The Feed

Farmer Mac's Quarterly Perspective on Agriculture

Summer 2016



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 author rotates 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 the stockholder-owned company created to deliver capital and increase lender competition for the benefit of American agriculture and rural communities. For more than a quarter-century, Farmer Mac has been a vital partner in helping America's rural lenders meet the evolving needs of their customers, bringing the financial strength of the nation's premier secondary market for agriculture right to their customers' farms and ranches. Lenders of all sizes use Farmer Mac's broad portfolio of loan products to offer more financial choices to their rural customers, helping them keep pace with today's capitalintensive agricultural industry.

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EXECUTIVE SUMMARY

Key Highlights

Ag lending activity is up in 2016, driven by lower farm income and working capital levels.

Farmland values are holding up fairly well in 2016 with modest declines in Corn Belt states.

Rural economies are exhibiting signs of a slowdown that began in 2015 and is about halfway through its cycle.

The grain sector got off to a great start in 2016, but price volatility set in throughout June and July.

Conditions for the ag economy generally exceeded expectations in the first half of 2016. • Ag lending institutions stretched to deliver on record loan demand from producers. Through Federal Reserve Bank and Farmer Mac survey responses and comments, lenders expressed some concerns around renewals and credit conditions. but ag loan portfolios continue to perform adequately and loan availability remains adequate. • Depending on who you ask and where you are, farmland values are either flat or down by a few percentage points in 2016. Individuals tend to show more pessimism and report lower values than more data-driven sources. Either way, there does not appear to be a seismic shift in farm real estate values despite many dismal expectations heading into the year. Lower farm incomes are affecting local rural economies, as evidenced by weaker economic data compared to national averages. However, the difference would be classified as an economic slowdown and definitely not a rural recession. If the 1980s offers a model, the slowdown is already halfway through its cycle, and unemployment is up only slightly. • The weather has been largely good for the U.S.

Production and Market Price Perceptual Map



this spring and summer. While the California drought certainly continues, the strong El Niño winter helped ameliorate conditions there tremendously. The good soil moisture in the Midwest has given the 2016 grain crops a healthy start – crop conditions are well above fiveyear average levels for both corn and soybeans. • Grain prices rebounded significantly in April and May on news of a poor harvest in South America. Unfortunately, the good times were short-lived as prices fell in late June on satisfactory domestic weather conditions. Corn growers were hardest hit when news of a very large planting and good weather conditions caused a large sell-off at the end of June and into early July. • Dairy profitability remains elusive given the global expansion of dairy production and anemic demand. However, robust domestic demand for cheese gives dairymen reason to be optimistic, and Class III milk price looks to hold or even advance slightly in the second half of 2016. Cattle prices are down in 2016, which is great news for feedlots but less so for cow-calf operations and backgrounders. • Demand for beef is up in 2016 due to lower retail prices, which should benefit the whole sector. • Cotton growers also got some welcome news in the second quarter– a new program from the USDA will provide a one-time payment of between \$47 and \$97 per acre grown, depending on region. While this is undoubtedly positive for the 2016 crop year, it does not address more long-term issues of high global supplies and falling demand.

SPECIAL REPORT: AG LENDING ENVIRONMENT (resource 1, 2, 3)

Key Highlights

Ag loan demand is at an all-time high, but lenders are stepping up to meet it.

Loan delinquencies increased slightly in the first quarter but remain relatively stable.

Lender sentiment is mixed in 2016, as lenders cite challenging borrower financial positions but see improvement on the horizon.

Industry consolidation will continue – over 500 ag banks and Farm Credit System (FCS) associations are likely to exit the market by 2020.



Figure 1: Ag Lending at Banks and FCS Associations

Trends in Bank and Farm Credit System Ag Lending



Source: FDIC and FCA Call Report Data

Ag lenders have been busy during the last ten years. Federally chartered banks and FCS associations represent the bulk of agricultural lending, and since 2005, those two groups have more than doubled their ag loan portfolios and injected over \$180 billion in debt onto farm balance

sheets. All of this growth happened with 1,100 fewer lenders – the total number of banks and FCS associations reporting farm debt declined from just under 5,000 at the beginning of 2005 to under 3,900 in the first quarter of 2016. Loans offered by these institutions come in two general forms: loans secured by farmland real estate (approximately 60 percent) and loans used for agricultural production (the remaining 40 percent). Figure 1 shows the breakdown of ag lending by these two forms as well as the number of institutions reporting an ag loan portfolio. In recent quarters, FCS associations have grown their farmland real estate portfolios faster than banks, but conversely, banks have outpaced FCS associations in production lending. For both forms of lending, however, lender concentration is increasing. In 2005, the top ten largest banks and FCS institutions had a market share of 23 percent; today the top ten largest banks and FCS institutions maintain a 28 percent market share.

