

The Outlook for U.S. Agriculture

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I would like to welcome you all to this year's 92nd annual Agricultural Outlook Forum. We have a great program for you as the Deputy Secretary mentioned. Some of the important topics we will be discussing this year include land tenure and transition, the impact of slower economic growth in China on agriculture and trade, the effects of climate and agriculture in Brazil, the future of agricultural credit and insurance, and a new outlook session on organic agriculture. In particular, I would like to highlight our distinguished guest speaker Howard Buffett, the Secretary's plenary session on leadership and the transformation of agriculture, both this morning, and tonight's dinner speaker, Governor Daniels.

Before I begin my remarks, I would like to personally recognize Deputy Secretary Harden, who, as you know has provided us with transformative leadership here at USDA since 2009 and who will soon be leaving us to tackle new challenges. The Deputy Secretary has been a tireless advocate on many issues throughout her time at USDA and before, with a particular focus on helping new farmers get started on the right foot. She also brought us her experience growing up on a farm and working on 7 different farm bills, which helped speed the implementation of this most recent farm bill.

Why was timely implementation of those new programs important? Experiences with how this new safety net provides support in its first couple of years will guide producers and policymakers in framing options for the next farm bill debate –perhaps as early as next year. As it happens, steep declines in commodity prices and farm incomes since the law's enactment have put the new farm programs to an early test, making performance of the safety net for both this year and next particularly informative.

On that note, I want to focus on three main themes this year for the 2016 Agricultural Outlook: a slowing global economy, softening prices following record harvests, and implications of those for the farm economy in 2016 (see figure 2).

Macroeconomic Outlook

Last year the outlook for the agricultural sector was driven more by factors, such as transportation issues, energy price declines, and drought in the West. This year, while energy prices and drought remain important components of the outlook, the overall picture for agriculture in the United States is being driven more by lower global economic growth and currency valuations.

2015 marked a significant change in the global business cycle (see figure 3). We have seen projections for global growth fall consistently throughout 2015. The economies of the European Union and Japan are expected to experience particularly weak growth in the

near term. The Canadian economy is facing sluggish near-term growth, as a nascent economic recovery has been undercut by low energy prices. Low commodity prices are likewise expected to be a drag on Australian growth.

A key component of the global slowdown is slowing economic growth in China. The forecast for China GDP growth is lowered this year compared to last year due to lower growth in its trading partners, heavy internal debt, a shift from export-oriented demand to internal demand (consumption), and less fiscal stimulus. China's GDP growth is expected to slow to 6.1 percent in 2016, 5.7 percent in 2017, and 5.0 percent by the mid-2020s.

Remember that China's recent robust growth was fueled in large part by an abundance of credit and large investments in housing, construction, and heavy industry. A decline in the investment share of economic growth in China lowers demand for primary inputs such as steel and lumber (see figure 4). Recently, U.S. fertilizer prices (represented by ammonia) have fallen with declines in natural gas prices, and oil prices have fallen in the face of persistent oversupply, ongoing growth in global inventories, and uncertainty over future global demand. Countries that rely on exporting those goods will be impacted heavily by those falling prices. As a consequence their growth will slow.

By comparison, the United States is expected to be the growth leader among developed countries over the next decade (see figure 5). U.S. economic growth is expected to be near 3 percent in 2016 and 2017 before gradually moving to a longer term growth rate of 2.3 percent. The U.S. economy is diversified and its growth in 2016-2018 will be led by lower energy costs, low interest rates, and a resulting pickup in investment and consumer spending, though lower energy investments may impact rural economies in some regions. Primarily driven by the relative strength and safety of the U.S. economy, the real value of the dollar increased substantially in 2015 relative to competitor and customer currencies and that growth is expected to continue through 2017. As a consequence of economic slowdown, many countries have pursued expansionary monetary policies designed to encourage economic growth. As a result, currencies in many major exporting and importing economies, competitors and customers of agricultural production, have fallen in value relative to the U.S. dollar.

Among our best customers, Japan has suffered from sluggish growth and its expansionary monetary policy response has led to a depreciating yen. Mexico has been hard-hit because of the decline in oil and slowing Asian markets. Taiwan, Japan, and Korea are suffering from the slowdown in China. China's yuan has declined relative to the dollar over the past two years, but heavy intervention by the People's Bank of China (sparked by fears of capital outflows) has kept the potential depreciation relatively mild. The failure to allow the yuan to depreciate has resulted in its strong appreciation against other currencies (Korea, Japan, Thailand, Vietnam, etc.) and has slowed exports (see figure 6).

