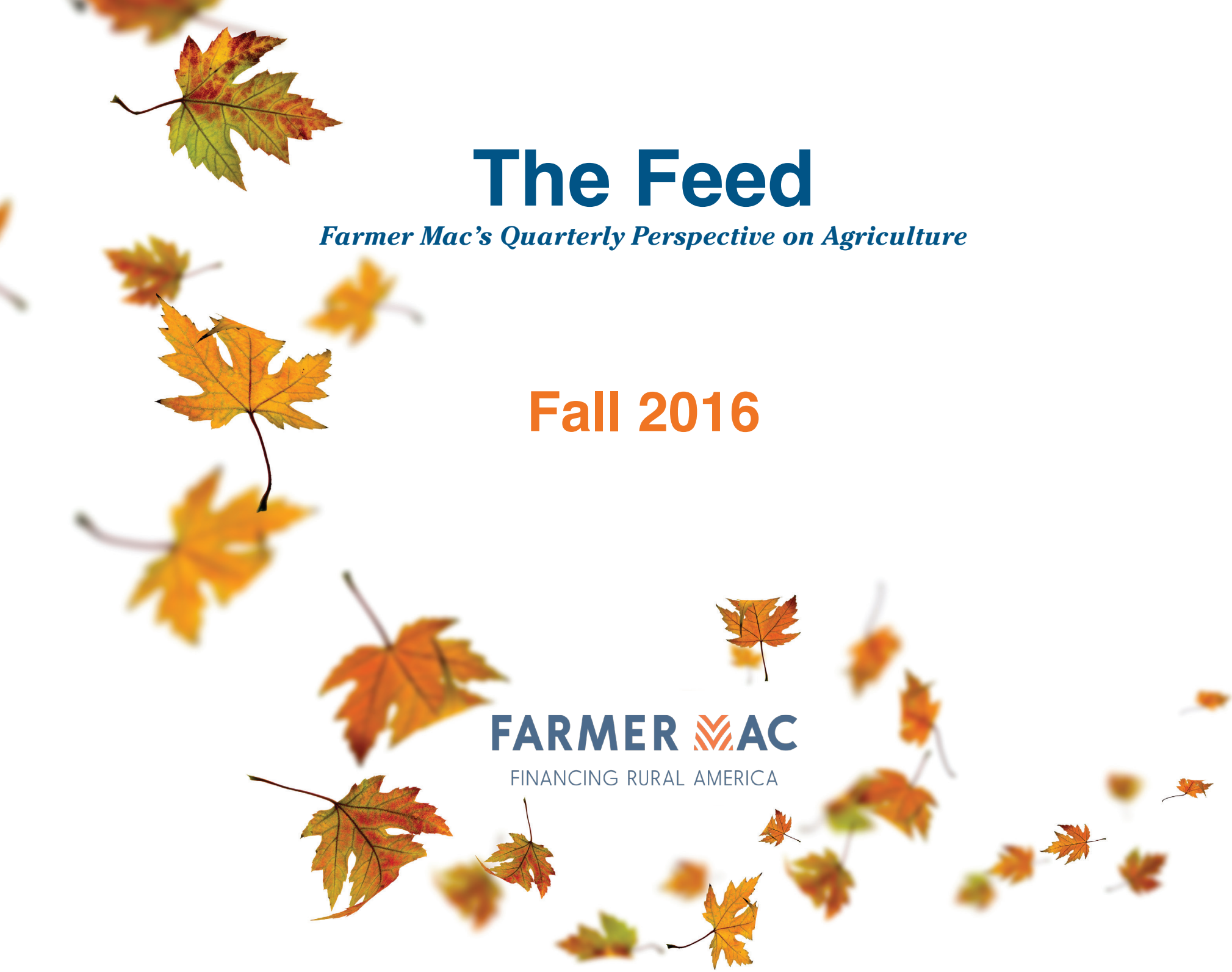
The Feed

Farmer Mac's Quarterly Perspective on Agriculture

Fall 2016



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 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 capital-intensive agricultural industry.

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EXECUTIVE SUMMARY

Key Highlights

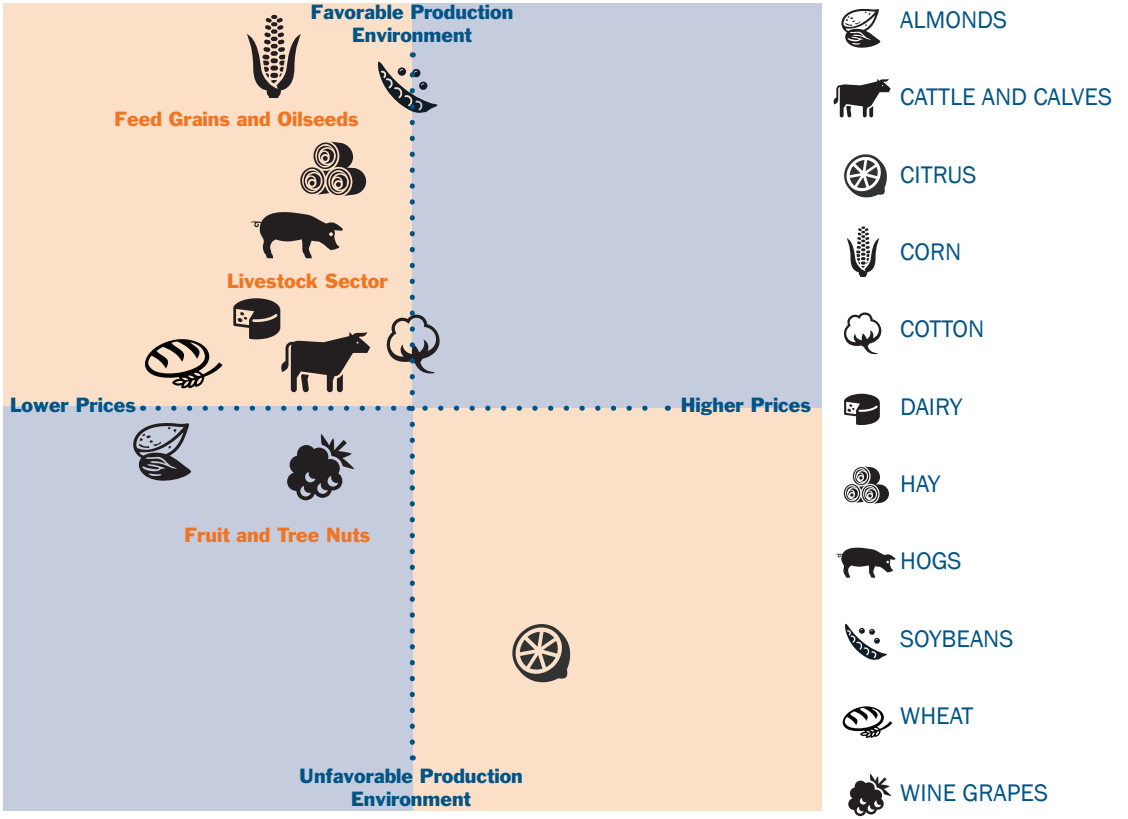
America's farmers and ranchers continue to adjust to lower revenues and will need to make further adjustments to budgets in 2017 to maintain profitability.

Recent USDA data indicates a third consecutive annual decline in net farm income in 2016, although net farm and net cash incomes have outperformed projections from earlier this year.

Dairy and beef industries continue to struggle with abundant supply, but demand for animal products could help buoy prices in 2017 and 2018.

Florida citrus is having another poor crop year, which is an effect of the devastating citrus greening outbreak that still plagues producers.

Production and Market Price Perceptual Map



Fall has always been an important time of year for U.S. agriculture, but this autumn stands out as particularly significant. Producers continue the adjustment from a high- to a low-price environment, and the USDA released a bevy of new and revised data in August and September that has sharpened the picture on the financial health of the industry. • Large increases in acres planted to crop commodities is a major cause of the global oversupply situation, and producers must continue to be diligent on budgets and expenses in 2017 if they hope to maintain profitability. A one-year supply disruption will not be enough to erase the build-up in global grain stocks. • Farm incomes are projected to decline in 2016, but the steepness of the decline from 2014 and 2015 is much lower than the USDA expected in projections earlier this year. While producers are doing a better job of reducing expenses than originally projected, 2016 marks the third consecutive year of income declines. • New land value survey data from the USDA confirms many other reports that land values declined in 2016. However, the national average decline was less than one percent per acre, and 2016 represents only the second decline in aggregate land values in 30 years. • Purdue University and the CME Group launched a new survey effort designed to take the pulse of agricultural producers. Recent results show that while producers have generally negative sentiment about current conditions, they remain optimistic about the long-term prospects of the industry. • Experts expect a record corn and soybean crop, one that could test storage capacity this winter. The large increase in ending stocks is the primary reason many analysts are predicting a decline in corn prices for the 2016/2017 marketing year. Soybean prices are expected to fare better as a result of stronger overseas demand. • The dairy industry continues to struggle with oversupply on a global level. There is some indication that European dairymen are slowing production, which could help build demand for U.S. products in 2017. • Beef cattle supply is climbing as a result of herd expansion and greater weight per cow. Demand for U.S. beef is picking up, but prices are not likely to move higher due to the increasing supply. • Citrus greening continues to hurt Florida citrus production; the 2016 crop is down 18 percent from 2015. Almond and walnut crops are setting records and prices are down as a response. • Retail food prices are declining, perhaps one positive outcome of lower commodity prices.