Loan performance remains reasonable despite the recent decline in farm income levels. Loan credit quality is often gauged by the percentage of the portfolio that is late by at least 90 days or listed in nonaccrual status. Ag lenders experienced an average nonperforming loan rate of 1.21 percent of farmland real estate loans and 0.39 percent of production loans as of the end of the first quarter. Those figures represent a slight uptick from the end of 2015, but they are not quite as severe as the trajectory experienced during the financial crisis of 2009. Production loans have historically experienced slightly lower default rates compared to farmland real estate loans, but that is likely a result of the short-term structure of the notes, combined with the liquidity of the borrowing base, as compared to farmland real estate. An increase to the institutions' allowance for losses can also be a barometer for credit sentiment at the lender level – both banks and FCS institutions increased their allowance for losses at the end of 2015 and the first quarter of 2016. The data for second and third quarters of 2016 could reveal whether sector stress will affect lenders in 2016 and 2017.

Lender sentiment of banking conditions is somewhat mixed. According to the Federal Reserve Bank of Kansas City's quarterly Ag Credit Survey, ag loan demand is at an all-time high, loan repayment rates are at their lowest levels since the 1990s, and carryover debt from the previous year is up significantly from 2014 and 2015. Many of the comments offered by respondents cited lower incomes and depleted working capital as concerns in the first quarter. Responses from the Farmer Mac Economic Conditions Spring Survey mirrored those concerns. Farm income and liquidity were cited as the top two concerns by more than 80 percent of respondents. Survey respondents also indicated lower expectations for land values and cash rents paired with higher delinquency rates for the second half of 2016. Results of the two surveys show that lenders are in-tune with the markets and share one predominant concern: tightening credit conditions. But there is room for optimism. Ag lenders are meeting record loan demand by making loans with higher collateral requirements. And while the index of loan availability is down from 2013 peaks, it remains well above lows experienced in the 1980s and 1990s. Several respondents from both surveys commented on higher commodity prices boosting incomes and liquidity. While 46 percent of respondents to the Farmer Mac Economic Conditions Spring Survey expected higher delinquency rates in the second half of the year, that figure is down from the survey conducted by Farmer Mac last fall in which 54 percent of lenders expected performance issues during 2016. Lenders have also dropped their expectations on rising interest rates. In the fall, 75 percent of respondents expected longterm rates to rise in the next six months; this spring, that number fell below 37 percent.

Figure 2: Ag Loan Performance at Banks and FCS Associations



Source: FDIC and FCA Call Report Data

Lender consolidation will certainly continue as these institutions look to scale greater volumes over rising compliance and servicing costs. If past trends continue, there will be more than 100 fewer banks with ag

portfolios at the end of 2016 than there were at the beginning, and at least two fewer FCS associations. By 2020, projections show around 500 fewer banks with ag portfolios and FCS associations. For lending institutions looking to buy or to be bought, the current consolidation trends offer ample opportunities over the next five years. For borrowers, the consolidation could mean more competitive rates in the short-run as lenders reduce overhead costs and compete for volume. Credit quality remains the largest unknown, but early evidence points to lower delinquencies and less loss reserving than during the 2009 downturn. Finally, the renewal season may get tough again in 2017 if borrowers are unable to recharge their working capital this year.

FARMLAND VALUE TRENDS (resource 3, 4, 5, 6)

Key Highlights

Most land value surveys show modest land value declines of between one and ten percent in early 2016.

Other data-driven indices indicate values are flat in major crop-producing states.

Value drivers are mixed, with lower profitability offset by a lower interest rate environment.