Turning to our competitors, the real value of the dollar increased substantially in 2015 relative to developed country currencies, up more than 18 percent relative to the euro, 13.5 percent relative to the yen, over 14 percent relative to the Canadian dollar, and more than 18 percent relative to the Australian dollar. The euro has suffered from sluggish

growth in the Eurozone, and monetary policy there has sent interest rates to record lows. Other currencies have suffered from falling commodity prices (see figure 7). For example, Canada has been hard-hit because of the decline in oil and other primary commodities (grains, oilseeds, fertilizer, lumber), although it is helped by its proximity to a growing United States. Australia's biggest export market is China, and the slowdown there has hit them fairly hard. Argentina and Russia have also had rapid inflation and poor fiscal policies in addition to being affected by declining commodity prices. Brazil suffers from falling commodity prices, reduced exports to China and to neighboring countries, and significant capital flight.

Since October 2014, forecasts of Brazil's economic growth have been revised down multiple times. We now expect Brazil's GDP to be \$600 billion lower in 2020, relative to our forecast 12 months ago. Capital flight has accelerated the depreciation of the *real*, already put in motion by rising inflation in 2012 and 2013. Since 2010, the *real* has lost about 50 percent of its value relative to the dollar.

One consequence of that depreciation is that Brazilian agricultural products, such as soybeans, are now more competitive on the global market relative to U.S. soybean exports. One way to show that is to compare the price that a U.S. farmer would expect for a bushel of soybeans to that expected by a producer in Brazil. Today, the Brazilian producer could expect to be paid roughly 34 *real* per bushel, about what they received in June of 2014 (see figure 8). However, as we will discuss later, U.S. producers expect a price of \$8.70 per bushel now, 40 percent lower than in June of 2014.

Does that mean a stronger U.S. economy and strong U.S. dollar adversely impacts the U.S. agricultural economy? Clearly, a stronger dollar means it is more difficult to sell products to countries with weaker currencies, such as Egypt and Nigeria (major wheat importers) and it is easier for countries, such as Canada and those in the EU, to sell their agricultural products abroad, making for an extremely competitive trade environment. However, a strong economy also helps U.S. producers in several ways. First, it is easier for U.S. buyers to import goods, such as fertilizer, from countries with weakening currencies, such as Canada, Russia, and Ukraine.

Second, a stronger U.S. economy provides improved off-farm income opportunities for a large majority of U.S. farm households. Since the latest recession ended in 2009, median farm household income has grown faster than U.S. median household income (see figure 9). Between 2010 and 2016, median farm household incomes are forecast to have increased by more than 50 percent. Most of that growth has come from improved off-farm income opportunities. Off-farm income and on-farm income for median farm households are all projected up in 2016. That is true for both smaller residential farm households as well as larger commercial farm households.

Third, 80 percent of agricultural products are sold domestically. While it is true that U.S. agriculture is becoming more trade oriented, nevertheless a stronger domestic economy means it is likely there will be more opportunities to sell more U.S. products and provide additional value-added at home (see figure 10).

Outlook for Trade

Still, increasing agricultural trade remains a key component of future growth in the agricultural economy. Taking a closer look at the trade outlook, there are many places for optimism regarding the prospects for growing international markets for U.S. agricultural products (see figure 11).

Overall, U.S. agricultural exports are forecast at \$125.0 billion for FY2016. That is down 10.5 percent from last year, with one-third of the decline coming from reduced sales to China. Since the record \$152.3 billion achieved in FY2014, the value of US agricultural exports is forecast to have fallen by \$27.3 billion in the last 2 years (see figure 12). In general strong competition and reduced demand have contributed to falling U.S. export sales. However, much of the reduction in value this year compared to FY2015 is due to lower prices for grain and feed exports. Export volumes are also down for most commodities and groupings, including coarse grains, rice, soybeans, soybean meal, and cotton. However, export volumes of wheat, beef, pork, and broilers are expected to hold their own and could be slightly higher compared to last year.

The FY2016 forecast for grain and feed exports is down \$4.4 billion from FY 2015 to \$27.2 billion on lower volumes of corn and feeds and fodders, lower prices for wheat, and increased competition from other suppliers. Oilseed and product exports are forecast at \$25.4 billion, down in value and volume. Soybean exports are projected at 46 million metric tons in FY2016, which would be the second highest level ever, after last year's 50.4 million. Cotton exports are forecast \$900 million below last year, at \$3.2 billion on reduced supplies and shrinking global demand. Rice exports are forecast at \$1.8 billion, \$300 million below last year, mostly on declines in volume. Livestock products are down \$2.2 billion from last year, to \$16 billion, due to lower prices, while dairy has dropped \$700 million due to lower prices and strong competition from the EU. However, sales of horticultural products driven by tree nut exports and processed fruit and vegetables are up by almost \$600 million.

