably in 2018 and looks to hold in 2019.

The dairy price and profitability outlook for 2019 has generally improved in the first quarter of the year. Strength in global demand will help support prices, and greater efficiency per cow will help boost margins for many dairy producers. The USDA projects federal Class III milk prices will average just over $15 per cwt in 2019, a 3 percent increase over 2018. Cheese prices will continue to drag down the average as it will take some time to erode the large ending stocks that exist today. Feed prices remain modest, with lower soybean prices offset by slightly-higher corn and alfalfa prices. The January 2019 milk-to-feed price ratio is hovering right at the historical average for most states (see Figure 13), signaling an average year for profitability. Prices in Wisconsin are down on lower cheese prices, and that is causing the milk-to-feed price ratio to fall in the state.

WHEAT

(resource 20, 21, 22)

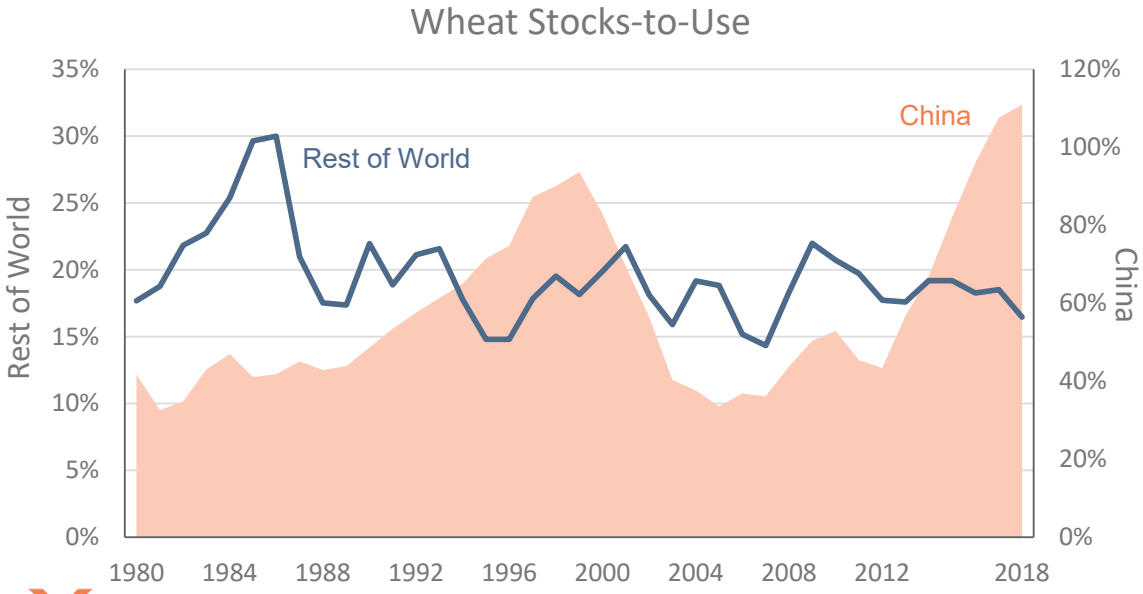
Key Highlights

Supply disruptions in several major international wheat producing regions allowed U.S. farmers to export additional wheat in 2018.

Overall U.S. wheat prices have trended higher, but higher production of hard red spring and durum wheat are projected to outpace export growth and weigh on prices for those varieties.

Average wheat prices are projected to be stable in 2019, but changes in U.S. planting intentions or foreign weather conditions could lead to additional price volatility.

Figure 14: Chinese Wheat Stock-to-Use Ratio Compared to Rest of World



Source: USDA, Foreign Agricultural Service PSD Database

Global wheat markets experienced supply disruptions in several key wheat growing regions in 2018, which led world wheat production to decline just under 4 percent from 2017. Despite the weather-related supply disruptions in Russia, Europe, and Australia, global wheat stocks-to-use ratios have remained high. This is largely due to continued increases in Chinese stocks-to-use. The decline in supply led to lower wheat stocks-to-use in the rest of the world (Figure 14). With tighter global supplies and steady demand, U.S. producers were able to help fill the supply gap, leading to increased exports, which helped support higher prices for most wheat varieties thus far in the 2018/19 marketing year.

However, pricing for hard red spring and durum wheat has trended lower than last year due to higher supplies. The nearly 4 percent uptick in 2018 U.S. wheat production was concentrated in hard red spring and durum wheat, which both saw their production gains outpace rising exports. On the other hand, soft red winter wheat saw rising exports despite lower production, and exports growth outpaced white wheat production gains, helping to provide upward pressure on both varieties' prices.

Looking forward, the updated baseline projections that the USDA presented at their annual Agricultural Outlook Forum suggest that wheat prices are expected to be relatively stable this year. While the USDA does not make price forecasts by wheat class, their projections indicate that the midpoint marketing year average wheat price is expected to reach $5.20 in 2019/20, up slightly from their current projection for 2018/19.