Unsurprisingly, the consensus around recent trends in land values is a modest decline in 2016. Much of the research done involves surveys of landowners, farm managers, and appraisal professionals to estimate changes in the market value of land. The USDA performs an annual survey released each August, and several land grant universities, professional associations, and Federal Reserve Banks also survey members throughout the year to check on values. Figure 3 shows the results of some of these surveys released in early 2016 which are largely focused on the Midwest where land is the most fungible. In general, 2014 showed modest increases turning to modest decreases in 2015 and another modest reduction in 2016. The Iowa State University survey shows the steepest declines with a three-year total of 23 percent. The Federal Reserve Bank of Chicago shows a smaller decline in Iowa, but the direction is the same for each year of data. Based on this data, values in Indiana, Wisconsin, and Nebraska are

still up compared to base year 2013, but they are trending down in 2015 and 2016. In the Farmer Mac Economic Conditions Spring Survey, 42 percent of respondents reported declines in the value of quality cropland in the past six months.

However, the 2016 survey results contrast somewhat with some recent market-based land value tracking indices. Peak Soil Indices track monthly and weekly movements in farmland values in major grain-producing states like Iowa, Minnesota, Illinois, and Indiana. Mid-year figures in these states demonstrate flattening of land values, particularly in Iowa and Illinois. An analysis of appraisal data supports this fact; an index created from a database of Corn Belt cropland appraisals shows a seven percent decline from 2013 to 2015 but no change in 2016 through the first quarter. These data-driven metrics tell a slightly more optimistic story.

Figure 3: Assorted Land Value Survey Results					
		2014	2015	2016	
Study	State	Change	Change	Change	
Iowa State University Farmland Value Survey					
(March)	IA	-4%	-11%	-9%	
a the second second second	IA	-2%	-6%	-5%	
Federal Decemus Depty of Chicago (April)	IL	0%	-1%	-5%	
rederal Reserve Ballk Of Chicago (April)	IN	7%	-1%	-2%	
	WI	2%	8%	1%	
and the second s	Tenth	- Allahus	met und to a	A state to be able to	
Federal Reserve Bank of Kansas City (May)	District	5%	-3%	-3%	
University of Nebraska - Lincoln (Feb)	NE	9%	-2%	-4%	

Current market economics can be used to explain either case. Farm income is down sharply from 2013 highs and with it the returns that drive up asset values. And while commodity prices are looking better in June than in January, farm returns are likely to remain low for the next several years. On the other hand, interest rates also will likely stay low for an extended period. Weak economic data combined with a global sell-off in response to Britain's referendum to exit the European Union (EU) in June created a flight to quality, and it seems unlikely that the Federal Reserve will raise target rates in 2016. The lower interest rate environment keeps the cost of debt low and reduces pressure on assets to provide returns. It is possible that the interplay of these two dynamics result in no net change, or perhaps only a small decline in some markets. The USDA survey results released in August will be a good barometer for national trends and state averages. Regardless of the results, experts seem more pessimistic about movements in land values than the data indicates.



Year Appraisal Was Completed

(resource 2, 7, 8

Key Highlights

The rural non-farm economy is affected by declines in farm income.

Leading indices show current divergence in the rural economy similar to that in the mid-80s.

If past trends are any indication, current down cycle is halfway through its course.

The recent decline in farm incomes has been widely reported. Between 2013 and 2015, America's farmers and ranchers lost more than 50 percent of their annual income due to lower commodity prices and a sticky cost structure. But reports often fail to evaluate the spillover of this decline onto the general rural non-farm economy. In what economists refer to as the reverse multiplier effect, the removal of real income from an economy causes less spending in other industries which further reduces economic activity. This theory holds that the producer who earns less on his or her crop will have less to spend on farm inputs, home improvements, automobiles, family dinners, and so on.

Economic data supports this theory. The Federal Reserve Bank of Philadelphia calculates a leading index of economic activity by state for each month. This index looks at major indicators like manufacturing data, housing data, interest rates, and unemployment data at a state level and predicts economic growth for the next six months. Figure 5 shows the national average leading index from 1982 through April 2016, paired with an average leading



Leading Economic Indices: US and Rural State Averages



Source: Federal Reserve Bank of Philadlephia

index of "Rural States" – states in which a high percentage of the population lives in non-metropolitan areas and agriculture production represents a relatively high proportion of the state gross domestic product. Usually, the two series move in tandem. However, there are two periods in which the rural state economies performed worse than the general economy – during the mid-1980s farm crisis and since mid-2014 when commodity prices contracted significantly. A deeper dive into the data confirms the dip. After reaching historical lows in 2014 and 2015, unemployment rates in rural states like Iowa, Minnesota, and North Dakota ticked up in 2016.