SPECIAL REPORT: TIGHT BUDGETS LIKELY TO PERSIST IN 2017 (resource 1)

By Brent Gloy and David Widmar, Agricultural Economic Insights, LLC • www.ageconomists.com

Key Highlights

Increased planted acreage is a major cause of grain supply growth and, ultimately, low crop commodity prices.

Costs and budgets will have to adjust again in 2017 to meet lower market prices.

Land values and cash rents could face downward pressure as a result of budget tightening.

While the 2016 crop is still being harvested, attention will soon be shifting to the 2017 growing season. We produce a series of crop budgets for the major row crops and major growing regions of the country, and our initial look suggests that 2017 will be another challenging year for row crop producers.

While there has been a significant amount of negative news about the 2016 economic situation, there were some positives. Perhaps the most important of these is that the costs of production started to decline. This year saw some reductions in fertilizer and fuel prices, as well as cash rents. Unfortunately, crop prices have declined further and additional cost reductions will likely be necessary to restore profitability in 2017.

LARGE CROPS CREATE LOW PRICES. In terms of crop yields, 2016 is the third year in a row that U.S. producers have harvested very large corn, soybean, and wheat crops. These large crops have put tremendous downward pressure on crop prices. There is perhaps no better illustration of this situation than the wheat market where producers throughout the Great Plains were seeing cash prices well below $3.00 per bushel.

LOW CROP PRICES STRAIN BUDGETS. The low crop prices have put farmer profit margins into negative territory. In many areas of the country, output prices are well below the total economic costs of production. We track how output prices compare to variable costs of production plus land rents. In most cases, output prices are not sufficient to cover variable costs (such as seed, fertilizer, and fuel) and land rents, let alone machinery costs and unpaid operator labor. This means that there will continue to be pressure for costs to adjust downward. This is particularly true for wheat production in the Great Plains.

TOO MANY ACRES. One of the biggest causes of the economic downturn is that farmers around the world greatly expanded acreage during the farm boom. This can be seen in Figure 1, which shows world principle crop acres from 1950-2016. There are a few important things to note about this graphic. First, when acres come into production, they rarely leave. You can see the large increase of the 1970s and early 1980s which was brought on by a previous agricultural boom. When incomes fell in the 1980s, acreage did not contract back to pre-boom levels, rather they stayed relatively flat until the next boom period of the mid-2000s.

Additionally, since 2000 the world's farmers have added significant amounts of cropland. For example, from 2000 to 2015, South American farmers added approximately 86 million acres of cropland. This is a large amount, roughly equal to the acreage of soybeans that were grown in the U.S. in 2015. These large acreage increases are likely to influence the economics of agricultural production for a long period of time.

SO WHAT ABOUT TODAY? Combining large U.S. crop and an increase in global acres, the conversation has switched from "too little production" to "burdensome levels of global grain inventories" in just a matter of a few years. Furthermore, it's important to note that below average yields – as traders feared in June of this year – alone are not enough to create a multiple year surge in commodity prices and farmer income. Such a situation would require a demand-driven shock

All of the additional acreage means that it is critically important that we cultivate strong demand for agricultural commodities. This means everything from biofuels to livestock, to emerging markets, to alternative bioproducts. This will be particularly important because government program payments will start to decline quickly in coming years. For instance, we would expect producers in the Corn Belt to receive payments in the neighborhood of $30 per acre for the 2016 crop (which will be received in 2017) to less than $10 per acre for the crop planted in 2017 (and paid in 2018). This dramatic drop-off will mean that budgets will have to change.

SO WHAT ADJUSTS? The negative margins being experienced in farm country will put pressure on all costs. This means that land rents, land values, and capital investment in agriculture will continue to face downward pressure. To date, the largest adjustments have come from changes in cash rent and fertilizer prices. For example, we observed earlier in the year that budgeted production costs for corn production in the Corn Belt was $61 per acre lower than the previous year. The largest source of cost reduction, 52% of the total, was a result of lower fertilizer prices. Looking ahead, pressure on other inputs, and in particular land values and cash rents, will be likely. In short, it is important that farmers carefully manage their costs or production and their financial situation in the coming years.

For those interested in learning more about these and other trends in agricultural economics, we encourage you to read our weekly articles which can be found at www.ageconomists.com.

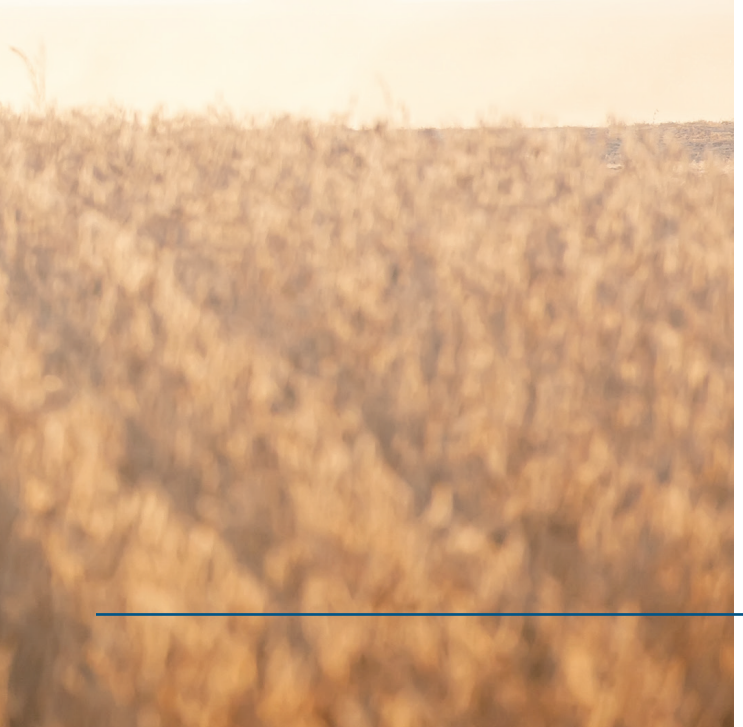


Figure 1: World Harvested Acres of 13 Major Row Crops

Source: USDA PSD Data, Agricultural Economic Insights

FARM INCOME (resource 2)

Key Highlights

Net cash farm income projected to decline by 13 percent in 2016.

Farm incomes in both 2015 and 2016 are shaping up to be better than originally projected by the USDA.

A reduction in farm expenses by more than $18 billion is the cause of the improved outlook.

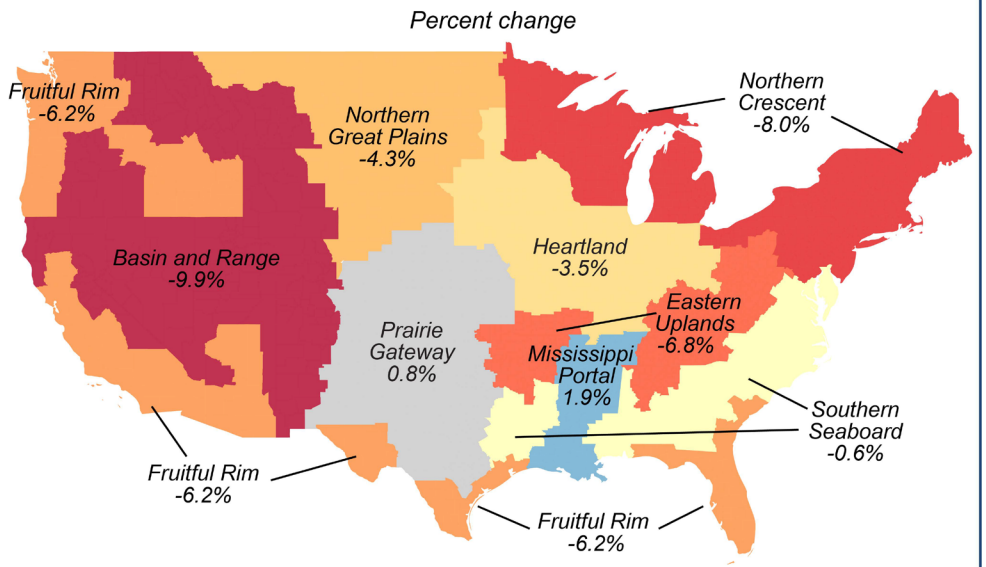
On August 30, 2016, the USDA released the first estimate of 2015 state and national farm income and revised the 2016 projection. Net farm income – the broadest measure of the sector's profitability because it accounts for cash and noncash income and expenses – is now projected to decline by 11.5 percent to $71.5 billion in 2016. Likewise, net cash income – the amount of cash left to make investments, pay down debt, and cover family living costs – is projected to decline by 13 percent to $94 billion. The new projections for each measure represent substantial upward revisions in the level of income, but also represent larger percentage declines, suggesting worse current conditions, relative to 2015.