USDA projections call for demand to be flat into next year. Therefore, whether wheat prices can realize the USDA's projections and maintain their current levels, will depend in large part on supply conditions. Weather disruptions throughout the U.S. have helped push domestic winter wheat plantings to their lowest levels since 1909. Yet planted wheat acreage is not projected to decline substantially in the U.S., due to expectations of additional acreage rotating to wheat this spring. Weather in several major wheat-producing regions, including Europe, remained dry in the fall, but those crops production levels are more likely to be dependent on weather conditions further into growing season and dryness in European wheat producing regions has shown some improvements recently.

If additional U.S. acreage rotates toward wheat production this spring and foreign markets experience weather-related production rebounds, wheat prices could face downward pressure. However, if planting intentions indicate that fewer U.S. producers are rotating acreage toward wheat or key foreign markets continue to have weather disruptions, wheat prices could continue seeing upward pressure.

CATTLE

(resource 23, 24, 25, 26)

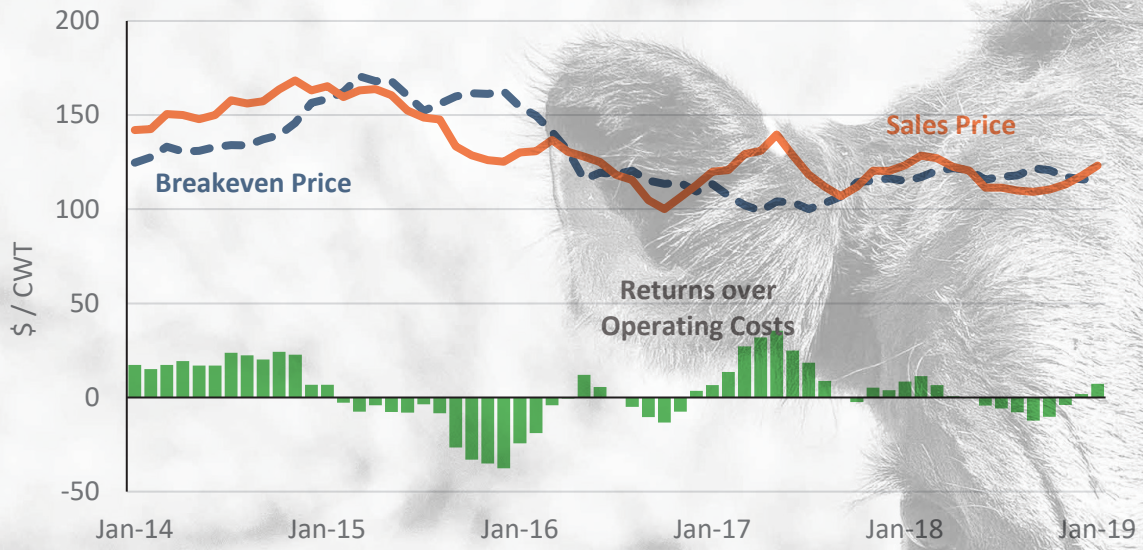
Key Highlights

Beef production is expected to rise by 2.8 percent in 2019, but domestic and foreign demand is expected to balance out the increase in supply and keep prices stable.

Cattle feeder returns over operating costs were negative in the second half of 2018, but have turned positive in early 2019.

The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (TPP) took effect in December 2018, and it is likely to result in U.S. beef exports facing higher tariffs than those from Australia until the U.S. can work out a trade deal with Japan.

Figure 15: Returns Over Operating Costs for Cattle Feeder Operations



Source: Iowa State University, Estimated Livestock Returns

The U.S. cattle industry has been in expansion mode for the last five years, resulting in a steadily rising supply of beef. The USDA's World Agricultural Supply and Demand Estimates (WASDE) indicate the beef supply rose by 2.6 percent in 2018, and is projected to rise another 2.8 percent in 2019. The rising supply has largely been matched by growing demand for beef. Beef exports rose by 11 percent in 2018 and are projected to rise by 2.4 percent in 2019. U.S. consumers have also increased their consumption of beef. The result has been relatively stable annual average prices, which have ranged between $117 and $121.50 per hundredweight over the 2016 to 2018 period. The USDA predicts prices will rise 1.2 percent in 2019, reaching $118.50 per hundredweight.

However, there are signs that the industry may see its rate of expansion slow in the near term. After growing more rapidly as the industry entered expansion mode, the rate of growth in the cattle herd has slowed over the past two years. This has largely aligned with the profitability signal that producers have received in recent months. Cattle finishing returns over operating costs also turned negative for much of the second half of 2018, but returned to positive territory in early 2019 (Figure 15).