Despite the divergence in leading indices, rural economies are still holding up relatively well. Delinquencies on credit cards and auto loans at banks in rural states are well below historical averages, and the ratio of bank losses to total loans tends to be lower for banks located in rural states. Courts in the 7th and 8th Circuits that cover many ag-intensive states reported lower numbers of bankruptcy proceedings during the first three months of 2016, continuing a downward trend since the 2008 recession. And even if these statistics fail to accentuate the resiliency of the rural economy, the last deviation between the general and rural economies lasted 33 months before growth rebounded to the national average – today's rural economy is in month 17 of a deviation. Assuming the current correction follows a similar trajectory as the one in the 1980s, we are already halfway through the downturn with minimal economic destruction.

WEATHER

(resource 9, 10)

Key Highlights

El Niño conditions have waned, and a transition to La Niña has begun.

Warm and dry conditions may form in the Midwest in early fall, but no significant drought is expected.

The Western states are generally in better shape than this time last year; however, central and southern California are still feeling the effects of the multi-year drought.

Soil moisture conditions throughout much of the Midwest have remained favorable for this year's crop. A pocket of slightly dry weather has developed in Iowa, Missouri, and eastern Illinois and these areas may remain below normal in terms of precipitation. However, soil moistures remain favorable and the dry conditions should not accelerate into drought conditions as experienced during the summer of 2012. The much-hyped El Niño of 2015-2016 ended with a bit of a whimper, though the drought situation throughout much of the West has improved relative to last summer. Dry weather across the West will continue through the summer, which increases the risk of fires. The next weather feature of note will be the anticipated development of a La Niña pattern by fall, which unfortunately does not bode well for abatement of Western drought conditions.





(resource 11, 12, 13, 14, 15)

Key Highlights

The 2016 plant is the third highest on record with big increases in acreage in the western Corn Belt.

Crop condition is very good heading into prime summer months.

Futures prices rallied to \$4.36 per bushel in spring only to sell off to \$3.50 in July. The U.S. corn crop got off to a great start this spring. Economists at the USDA estimate 94 million acres of planted corn in 2016, the third highest plant on record behind only 2012 and 2013, and an increase of over six million acres from the 2015 crop. Planting conditions remained largely good throughout April, and while a cool, wet May slightly slowed fieldwork, final planting numbers and emergence patterns largely mirror historical averages. Growing conditions have varied greatly among major producing states, with excellent conditions in the northcentral Corn Belt states, average conditions in southcentral Corn Belt states, and below average conditions in the eastern Corn Belt states. Figure 8 outlays the 2016 corn acreage in the Corn Belt region by state, deviations from average in each state, and the percentage of acres reported to the USDA as in 'Excellent' or 'Good' condition during the week ending June 19. Much of the growth in this year's corn crop is coming from the western Corn Belt states like North Dakota and Kansas where growers account for 1.3 million additional acres of corn this year compared to last

year. Hotter, dryer conditions have reduced reported crop quality in eastern Corn Belt states, but the percentages are in line with the 2014 and 2015 crops.

Despite a rough start to the year, market economics since March have been favorable to U.S. producers. Global corn production is lower than originally expected in 2016 due to a poorly-timed drought in Brazil. Because of the expansive livestock industry in Brazil, the decline in production has come largely out of exports. Brazilian producers are expected to export 35 percent less corn in 2016 than they did in 2015. This supply-side shock coupled with a stronger Brazilian real equate to robust export demand for U.S. producers. U.S. corn exports climbed significantly in the second quarter, which helped to alleviate some of the excess stocks carried out from the 2015 harvest. Domestic consumption of corn is also up slightly in 2016 as a result of more grain-consuming animals and a small uptick in ethanol production. The combined effects of tighter supplies and increased demand indicate some price support for the remainder of 2016, but they do spell potential volatility and uncertainty in the future. July corn futures bottomed at \$3.56 per bushel on April 1 and rose steadily to \$4.36 per bushel in mid-June. The market response to the South American production disruption gave U.S. producers an excellent marketing opportunity in April and May. However, the party came to an abrupt end in late June when traders began to lay off long positions and the July contracts fell to nearly \$3.80 per bushel. September and December contracts continued to drop in July to below \$3.50 per bushel. Additionally, production in Brazil and Argentina is likely to ramp up again in 2017, which would put pressure on U.S. producers again in spring and summer of next year. Cash prices for the 2015 and 2016 crops will likely average between \$3.25 and \$3.75 per bushel, a big boost compared to initial USDA estimates that bordered on \$3.00 per bushel.