The August income projections incorporate newly available 2015 Agricultural Resource Management Survey (ARMS) data used to set the official estimates of state and national farm sector expenses. The new data shows producers were able to successfully reduce expenses more than the USDA expected in 2015. Ultimately, this leads to a large downward revision in sector expenses and an upward revision in 2015 income, which was then incorporated in the new 2016 projection.

Setting aside the 2015 revisions, the August USDA forecast reflects a generally worsening income outlook for 2016 compared to February. Crop cash receipts are

Figure 2: Regional Farm Business Income Changes in 2016 (USDA ERS)

Farm business average net cash farm income by resource region, 2016F compared with 2015



Note: F = forecast. The partial budget forecast model is based on the 2015 Agricultural Resource Management Survey (ARMS) using parameters from the sector forecasts. The model is static and does not account for changes in crop rotation, weather, and other location production impacts that occurred after the base year. Data as of August 30, 2016.
Source: USDA, Economic Research Service, Farm Income and Wealth Statistics.

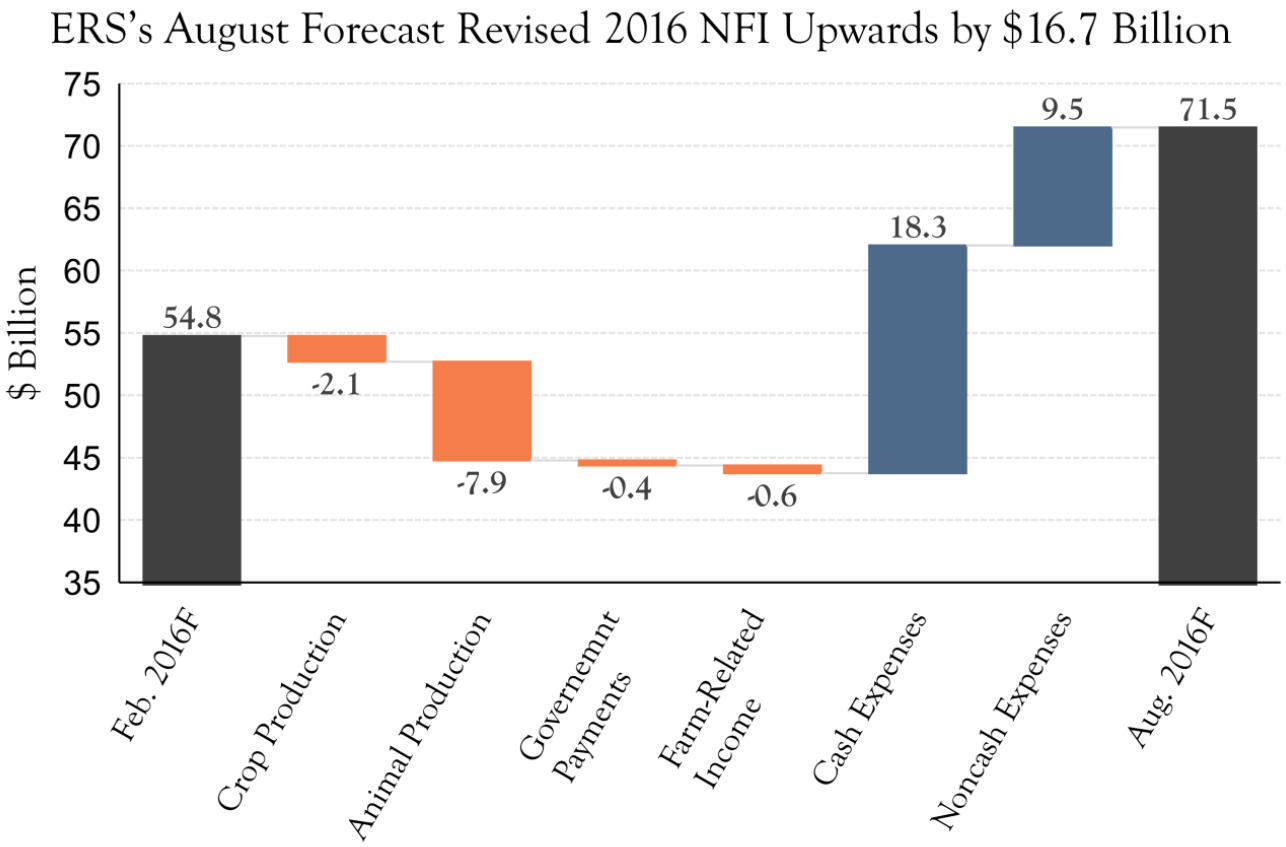
now expected to fall $7.1 billion relative to 2015, coming in at $182 billion as opposed to $189 billion as of USDA's February forecast. Prices for most field crops are expected to remain low, keeping downward pressure on crop revenues. After rising in the late spring, corn prices have fallen in response to expected record production. Corn cash receipts are now projected to decline six percent in 2016, accounting for 40 percent of the overall crop receipt decline. For animal and animal product producers, cash revenues are now forecast at $171 billion, down from $178 billion in February. Cattle prices have moved lower, more than offsetting an expected rise in beef production. Dairy prices have improved throughout the year but are still expected to remain below 2015 levels, leading dairy cash receipts to decline. The biggest mover has been egg prices, which have declined substantially since February. The January USDA World Agricultural Supply and Demand Estimates (WASDE) report projected midpoint annual egg prices at $1.46 per dozen, which has fallen to $0.99 per dozen as of September. Accordingly, the USDA projects egg revenues to fall 38 percent.

Despite projected cost savings in fuel, feed, fertilizer, and net rent, the third year of declining incomes is expected to weigh on profitability in most areas of the country. The average net cash income for farm businesses for 2016 is projected to be lower in most regions. The differences in profitability are largely driven by regional production specialization. The Fruitful Rim specializes in fruits, nuts, vegetables, melons, and dairy (California), which are all expected to generate fewer revenues in 2016. Likewise, farm businesses in the Basin and Range and Northern Crescent regions are projected to have lower average net cash income due to their specializations in cattle and dairy production, respectively.

LOWER EXPENSES DRIVE THE UPWARD REVISION TO THE LEVEL OF 2015 INCOME. As previously noted, the USDA's August Farm Income and Wealth Statistics release revised the level of net income upwards. Compared to February, the 2016 forecast of net farm income was revised upwards by $16.7 billion, even though the August forecast has a lower outlook for each component of the agricultural industry's gross revenue (crop production, animals and related products production, government payments, farm-related income). The improvement in forecasted net income is a result of lower-than-expected expense levels.

The August release marks the first official estimate of 2015 income, and is the first estimate to incorporate the results of the 2015 ARMS survey. The 2015 ARMS data shows producers were able to adjust their expenses downward in 2015 faster than expected, resulting in lower overall farm sector expenses than previously forecasted. The USDA's forecast for 2016 expenses was also impacted. More than one-third of the forecasted expense reductions stem from lower levels of expected capital consumption, a proxy for the wear and tear on capital inputs. The 2015 ARMS data shows levels of capital expenditures on farm equipment, machinery, and buildings that are far lower than the USDA had previously indicated, which in turn reduced the wear and tear on these items. Accordingly, net farm income (which includes noncash items like capital consumption) was revised upward by more than net cash income.

Figure 3: Analysis of USDA's 2016 Net Farm Income Revision by Component



LAND VALUE UPDATE (resource 3, 4, 5, 6, 7)

Key Highlights

The 2016 USDA land value survey indicates a $10 per acre decline in farm real estate values.

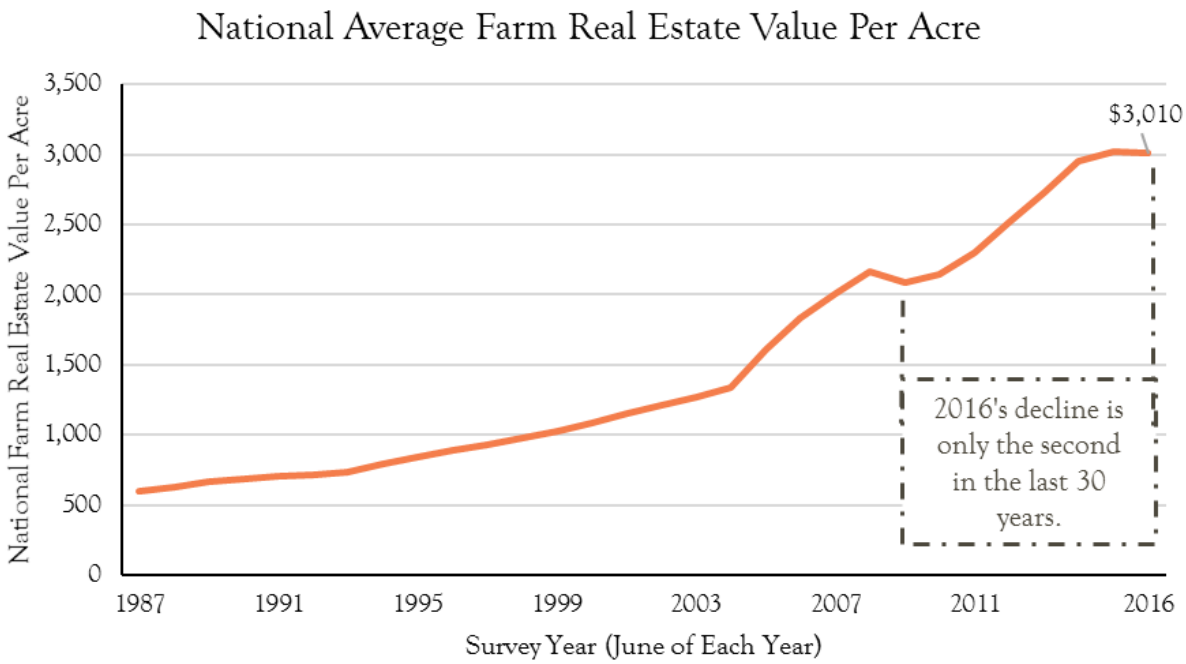
The dip in 2016 is only the second decline in 30 years.