Cattle producers should keep an eye on whether any headwinds develop that impact the flow of U.S. beef being exported to Japan. Japan is the world's third largest importer of beef, behind the United States and China, and the largest foreign buyer of U.S. beef products. Following the United States' withdrawal from the TPP in January 2017, the remaining 11 countries moved forward with the agreement. The TPP became effective on December 30, 2018. Under the TPP, Japan has reduced its tariffs on fresh, chilled, and frozen beef imported from TPP member countries – including Australia, a key U.S. beef export competitor – from the 38.5 percent rate faced by the United States to 27.5 percent (26.6 percent on April 1). Under the terms of the TPP, the tariff will gradually reduce the rate to 9 percent over the next 16 years.

Whether the lower tariffs that apply to Australia will impact the ability to export U.S. beef to Japan will largely be determined by the U.S. Trade Representative's (USTR) ability to complete a trade deal with Japan. The USTR notified Congress of its intent to negotiate a trade agreement between the United States and Japan in October 2018. The U.S. cattle complex, like other affected agricultural groups, will surely be watching the negotiations with keen interest.

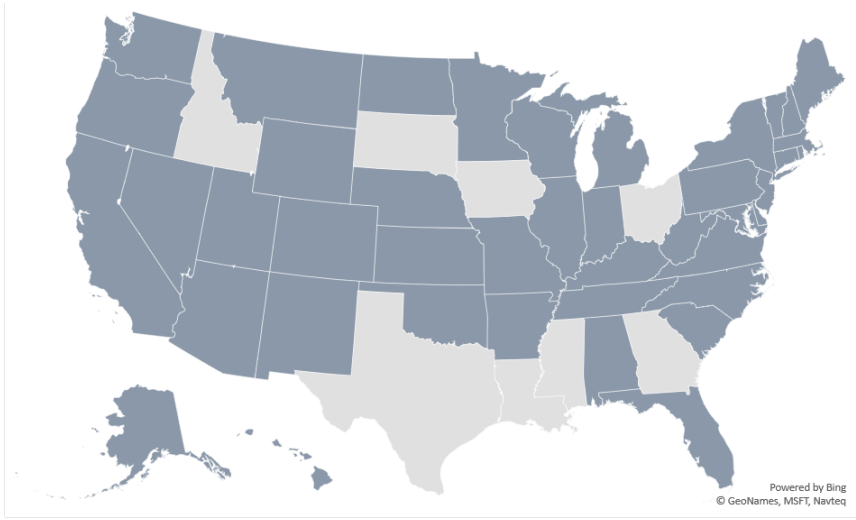
INDUSTRIAL HEMP PROSPECTS
(resource 27, 28, 29)

Key Highlights

The 2018 Farm Bill removed industrial hemp from the list of controlled substances, but there are many outstanding regulatory and supply-chain issues to solve before the commodity becomes lendable.

Early estimates of yield, costs, prices, and profitability show hemp can produce gross profits between $170 and $748 per acre, but the crop has sufficiently low barriers to entry such that these economic profits would soon erode with greater competition.

Figure 16: 38 States Have Enacted or are in the Process of Enacting Industrial Hemp Laws



Source: National Conference of State Legislature, State Industrial Hemp Statutes

Until Congress enacted the 2018 Farm Bill, the widespread cultivation of industrial hemp has been illegal in the U.S. in one form or fashion since 1937. While the 2018 Farm Bill removed industrial hemp from the Controlled Substance Act of 1970 and deemed it an agricultural product, there is a long road to being able to plant the back 20 acres with a hemp crop. Because hemp is in the cannabis family (i.e., the same family as marijuana, which is still a federally controlled substance), there are strict requirements that the THC content of any cultivated hemp plant cannot exceed 0.3 percent. Additionally, the crop will be highly regulated at both the state and federal level, and the USDA has signaled that federal rules will not be rolled out until 2020. Growing a crop out of compliance with state and federal regulations will carry stiff penalties, including the potential destruction of any crop that fails to meet maximum THC standards (i.e., the collateral and/or source of repayment for any financing). There are also more than a few questions outstanding regarding the hemp supply chain, including inter-state transportation, THC-content testing, and the legality of banking hemp production. Because of these outstanding issues, industrial hemp is unlikely to be a lendable commodity in the near future.

However, once these regulatory and supply-chain questions are settled, industrial hemp production could be quick to ramp up. Hemp is an annual plant that grows in a variety of climates. The plant itself grows rapidly (up to 12 inches per week), which reduces the need for herbicides. Plants require abundant water during their first six weeks of cultivation but become drought resistant after the first few weeks of life. Hemp nutrient requirements are similar to that of corn, and crops can be planted in consecutive years or rotated as needed. Demand for hemp is in two basic categories: the resulting seed for oil, and the fiber from the stalk and leaves. Hemp oils are a large source of ultimate hemp demand, with personal care products, food productions, and CBD oils ringing up an estimated $422 million annually. Industrial applications are the primary driver of fiber demand ($225 million annually), primarily used for textiles, ropes, and paper.