Figure 8: Corn Acreage in 2016 and Reported Crop Quality



(resource 11, 12, 13, 15, 16)

Key Highlights

The number of acres planted to soybeans in 2016 is only slightly lower than in 2015.

Condition reports indicate very good quality, at approximately the same level as the 2014 crop.

Prices held up much better in June than other commodities due to tighter global supplies. Soybean planting went well this spring. The USDA estimates that producers planted nearly 84 million acres, a slight increase from 2015 and nine percent higher than the ten-year average. The biggest gains in production area have been in Illinois (up seven percent), North Dakota (up 35 percent), and South Dakota (up 15 percent). Producers in North Dakota have planted a significantly higher proportion of farmland to soybeans in recent years due to the relative profitability of wheat and corn. Planting progressed well ahead of average in Iowa, North Dakota, and Missouri and was near average or a little behind in Illinois, Minnesota, and Indiana. Growers are reporting better-than-average crop conditions, with over 72 percent of acres reported as 'Excellent' or 'Good' during the week ending June 19 compared to a five-year average of 65 percent.

U.S. soybean producers are benefitting from recent shifts in both supply and demand for beans. Flooding in Argentina and drought in Brazil reduced total soybean production

in South America by more than five million metric tons or roughly four percent of production in 2015. This upset to South American production combined with a weaker U.S. dollar increased foreign demand for American soybeans. In addition to increased export demand, biodiesel production has ramped up considerably in early 2016, and soybean oil's share of biodiesel feedstocks is up 25 percent over 2015. More states and municipalities are setting clean air standards and thereby driving demand for biodiesel. Soybean meal is also in higher demand with greater numbers of grain-consuming animals on feed.

The tighter global supplies lifted futures prices in the second quarter; August 2016 soybean contracts jumped from \$9.20 per bushel on April 1 to a peak of \$11.90 per bushel in mid-June before selling off later in the month on news of good growing conditions in the Midwest. The USDA expects farm cash prices to average between \$8.75 and \$10.25 per bushel for the 2016-17 marketing crop year and futures prices at the end of June were well above those levels into 2017. The dip in global supplies makes a big difference for U.S. producers, but that is only temporary. If a strong La Niña develops and persists in South America, the current price environment could continue through 2017; if production in South America resumes, prices are likely to retreat to the \$8 to \$9 per bushel range. Regardless, prospects for the remainder of 2016 are looking good.

Figure 9: Soybean Acreage in 2016 and Reported Crop Quality



Acres Planted to Soybeans

Key Highlights

Excess milk and dairy products remain on world markets.

Demand for cheese is holding up surprisingly well.

A stronger U.S. dollar and a weak euro will keep world prices low in 2016.

Dairy markets continue to suffer from oversupply. During the first five months of 2016, U.S. dairies produced a record 89.7 billion pounds of milk. That is almost the same amount produced by New Zealand, Australia, and Argentina combined during the entirety of 2015. U.S. dairy producers are maintaining herds and squeezing more output per cow to try and outrun the low milk prices experienced throughout 2015 and early 2016. Much of the gains in production capacity have come through operational and genetic improvements in Midwestern dairies. Output per cow in Wisconsin has increased from 1,742 pounds per cow in May of 2011 to 1,994 pounds per cow in 2016, an increase of nearly 15 percent in just five years. Butter and cheese stocks are up significantly in 2016 as a result of stiff competition from foreign producers. Global supplies remain robust, although production is slowing in Europe and Oceania.

Dairy product demand has held up relatively well during the first half of the year. Exports remain under pressure with a still-elevated U.S. dollar, but domestic commercial demand has taken up some of the slack, particularly for butter and some cheese varieties. The EU has indicated its plans to extend the sanctions against Russia into 2017,





Source: USDA ERS National Milk Cost of Production Estimates

and thus Russia will likely continue to ban Western food products in retaliation. Prior to the sanctions, Russia was importing over \$1.8 billion in dairy products from the EU; that product, roughly two percent of the value of total dairy trade, is now in the world market putting downward pressure on global dairy prices.