Land value changes varied greatly by region, with the Midwest showing the largest declines.

In early August, the USDA National Agricultural Statistics Service (NASS) released new data on 2016 farmland values. The data shows the average price per acre of farm real estate including land and buildings declined 0.3 percent from June 2015 to June 2016. The decline marks the first decrease in U.S. farm real estate values since 2009, the only other time U.S. farm real estate prices have declined since 1987. This decline was largely expected given state and regionally specific surveys have shown declining land values in the Midwest and USDA projections for the farm sector's 2016 net cash income at 30 percent below the 2013 peak.

Under the capitalization model, farmland prices reflect the present value of the future income stream attributable to the land. Accordingly, farmland values are determined by two fundamental levers: income growth and the required rate of return or discounting interest rate. From 2000-2013, inflation-adjusted U.S. net cash farm income (NCFI) increased by nearly 81 percent, while farm real estate values increased by 92 percent. Over the same period, interest rates decreased substantially, with the 10-year constant maturity Treasury rate falling from 6.7 percent in January of 2000 to below three percent by the end of 2013.

Figure 4: USDA National Average Farm Real Estate Value per Acre



Source: USDA NASS Land Value Data

Overall, the farm sector has dealt with lower prices but sticky input costs (i.e., costs have declined less quickly than revenues), resulting in a squeeze on profitability. From 2000 through 2013, NCFI increases in the Northern Plains, Corn Belt, and Lake States regions were among the largest in the nation. However, the sharp decreases in grain and oilseed prices have had the largest impacts in Midwestern states specializing in these commodities.

Unlike the farm income picture, the interest rate environment remains accommodating. The 10-year constant maturity Treasury rate closed in September at 1.6 percent, more than 100 basis points below the 10-year average rate. While members of the Federal Reserve Board of Governors have signaled that it is likely to increase rates one time in 2016, they have also signaled that the overall pace of increases is likely to be measured. Overall, the market expects low rates to persist, which may help offset the downward pressure on land values as a result of declining farm incomes.

While national farm real estate prices have declined modestly, regional changes have been mixed. The largest declines were reported in the Lake States, Corn Belt, and Northern Plains. Declining Midwestern farmland values are consistent with recent Federal Reserve banker surveys and university surveys, which have shown declining farmland values throughout the Midwest. However, the USDA estimates are slightly more pessimistic than market-based data, such as Peak Soil Indices and appraisal data.

The Chicago Federal Reserve reports historical annual changes by quarter, allowing the banker survey data from the second quarter each year to be compared with NASS farm real estate values. In 2012-13, bankers' estimates matched the general magnitude and directional change of farmland values in Iowa, Illinois, and Indiana reported by NASS. However, the 2014 bankers' estimates showed flat to modest declines, potentially in reaction to lower crop prices, while USDA-estimated land values continued to grow at slower (but still robust) rates in each state. In 2015 and 2016, USDA estimates have continued to be generally more bullish, predicting smaller declines over the 2014-16 period, particularly in Iowa and Illinois. Whether future farm real estate values rebound, remain flat, or decline will depend on the interplay between producer and investor expectations of current and future conditions in the agricultural economy.

Figure 5: Comparison of Different Surveys of Farmland Values

Year-over-Year Percentage Change in Farmland* Values (June Reference Date)

Source	State	2012	2013	2014	2015	2016
Federal Reserve Bank of Chicago	**IA**	24	18	-1	-7	-6
	IL	15	17	3	-6	1
	IN	12	21	0	4	-2
National Agricultural Statistics Service	**IA**	25.9	17.9	10.4	-5.9	-1.9
	IL	14.1	14.3	5.9	-0.3	-1.3
	IN	12.8	9.6	8.6	2.9	0

*Federal Reserve Bank of Chicago data reflects all farmland. NASS data includes land and buildings. Similar conclusions are reached looking at changes in cropland values reported by NASS.

PURDUE AND CME GROUP AG ECONOMY BAROMETER (resource 8)

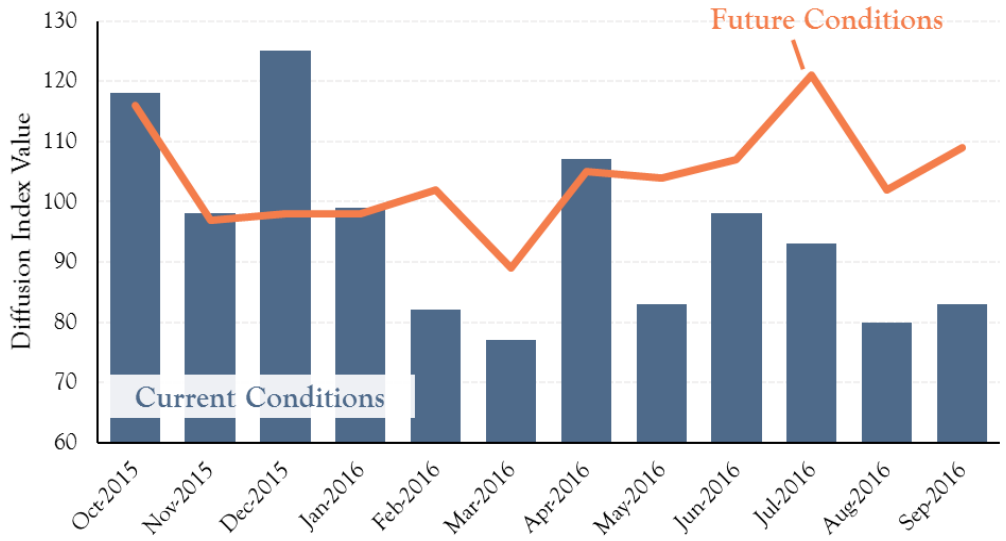
Key Highlights

Purdue University and CME Group have launched a joint agricultural producer survey.

Producer sentiment is largely bullish on the future of agriculture but bearish on the current conditions facing farmers.

Most producers expect commodity prices to rise, even in periods where prices are falling.

Figure 6: Purdue University and CME Group Ag Economy Barometer Producer Sentiment Indices



Source: Purdue University and CME Group Ag Economy Barometer

First released in May 2016, the Ag Economy Barometer is a joint survey venture between Purdue University's Center for Commercial Agriculture and CME Group, with the goal of measuring the farm sector's health and producer sentiment. To accomplish this, the survey asks 400 producers every month to respond to five core questions focused on both current conditions in the ag economy and producer expectations about the future, as well as additional questions on a rotating basis. The set of producers surveyed is selected such that the survey results will be representative of the range of operation size and the diversity found in U.S. agriculture. The survey draws further insight by supplementing the data with responses from 100 key agribusiness stakeholders. The Barometer is also timely, with data slated for release on the first Tuesday of each month.

There are three indices published in each Barometer release – an overall conditions index, an index of current conditions, and an index for future conditions. Each of the indices is designed to reflect changes relative to the October 2015-March 2016 base period average. After several years of high incomes and robust farmland value appreciation, the agricultural sector has experienced sharp price and income declines. Since peaking in August 2012, farm-level prices received for agricultural commodities have declined by 26.3 percent. Price levels were low throughout the base period and low commodity prices remain prevalent today.

Fluctuations in the index have already provided valuable insights into producer sentiment. From the first data points in October 2015 through March of 2016, producer sentiment of current and future conditions had generally trended lower. However, from March through mid-summer 2016, the overall Ag Economy Barometer increased, reaching its highest value in July. This period partially coincided with the spike in corn and soybean futures prices in late spring, and the current conditions index increase in June likely reflects relatively higher price conditions. Since that spike, however, overall producer sentiment about current conditions remained negative. In contrast, producers' expectations about future conditions generally improved throughout the time period, reaching a peak in July. Figure 6 demonstrates this divergence (an index score less than 100 means more negative responses than positive).