The agronomic factors and demand drivers for hemp and hemp products support a wide range of producer profitability estimates. In Canada, hemp production grosses between $173 and $748 in profit margin per acre. The North Dakota Department of Agriculture released a study in 2016 reporting an average gross profit margin of $733 per acre across three pilot farms on 60 acres of industrial hemp production. Returns will vary greatly based on yields, cultivation techniques, competitors, and access to hemp buyers and processors. Once regulations and licensing have been sorted out at the federal and state levels, hemp production will have relatively low barriers to entry, and these very high economic profits are likely to be eroded over time.

Note: Farmer Mac cannot currently provide financing for hemp or cannabis.

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ABOUT THE AUTHORS

Co-Author - Jackson Takach, Farmer Mac's Director - Economic Research & Buisness Innovation, is a Kentucky native whose strong ties to agriculture began while growing up in the small farming town of Scottsville. He has since dedicated a career to agricultural finance where he can combine his passion for rural America with his natural curiosity of the world and his strong (and perhaps unrealistic) desire to explain how we interact within it. He joined the Farmer Mac team in 2005, and has worked in the research, credit, and underwriting departments. Today, his focus at Farmer Mac currently includes quantitative analysis of credit, interest rate, and other market-based risks, as well as monitoring conditions of the agricultural economy, operational information systems analysis, and statistical programming. He holds a Bachelor's degree in economics from Centre College, a Master's degree in agricultural economics from Purdue University, and a Master's of Business Administration from Indiana University's Kelley School of Business. He has also been a CFA Charterholder since 2012.

Co-Author - Ryan Kuhns is an Economist who joined the Farmer Mac team in 2016. Prior to joining Farmer Mac, Ryan was an Economist with the USDA, Economic Research Service, where he forecast farm sector income and researched topics related to agricultural finance. His passion for agriculture developed from his time at USDA and frequent exploration of rural America. At Farmer Mac, he gets to focus that passion on analyzing the agricultural economic environment, developing quantitative credit risk models, and statistical programming. Ryan has a bachelor's degree in economics from Bucknell University, a Master's degree in economics from Georgia State University, and Certificate in Forecasting through Johns Hopkins University and the International Institute of Forecasters.

Contributing Author - Curt Covington, Farmer Mac's EVP - Chief Credit Officer leads the company's business development efforts in the Farm & Ranch and USDA Guarantees business segments, in addition to overseeing the company's credit administration and underwriting functions. Curt's passion for rural America developed at a young age on his family's grape and tree nut farm in Selma, California. His extensive experience in ag lending spans over three decades. In addition to his role at Farmer Mac, Curt is a respected leader in the agricultural mortgage industry and is actively involved in leadership roles within industry trade groups. He is the present chairman of the RMA Agricultural Lending Committee. Curt also serves as co-chair and manages two agricultural lender programs: The Agricultural Lending Institute, a joint venture with California State University, Fresno, and The Agricultural Banking Institute of the Americas, a joint venture with Universidad del Pacifico, in Peru. Curt studied finance at the University of Southern California and earned a Masters in Agribusiness from Santa Clara University.

Contributing Author - Brian Brinch joined Farmer Mac in 2000 as a Financial Research Associate. Since then, he has held various roles within the company and currently serves as Senior Vice President - Strategy & Finanical Research, where he leads the team responsible for the development of Farmer Mac's financial projections and plans, as well as the data analytics used to analyze the company's loan portfolios. Brian follows agricultural and rural utility industry trends and risks while he oversees the company's stress testing and capital plans. Brian received both his undergraduate degree in meteorology and his master's in Agriculture and Applied Economics from Penn State University. He is a CFA Charterholder and FRM Certified.

Contributing Author - Ani Katchova is Associate Professor and Farm Income Enhancement Chair in the Department of Agricultural, Environmental, and Development Economics at The Ohio State University. She chairs the Farm Income Enhancement Program and manages a research team of post doctorates and graduate research assistants to conduct research and outreach on U.S. agricultural economics issues. Her research has been published in leading journals such as the American Journal of Agricultural Economics, Applied Economic Perspectives and Policy, Agricultural Finance Review, and Agribusiness.

Contributing Author - Robert Dinterman is a Postdoctoral Researcher in Agribusiness within the Department of Agricultural, Environmental, and Development Economics at The Ohio State University. His current research topics includes beginning farmers and ranchers, farmland values, farm composition, farm financial condition, and other farm and agribusiness related topics.

Riley Croghan, Copy Editor

Anjali Desai, Copy Editor

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