Sector dynamics indicate that some stress will remain in the short run, although the spring increase in domestic demand offers some optimism for milk prices in the intermediate term. The Class III milk price has oscillated between \$13 and \$14 per hundredweight for much of 2016, dipping slightly lower in May. However, futures prices rallied considerably in June on the news of lower butter and cheese imports and higher domestic demand for dairy. The Class III milk price is likely to rebound back to \$13.50 per hundredweight by the fall, but there is not much upside with the stronger dollar. The United Kingdom (UK) vote to exit from the EU significantly increased the value of the U.S. dollar, making the U.S. dairy industry less competitive on the world market. Feed costs rose in May and June as interest in U.S. grains picked up in the spring. Sector losses in the second half of 2016 will likely be similar to those experienced in the first half, but they are unlikely to escalate to the levels witnessed in 2009.

(resource 19, 20, 21)

Key Highlights

Cattle inventory is building up after years of consolidation.

Demand for beef is up as consumers responded to retail price declines late in 2015.

Cattle prices are down in 2016, helping feedlots trim losses at the cost of lower cow-calf operator profitability.

Beef and cattle supplies are increasing from historical lows experienced in 2015. U.S. beef cattle inventory ticked up in July 2015 after bottoming out at 29 million head last January; that is a low not seen since the early 1960s. Heifer retention increased last year on higher cowcalf profitability, and that has spurred the uptick in beef cattle inventory. Compared to 2015, feedlot placements and inventories are up during the first half of 2016 as the low cost of grain and tighter packing margins supported heavier cattle at slaughter. U.S. producers will experience less competition from cattle imports and beef imports in 2016 and 2017 as other countries' cattle producers rebuild herds as well.

Consumer demand for beef picked up in early 2016. Per capita consumption rebounded from 2015 lows on more attractive retail prices. Consumers are favoring higher quality in 2016, and the shift is causing an uptick in the spread between Choice and Select boxed beef. Export demand for beef and beef cattle is building despite the



strong U.S. dollar due to a decline in higher quality Australian beef supplied to the international market. As the Australian cattle industry contracts, U.S. producers can edge out more of their international market, mainly the U.S., Japan, South Korea, and China.

These supply and demand forces are working to even out profitability across the cattle industry. Retail beef prices rebounded during the first six months of 2016 on higher demand. Feedlots trimmed losses significantly (see Figure 11) on better retail beef prices combined with lower cattle prices. This improvement comes at the expense of cowcalf operators whose cattle are now fetching significantly lower prices in the market. Profitability is still quite good on the pasture, but the days of \$400 per head profit are likely in the rearview mirror. Cattle prices fell significantly in the second quarter, and they are likely to hold or head lower during the remainder of 2016. Beef remains at a significant premium to both pork and poultry, and the threat of protein substitutes is likely one of the largest challenges to the industry in 2016 and 2017.



Source: Iowa State University Extension and Outreach, Estimated Livestock Returns

COTTON

(resource 11, 15, 22)

40

20

0

200

U.S.

Key Highlights

Global cotton supplies are down in 2016 but still elevated compared to historical norms.

China continues to maintain more than a year and a half of cotton use in storage.

New USDA Cotton Ginning Cost-Share Program will help inject some cash into the industry, but it is a one-time payment and not a long-term support program.

Cotton growers continue to face ample global supplies. Expected cotton acreage is up, and the majority of U.S. producers completed planting by late June. Crop quality is about average with growers reporting roughly 54 percent of acres as "Excellent" or "Good" condition. If growers experience average abandonment rates, the 2016 crop will be approximately 14 million bales, an increase of nearly 14 percent from 2015, but still lower than in a typical year. Ending cotton stocks have been climbing in recent years due to poor export market conditions. As Figure 12 shows, large year-end supply is not a problem unique to the U.S.; between 2010 and 2014, China increased its stores of cotton by more than 55 million bales, primarily through importation. In 2015, China virtually disappeared as a buyer, and in early 2016, they became a large seller of cotton through state reserve auctions.