The September Ag Barometer, released in early October, suggests persistent optimism about the future, but a still-dour outlook about current conditions. As more data on the potentially record-setting 2016 U.S. corn and soybean production becomes available, it will be interesting to see how producer sentiment responds in November and December. In addition to the Current Conditions, Future Conditions, and overall Ag Economy Barometer indices, data from questions asked on a rotating basis are also reported. For example, the July data showed that while relatively few respondents felt commodity prices would move higher, only approximately 20 percent of respondents felt corn and soybean prices would drop below July levels. This additional data suggests that the higher production forecasts and lower market prices came as a shock to many producers.

Key Highlights

A transition from a strong El Niño to a weak La Niña has been completed. The weak nature of La Niña, combined with an unusually warm pool of northern Pacific Ocean waters, signals that a drier than normal winter will be likely for the Western states. This will not help the long-term drought conditions which have plagued the region.

During the late fall and early winter months, the weak La Niña is likely to spur chillier than normal weather in the northern Plains states through the Great Lakes states, while drier than normal weather conditions are likely across the Gulf Coast and Southeastern states.

Soil moisture conditions throughout much of the Midwest have remained favorable for this year's crop and have generated very strong crop yields. The much-hyped El Niño of 2015 faded over the summer and has been replaced with La Niña conditions. This La Niña episode is expected to remain fairly weak, which makes its impacts somewhat ambiguous. However, a pocket of warmer than normal waters in the northern Pacific Ocean is expected to persist, and this combined with La Niña may influence weather trends for late fall through the winter. Broadly speaking, this weather pattern would likely result in drier than normal conditions along the Pacific coast, colder than normal weather for the northern Plains and Great Lakes states, with mild and dry conditions for the Gulf Coast and Southeastern states.

Figure 7: Drought Monitor Map (USDA, NOAA, University of Nebraska-Lincoln)

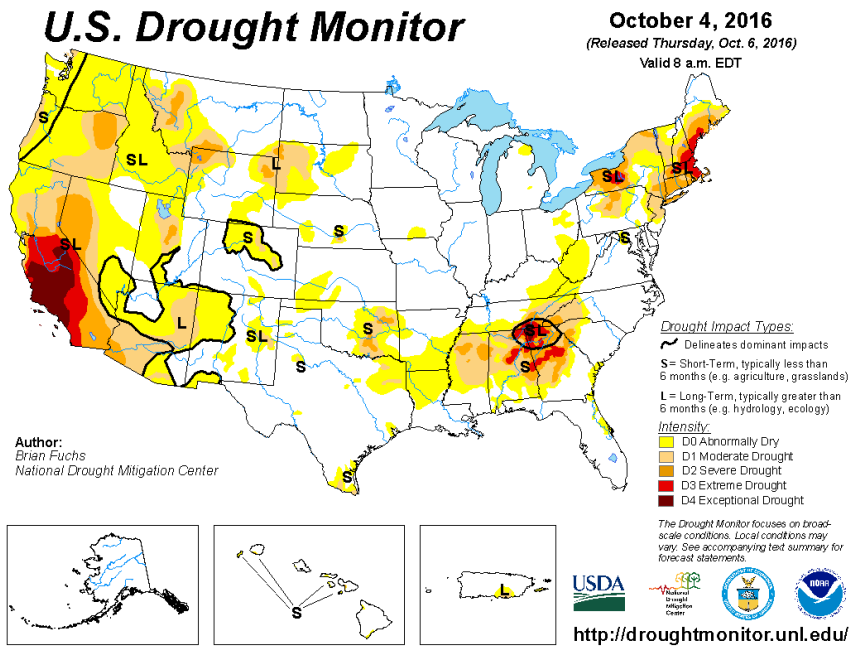
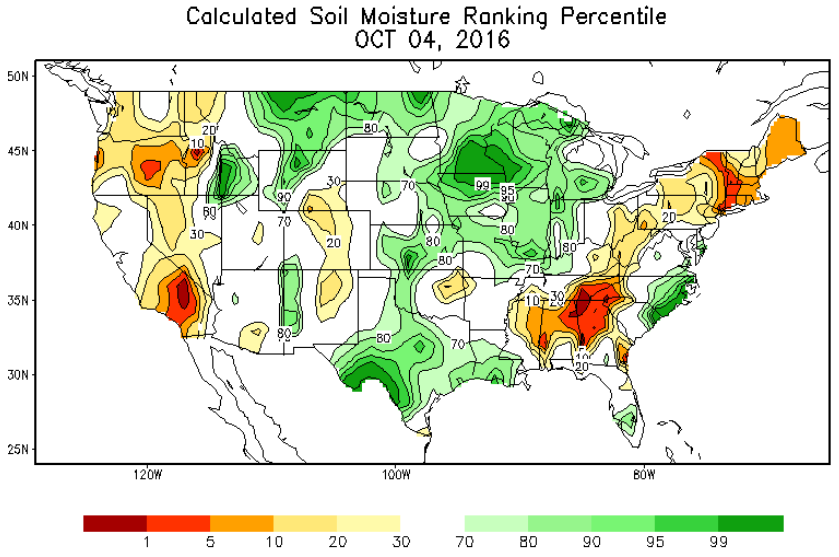


Figure 8: U.S. Soil Moisture Ranking



CORN AND SOYBEANS (resource 11, 12, 13)

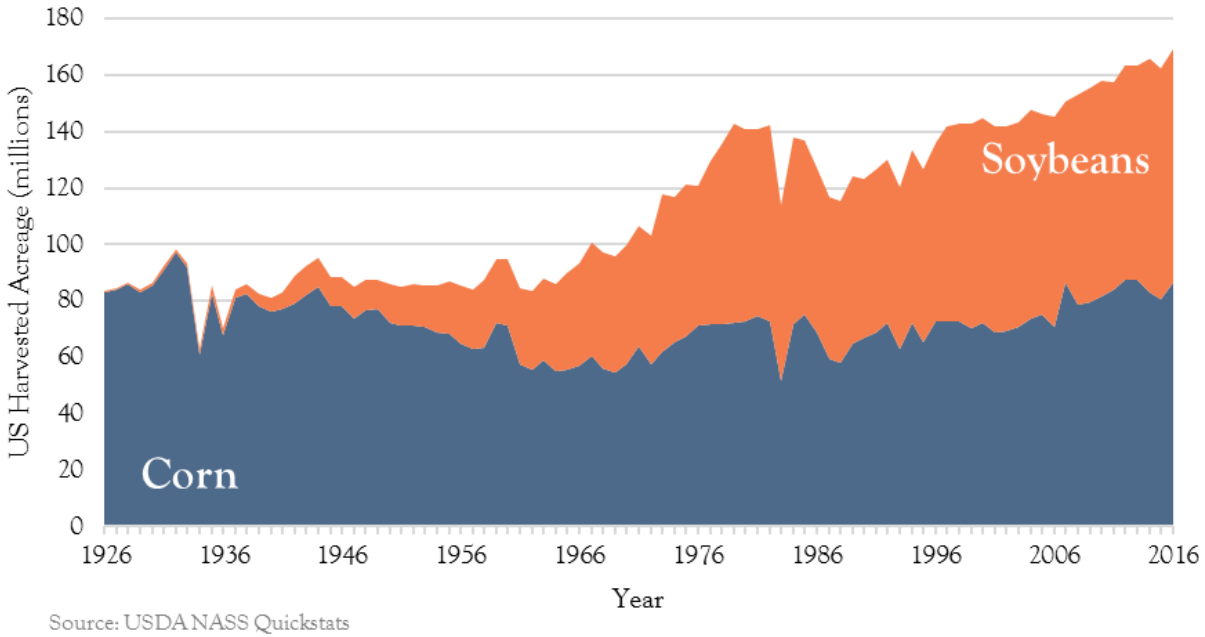
Key Highlights

Growers are currently harvesting the largest corn and soybean planting in history.

Grain stocks in September were seasonally high, and a large harvest could strain storage capacity in some areas.

The large crop is likely to compound supply issues and put additional downward pressure on grain prices.