Global demand for cotton has stalled somewhat in recent years due to lower export demand and increasing competition from substitute fibers. China and India mill



Source: USDA NASS Quickstats; USDA FAS Production, Supply, and Distribution Data

Figure 12: Cotton Price and Global Cotton Supply

approximately half of the annual world cotton production and both countries maintain very healthy cotton supplies. China alone maintains 1.6 years of supplies in storage,

China India Brazil Rest of World - - • Price (per lb)

although some of those massive reserves were auctioned back into world markets in early and mid-2016. Beyond reduced export demand, U.S. cotton producers must compete with synthetic fibers such as polyester and viscose. Manmade fiber prices correlate with the price of oil, which has been significantly lower in 2015 and 2016 than in recent years. In addition to the low cost of production, clothing produced from manmade fibers sometimes has characteristics demanded by consumers, such as wrinkle resistance and color fade protection.

Together, the forces of cotton supply and demand indicate stable or lower market prices in the near-term. While global stocks are down in 2016 compared to the peak of 2014, cotton use has yet to recover from the global

recession of 2009. USDA economists estimate a seasonaverage price of 58 cents per pound for the 2016 cotton crop, an amount similar to what growers experienced in the 2000s. That price point is at or near breakeven for many producers, so 2016 is likely to be a tough year in the cotton industry. In June, the USDA announced the Cotton Ginning Cost-Share Program (CGCS) to help producers adjust to the lower price environment and offset some of the costs of ginning, typically the highest operating cost line item of annual production. Under the new program, producers can receive between \$47 and \$97 per acre, based on the area of production, as a one-time payment. Growers that registered acres with the Farm Service Agency in 2015 are eligible to sign up for the program through August 5, 2016. The CGCS provides a nice boost for cotton producers this summer, but it fails to address the long-term issues of global market imbalance.

Average US Price per LB

\$0.40

\$0.20

\$0.00

OTHER TOPICS

(resource 11, 12, 13, 23)

"BREXIT" AND U.S. AGRICULTURE. On June 23, 2016, the UK held a referendum in which voters elected to leave the EU ("Brexit"). The UK always maintained a separate currency, so the decision to leave will have the largest impact on trade and immigration. Markets immediately responded to the vote by selling the British pound and the euro and buying the U.S. dollar. The pound fell to approximately \$1.35, the lowest exchange rate to the U.S. dollar in more than 30 years. The relative value of the dollar spiked on the news, rising more than three percent in the two trading days following the vote. What does this mean for agriculture? Not much directly - the UK only imports about \$1.8 billion of U.S. agricultural products each year, so the higher exchange rate does not put much at risk. However, the indirect effects could be substantial. On the downside, a weaker euro makes European exports more attractive in the world marketplace, particularly for dairy markets that already have ample supplies. The strong dollar works against U.S. exports as well, and it can put downward pressure on dollar-denominated commodity prices like corn and soybeans. The UK was also a critical trade ally for U.S. agriculture, often loudly supporting trade agreements like the Transatlantic Trade and Investment Partnership (TTIP) and acceptance of GMO seed usage. This relationship will most certainly be missed. On the upside, the UK imports about \$60 billion of agricultural products each year, much of it from the EU. If relations between the trading partners is damaged by the exit, U.S. agricultural trade could increase its market share. Ultimately, the UK's departure from the EU will take years to sort out, so markets may not realize the full impacts of the decision until 2018 or beyond.

INTEREST RATES. At the beginning of 2016, nothing was more obvious to investors, ag lenders, and borrowers than a rising interest rate environment. On the Farmer Mac Economic Conditions Fall Survey, 72 percent of lenders expected short-term rates to increase within the next six months and 75 percent expected long-term rates to rise. The prices of Fed Fund futures implied a 79 percent probability of a rate increase by the Federal Reserve Board of Governors by its July meeting. In reality, on July 1, most rates remained either flat to or lower than their value on January 1. The yield on the 10-year Treasury bond is down by more than 60 basis points (or 0.60 percentage points), which is more than 25 percent below where it began the year. The yield on the 2-year Treasury bond is down by 40 basis points since January. The only benchmark rates advancing have been the one- and three-month LIBOR rates which have increased slightly in 2016. The year

has been filled with disappointing economic data telling a tale of slow global growth, and as a result, the Federal Reserve has elected not to raise rates at each of its first four meetings in 2016. In June, the UK vote to leave the EU caused a flight to quality and pushed rates lower. As of early July, the market is pricing in a near-zero percent chance of a rate increase this year. As Figure 13 illustrates, the probability of a rate hike at each future meeting has gradually declined and plummeted after the "Brexit" referendum on June 23. There is still roughly a 10 percent chance of a rate hike in either November or December priced into the Fed Funds futures contracts, but economic conditions would have to improve greatly in the second half of the year for the Federal Reserve to feel comfortable lifting the benchmark target. So, it looks like we must all settle in for these low rates for a little while longer.

Figure 13: Implied Probability of Federal Reserve Rate Increases



Market Implied Probability of Federal Reserve Rate Hikes

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RESOURCES

- 1 Farm Credit Administration Call Report Data (https://www.fca.gov/exam/data_download.html)
- 2 Federal Financial Institutions Examination Council Call Report Data (https://cdr.ffiec.gov/public/)
- 3 Federal Reserve Bank of Kansas City Ag Credit Survey (https://www.kansascityfed.org/research/indicatorsdata/agcreditsurvey)
- 4 Iowa State University Extension and Outreach Farmland Value Survey (https://www.extension.iastate.edu/agdm/wholefarm/html/c2-75.html)
- 5 Federal Reserve Bank of Chicago AgLetter (https://www.chicagofed.org/publications/agletter/index)
- 6 University of Nebraska-Lincoln Cornhusker Economics (http://agecon.unl.edu/cornhusker-economics/2016/trends-nebraska-farmland-markets-farming-and-ranching-margin)
- 7 Federal Reserve Bank of Philadelphia State Leading Indexes (https://www.philadelphiafed.org/research-and-data/regional-economy/indexes/leading/)
- 8 Federal Reserve Bank of St. Louis FRED Databases (https://fred.stlouisfed.org/)
- 9 National Drought Mitigation Center's Drought Monitor (UNL/NOAA; http://droughtmonitor.unl.edu/)
- 10 NOAA Weather Prediction Center (http://www.wpc.ncep.noaa.gov/)
- 11 USDA Foreign Agricultural Service Production, Supply, and Distribution Data (https://apps.fas.usda.gov/psdonline/psdhome.aspx)
- 12 USDA Foreign Agricultural Service Global Agricultural Trade System Data (http://apps.fas.usda.gov/GATS/Default.aspx)
- 13 USDA Office of the Chief Economist World Agricultural Supply and Demand Estimates Reports (http://www.usda.gov/oce/commodity/wasde/)
- 14 USDA Economic Research Service Feed Outlooks (http://www.ers.usda.gov/publications/fds-feed-outlook.aspx)
- 15 USDA National Agricultural Statistics Service QuickStats Database (https://quickstats.nass.usda.gov/)
- 16 USDA Economic Research Service Oil Crop Outlooks (http://www.ers.usda.gov/publications/ocs-oil-crops-outlook.aspx)
- 17 University of Wisconsin Understanding Dairy Markets (http://future.aae.wisc.edu/)
- 18 U.S. Dairy Export Council (http://www.usdec.org/)
- 19 USDA Economic Research Service Livestock, Dairy, and Poultry Outlook (http://www.ers.usda.gov/publications/ldpm-livestock,-dairy,-and-poultry-outlook/.aspx)
- 20 Iowa State University Extension (http://www2.econ.iastate.edu/estimated-returns/)
- 21 USDA Meat Price Spreads (http://www.ers.usda.gov/data-products/meat-price-spreads.aspx)
- 22 USDA Economic Research Service Cotton and Wool Outlooks (http://www.ers.usda.gov/topics/crops/cotton-wool.aspx)
- 23 CME Group FedWatch Tool (http://www.cmegroup.com/trading/interest-rates/countdown-to-fomc.html)

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ABOUT THE AUTHORS



Author - Jackson Takach, Farmer Mac's resident economist, 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.



Contributing Author - Brian Brinch joined Farmer Mac in 2000 as a Financial Research Associate. Since then, he has held various roles within the Financial Research department and in 2014, was promoted to Vice President Financial Planning and Analysis, where he now leads the team responsible for the

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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. He most recently served as the Managing Director for the Ag and Rural Banking Division at Bank of the West. 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.



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