Figure 9: Historical Corn and Soybean Acreage



Source: USDA NASS Quickstats

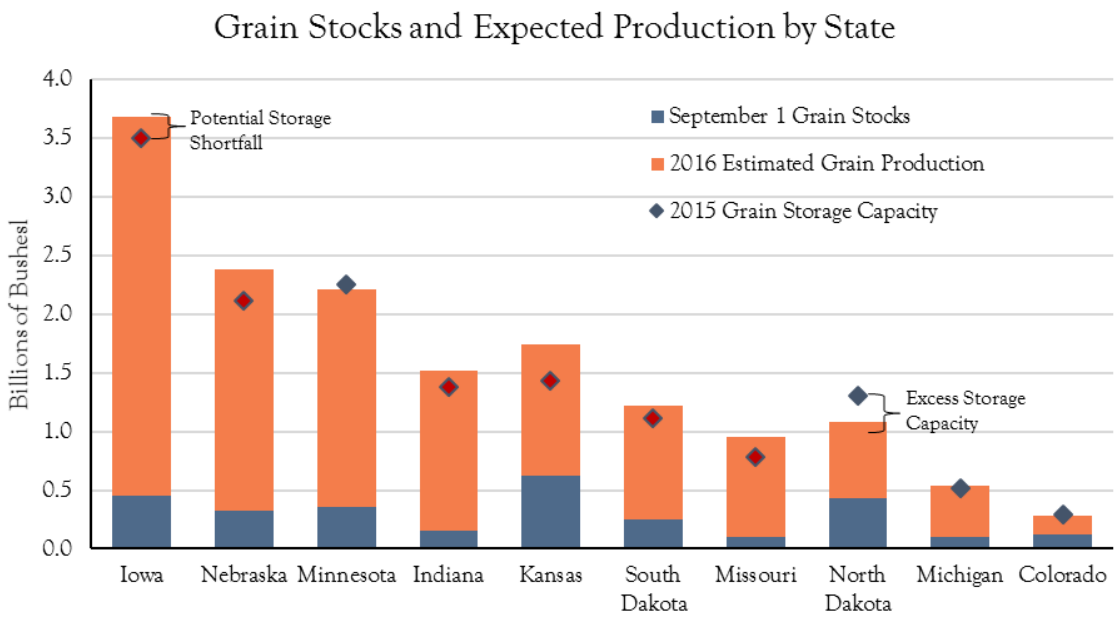
Throughout the spring and summer, "The Feed" has highlighted the positive corn and soybean growing conditions that are likely to lead to large crops. In 2016, farmers increased corn and soybean plantings relative to 2015, resulting in the largest-ever soybean plant and third largest number of corn acres planted. While growing conditions varied across the country, in general, they were good throughout the summer months. Nationally, farmers report 73 percent of the soybean crop and 75 percent of the corn crop are in good or excellent condition at the end of September, compared to a five-year average of 55 percent for each.

As the calendar has flipped to fall, annual corn and soybean harvests are underway with the USDA reporting the percentage of the crop harvested remains roughly in-line with the harvest progress in recent years. Given the large plant and strong crop quality, farmers will have plenty to harvest. As shown in Figure 9, the USDA projects a record level of combined corn and soybean acres, nearly 4 million acres more than the previous high in 2014. This year's U.S. corn and soybean production amounts are both shaping up to potentially be the largest on record. In August, the USDA revised its estimate of corn production to record high levels, as the first survey-based yield data incorporated in the forecast showed substantial yield gains. Likewise, soybean production is also projected at record high levels on the strength of record acreage and high yields.

The growth in corn and soybean production could put some strain on grain storage capacity this fall. The USDA September 2016 grain stocks report shows an increase in grain stored compared to 2015, and the USDA expects a very robust grain harvest to follow. Figure 10 adds the expected grain production to the September stocks, and compares that to the reported grain storage capacity for each of the major grain producing states. Some states, like Minnesota and North Dakota, have ample storage capacity to handle the 2016 corn and soybean crop. Other states, such as Iowa, Nebraska, Kansas, and Missouri, all have the potential for a storage shortfall if the existing crops are not marketed and shipped before December, or if there has not been additional storage capacity built in 2016. In a typical year, a high percentage of stored grain is sold and transported by December 1; this year it appears exceedingly important that the fall marketing push takes place.

The extra supply will likely outweigh additional demand from export markets and additional animals, weighing on markets and keeping corn and soybean prices stable to lower. If realized, the midpoint WASDE marketing year price for corn would represent an 11 percent ($0.40) decline to $3.20 per bushel, while soybean prices are projected to remain virtually flat, rising one percent ($0.10) to $9.05 per bushel. While there may be pockets of favorable pricing opportunity at times in the marketing year, the USDA's projections suggest low prices are likely to persist into 2017.

Figure 10: Grain Stocks, Production, and Storage Capacity by State



Source: USDA NASS Quickstats

DAIRY (resource 11, 13, 14, 15, 16, 17)

Key Highlights

On a milkfat basis, U.S. dairy stocks were at an all-time high in July, and stocks-to-use imply continued downward pressure on prices for the remainder of 2016.

Demand for cheese and butter has slowed, and with it, the Federal Class III milk price.

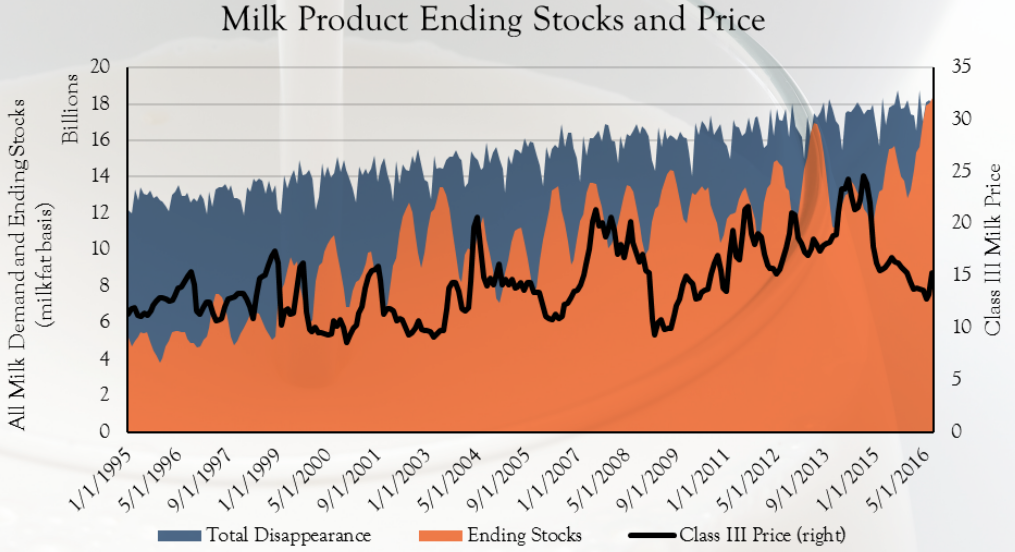
Production is slowing in the EU and New Zealand, probably enough to help prices in 2017.

Throughout the summer months, U.S. dairy producers have been working overtime. Total milk production through August is up 1.3 percent from 2015, and the year-to-date total is more than 8 percent higher than the ten-year average. The increase is a function of both a higher number of milking cows as well as higher production per cow, although 90 percent of the increase in production is a result of the greater efficiency per cow. Today's dairy cow is averaging more than 100 pounds per year more than it was producing as recently as 2012. And herds in Midwestern states like Wisconsin are leading the charge with efficiency gains in excess of 130 pounds per cow since 2012. The additional production has put the U.S. dairy industry in a tight spot: on a milkfat basis, ending stocks in July set a record high at over 18 billion pounds, 1.6 percent higher than commercial usage during the month. The level of oversupply is similar on a skim-solids basis as well.

Demand for dairy products has been mixed toward the second half of 2016. Demand for cheese was down sharply in July, particularly for American cheese and cheese products. Commercial butter consumption ticked up slightly compared to prior years, but not enough to counteract the drop in cheese demand. Export markets are looking slightly better for U.S. producers heading into the fourth quarter due to a drop in production from the EU and Oceania in June and July. U.S. dairy exports by quantity were up significantly in July and August, and the trend could continue through the end of 2016. For the trade outlook, much will depend on the strength of the U.S. dollar post-election and post-Federal Reserve rate decisions in November and December.

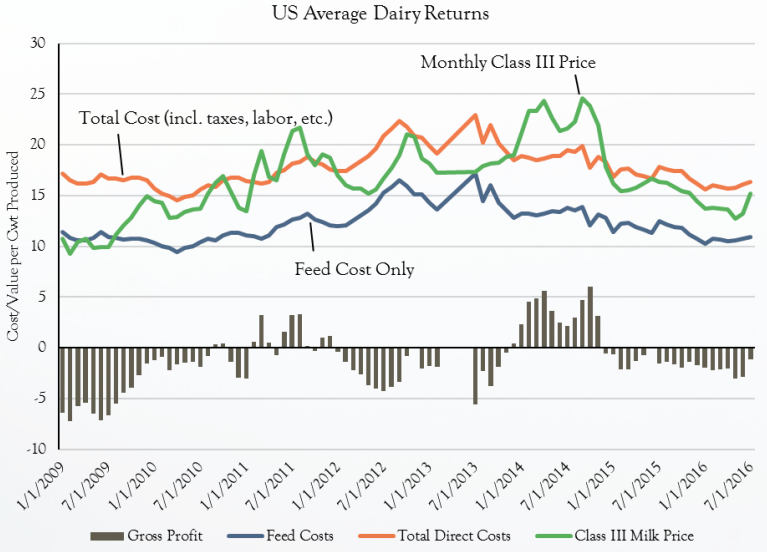
Combined, the supply and demand forces in dairy markets show limited price support at current levels. The Federal Class III milk price announced for September was $16.39 per hundredweight, but USDA projections and CME Group futures prices put year-end Federal Class III milk prices between $15 and $16 per hundredweight. Fortunately for producers, feed and animal costs are down significantly in 2016. Sector profitability is likely limited on the upside because of price constraints, but it is also protected on the downside by lower and more efficient costs of production.

Figure 11: All Milk Product Stocks, Usage, and Price History



Source: USDA NASS Quickstats

Figure 12: Historical Dairy Profitability



Source: USDA ERS National Milk Cost of Production Estimates

CATTLE (resource 11, 17, 18, 19)

Key Highlights

The supply of U.S. beef and national cattle inventories continue to build.

At slaughter, the average beef cow weighs 54 percent more today than it did in 1975.

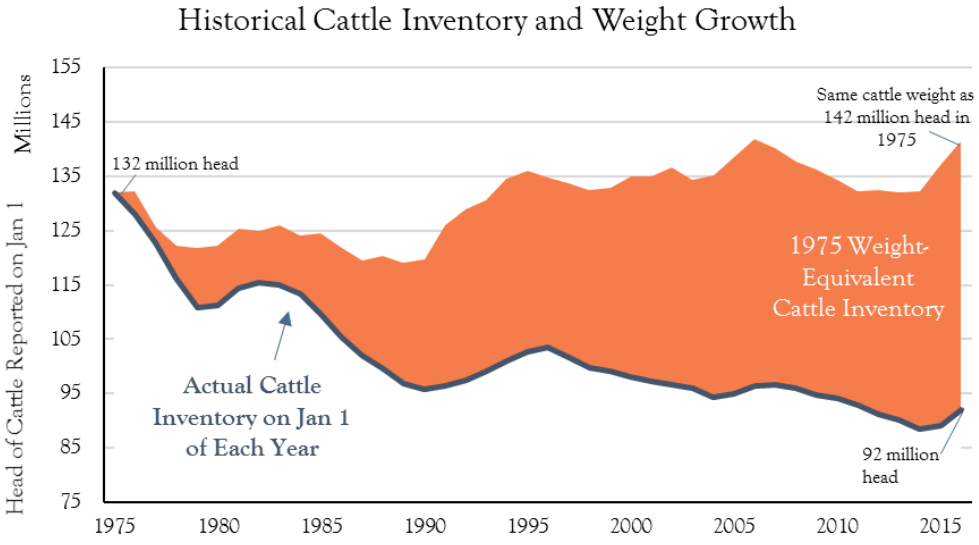
Lower retail prices will help boost domestic demand, and renewed export markets could provide another shot in the arm for beef demand.

Like most sectors in agriculture, the beef industry is facing an oversupply problem. The USDA estimates the U.S. cattle herd increased to nearly 92 million head in January of 2016, up 3.9 percent from the all-time low reached in January of 2014. But the increase in head count is not the real growth story for cattlemen – even more interesting for the sector has been the incredible growth in cattle weights. In 1975, the average cow at slaughter produced a carcass weight of approximately 450 pounds. In 2015, the average cow produced a carcass weight of over 680 pounds, a 54 percent increase in four decades. As Figure 13 demonstrates, there are 40 million fewer actual head of cattle, but when you adjust for that incredible increase in weight and animal efficiency, there are actually 10 million more theoretical head of cattle compared to 1975. The rapid rise in weights and headcount from 2013 and 2016 is a big part of the reason cattle prices have dropped between 10 and 20 percent in 2016.

Demand is picking up for beef products. Lower retail prices in July and August have spurred domestic consumer sales. The retail price difference between beef and competing proteins like chicken and pork have dramatically declined through August, and consumers are taking note. Beef exports are also up in 2016 due to a foreign preference for the higher quality, choice cuts produced by the American beef complex. In September, China lifted a ban on U.S. beef products; the ban had been in place since 2003. It will take time to rebuild the trade routes, but this lifted ban is a big opportunity for increasing exports. Finally, imports of beef and of live cattle are down by more than 10 percent in 2016. With less competition from foreign markets, U.S. producers should be able to edge out a higher market share of the domestic consumer.

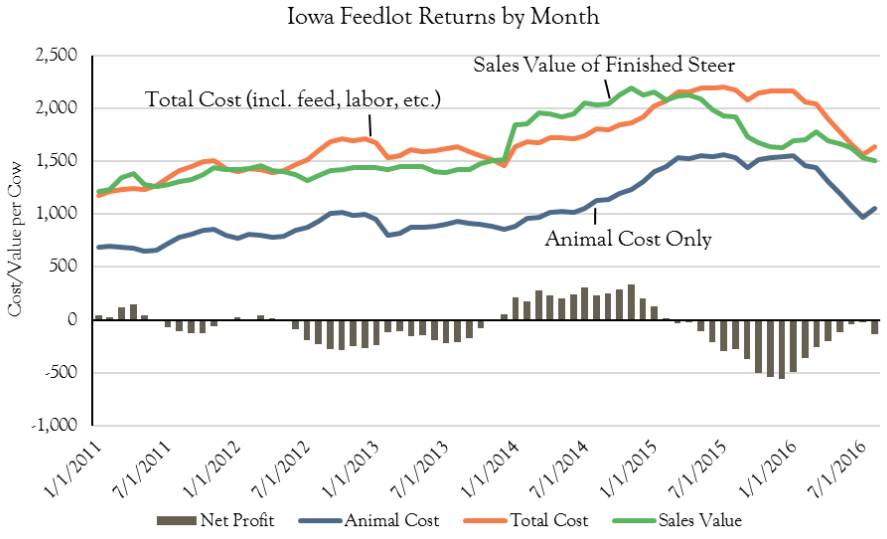
Profitability remains mixed along the beef supply chain. Lower cattle prices have benefitted feedlots, meatpackers, and retailers tremendously, but the market swing has taken some profits away from cow-calf and backgrounding operations. Combined with lower feed costs during the summer months, losses quickly diminished at the feedlot. Given the sensitivity of the cattle markets to movements in supply and demand, there will likely be considerable volatility in market prices over the coming months, as the herd continues to rebuild. The USDA projects flat cattle prices in 2017, and while the average prices may be stable, the path of prices is likely to be very choppy in the next twelve months.

Figure 13: Cattle Inventory and Weight Equivalent



Source: USDA NASS Quickstats

Figure 14: Historical Feedlot Operation Profitability



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

FRUIT AND NUT (resource 11, 20)

Key Highlights

Citrus production is down in 2016 due to the continued disease issues in Florida.

The 2016 nut crops are quite large, and lower market prices have led to an increase in the quantity exported through August.

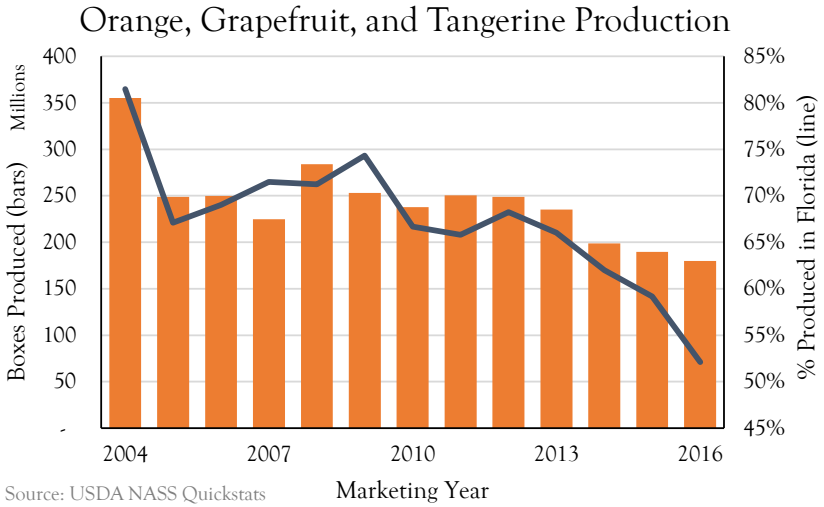
Fruit and nut prices have rebounded during the summer months, but they remain well below the prices observed in late 2015.

CITRUS. Total U.S. citrus production is down again in 2016, led by an 18 percent decline in Florida. Total citrus production is estimated down five percent this year, though the large drop in production from Florida is somewhat offset by increases in production in Texas and California. Florida orchards continue to be decimated by Huanglongbing, more commonly referred to as citrus greening. Since 2008, more than 100,000 acres of orchards have been taken out of production in Florida, and the share of national citrus production created in the state has fallen from more than 70 percent to just over 50 percent. Prices have rebounded through 2016, particularly for oranges. Declines in production are likely to continue in the citrus sector until a proper cure for citrus greening can be developed. The U.S. House of Representative passed the Emergency Citrus Disease Response Act in September, which would give tax incentives for replanting of orchards affected by greening. If signed into law, the bill would help relieve some of the replanting costs faced by Florida growers.

TREE NUTS. The California nut crops are looking very robust. Almond and walnut growers experienced ideal growing conditions, and despite stress from the continued drought conditions, trees produced slightly above-average yields. Ending stocks for both major tree nut categories are significantly higher than in recent years, putting downward pressure on crop prices throughout the year. Walnuts are averaging $0.81 per pound, a decline of nearly 50 percent from the 2015 crop. Similarly, almond producers are seeing prices nearing $2.00 per pound after experiencing prices of over $4.00 per pound as recently as mid-2015. Lower nut prices are the primary drivers behind the lower Fruit and Tree Nut Price Received Index published by the USDA (see Figure 16). Exports have picked up in August as the lower prices are motivating foreign buyers to reenter the market. However, even with the increase in export volume, excess supply is likely to persist into 2017 as more acres come into production during the next year.

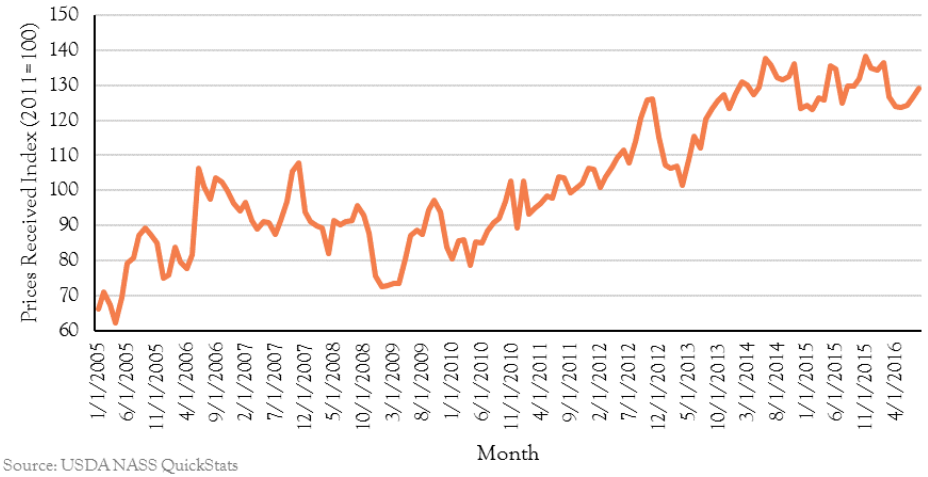
OTHER FRUIT. Market conditions for other fruit types are mixed. The California grape crop is forecasted to be up five percent over last year, implying a large crush and lower grower prices on most types and varietals in the next six months. Apple production has also ticked up in 2016, primarily in Washington, where early estimates show a seven percent increase over 2015. The increased production is putting downward pressure on apple prices, particularly for processing types. Conversely, pear and peach production are down, and prices for both fruits are on the rise. For most types of fresh fruits and nuts, imported product volumes have increased in 2016 due to a stronger dollar relative to 2015.

Figure 15: Orange, Grapefruit, and Tangerine Production Trends



Source: USDA NASS Quickstats

Figure 16: Fruit and Tree Nut Price Index



Source: USDA NASS QuickStats

RETAIL FOOD PRICES (resource 21, 22, 23)

Lower agricultural commodity prices have certainly pressured farm profitability, but there is another side to that coin: lower commodity prices benefit consumers via lower bills at the grocery store. Through September, average grocery store prices have fallen 1.1 percent over the prior year. If this trend continues through the end of the year, it will mark the first reduction in the level of food-at-home prices since 1967. Agricultural commodity price swings are typically much more volatile than price changes at the retail level. However, when there is a strong link between the commodity and finished food item, price changes generally move in the same direction. For example, in 2015, the Producer Price Index (PPI) indicated farm-level milk prices declined 28.7, egg prices dropped 31.9 percent, and wheat prices fell 19.6 percent. However, price changes at the retail level for related categories, as measured by the Consumer Price Index (CPI) were far less volatile. Retail dairy prices decreased only 1.3 percent, egg prices fell 17.8 percent, and cereal and bakery product prices (wheat is an input to many of these products) rose by 1.1 percent.

A major contributing factor to lower price volatility at the retail level is that commodity prices make up a relatively small percentage of the price we pay for the corresponding food item at the grocery store. For instance, 19.2 cents of each dollar spent on retail food goes toward farm and agribusiness. The majority of the costs associated with retail foods are food processing costs and retail trade influences, all of which have been more stable than raw commodity prices. Inflation for labor and capital tends to be more consistent year-to-year than commodity price changes, dampening the larger swings in the price received by farmers.

Additionally, the impact that commodity price changes have on retail foods varies by specific food item. As an example, 24.5 cents per dollar spent on a carton of eggs goes toward farm and agribusiness, whereas 2.3 cents per dollar goes toward farm production for bakery products. This helps explain why retail egg prices tend to be much more volatile than prices for processed foods like bread – a greater portion of the retail price is attributable to price swings in the underlying commodity. In addition to the magnitude of the price changes, the type of food also impacts the timing of price changes from the farm gate to retail. The timing of the price transmission process from farm to retail can take anywhere from 1 to 10 months depending on the level of processing required before the product hits grocery shelves. The less processed an item, the more quickly price changes pass through to the retail level, as these items are more closely linked to the commodity cost. Therefore, while commodity prices will not always move in tandem with retail food prices due to changes in agribusiness and retailing costs, they are still a good early indication of what can be expected at the retail level down the line.

RESOURCES

The information and opinions or conclusions contained herein have been compiled or arrived at from the following sources and references:

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2 USDA ERS Farm Income and Wealth Statistics (http://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics.aspx)

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5 Agricultural Economic Insights, LLC (http://www.ageconomicsts.com)

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10 NOAA Weather Prediction Center (http://www.wpc.ncep.noaa.gov/)

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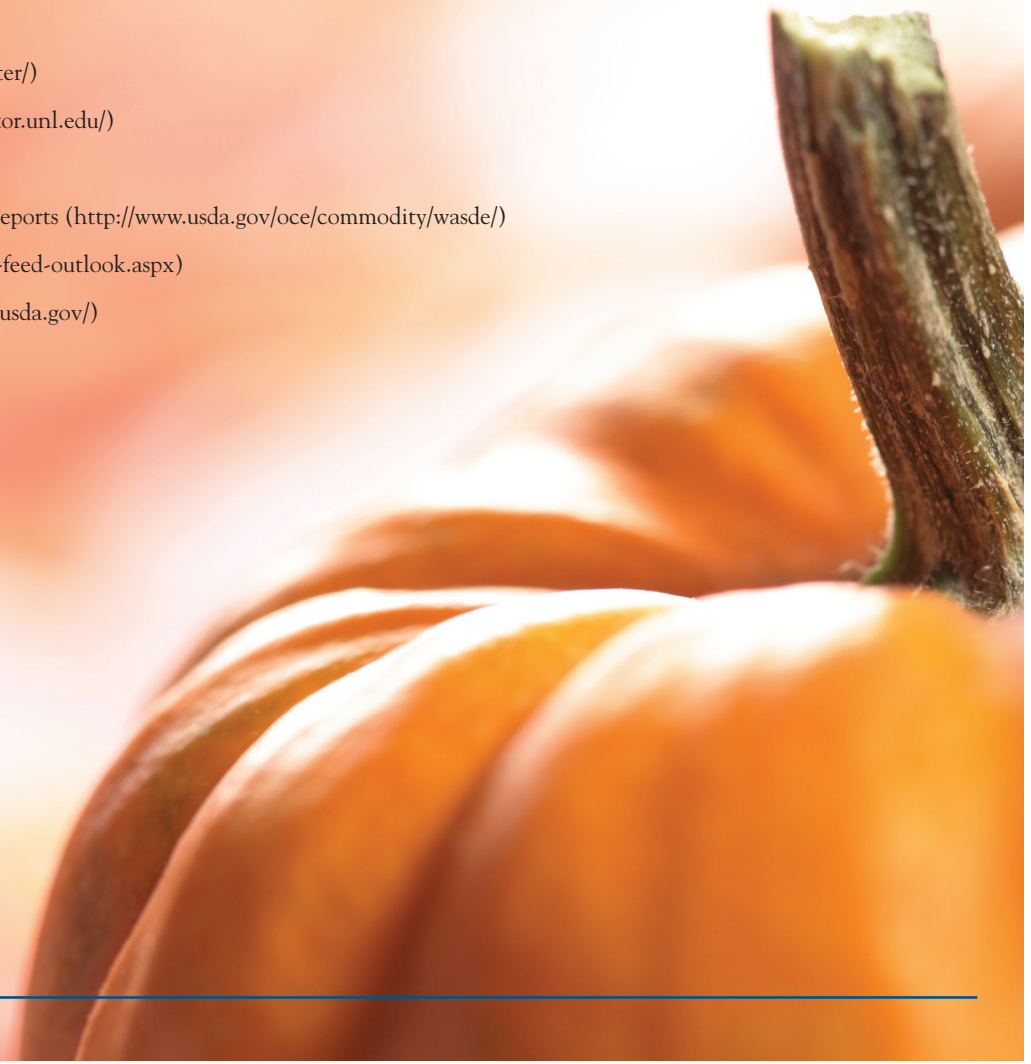
22 USDA Economic Research Service Food Dollar Series (http://www.ers.usda.gov/data-products/food-dollar-series.aspx)

23 U.S. Department of Labor Bureau of Labor Statistics Consumer and Producer Price Indices (http://www.bls.gov)



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