Over the past 10 years, agricultural export volumes to China have increased by more than 125 percent. In FY2016, U.S. exports to China are projected to be roughly equal to those to Mexico at \$17.5 billion and behind exports to Canada, which are forecast to be \$20.8 billion. While trade with China is expected to remain strong, the longer-term outlook for Chinese demand has fallen slightly from our earlier projections (see figure 13). China's soybean imports have risen sharply since the late 1990s and now account for nearly two-thirds of world soybean trade. We expect China's imports of soybeans to increase from 83 million in 2016 to 109.5 million tons in 2025, accounting for 91 percent of the increase in trade. However, a significant change in this year's projections is a slower increase in grain imports. Last year USDA projected that China's total grain imports would rise to 24.5 million metric tons by 2024, but this year USDA projects a slower increase to 16.4 million metric tons by 2024 and 16.5 million metric tons by 2025.

China has been accumulating large stocks of corn since 2011 as their relatively high domestic support prices have supported production growth mostly through increases in planted area. We expect China to slow imports of corn and corn substitutes to prevent its

stockpile from growing even larger and to reduce those stocks. During 2014 China imported nearly 6 million metric tons of corn-based distillers dried grains (DDGS). Similarly, China now purchases the majority of U.S. sorghum exports and significant amounts of barley. USDA projects that China's sorghum and barley imports for feed will slow in the future. In 2014, China imported a combined total of 20 million tons of sorghum and barley, projected to fall to 14.5 million in 2015, and then to 9.6 million in 2016.

Conversely, for Brazil, we expect their producers to respond to relatively high prices for corn and soybeans (given Brazil's currency depreciation) and to increase production over the next 10 years (see figure 14). That will translate into increased Brazilian exports. Relative to our projection last year, we now estimate that Brazilian exports of corn and soybeans will be higher by about 10 percent for each year over the forecast period.

Overall, global trade of grains and oilseeds is expected to increase over the next decade to meet rising global demand. Global trade for wheat is projected to increase by 17 percent, for coarse grains by 15 percent (25 percent for corn), and for soybeans and products by 24 percent (25 percent for soybeans). Based on projected yield growth, the world will need to allocate about 50 million more acres to corn, wheat and soybeans, at U.S. productivity growth levels, to meet the increase in trade demand (see figure 15).

The United States is expected to remain the world's largest exporter of corn and the U.S. share of global corn trade is expected to remain between 38 and 39 percent over the 10-year projection period. Brazil is expected to remain the world's largest soybean exporter, with its share growing from 44.2 percent in 2015 to 47.5 percent in 2025; the U.S. share of soybean exports is expected to fall to 33 percent by 2025, from its current 36 percent. The United States is expected to remain the largest exporter of cotton over the next 10 years, although other countries will cut into the U.S. share of that trade as well. The EU is expected to remain the world's largest wheat supplier to the global market, with its share at between 20 and 21 percent. The United States was the largest exporter as recently as 2013, but is expected to increasingly lose market share to Russia over the next 10 years.

One potential boost to the projected outlook for trade is anticipated reductions in trade barriers. There are two major regional trade initiatives that the U.S. is currently working on: the Transatlantic Trade and Investment Partnership (TTIP) with the EU and the Trans Pacific Partnership (TPP) with 11 other countries in the Asia-Pacific (see figure 16). First, taking a look at TTIP, we can see that the EU has nearly \$300 billion in agricultural trade. Of that, \$30+ billion occurs between the EU and the United States, making the EU our 3rd largest agricultural trading partner. A high-quality, robust agreement that liberalizes tariffs and addresses non-tariff measures (NTMs) could increase that amount and lead to significant trade benefits for both partners.

Second, the Trans Pacific Partnership, or TPP, agreement was concluded and signed on February 3 and will advance U.S. economic interests in a region that accounts for nearly 40 percent of global GDP and \$400 billion in agricultural trade. The United States

already has FTAs with Pacific Rim countries: Canada, Mexico, Australia, Chile, Peru, and Singapore. However, expanding access to key Asian markets, such as Japan, Vietnam, and Malaysia, is critical given that this region is projected to account for 66 percent of the world's middle class population and 59 percent of the world's middle class consumption by 2030. According to the American Farm Bureau Federation's recently released economic analysis, passage of the TPP agreement could boost net farm income by \$4.4 billion and net agricultural exports by \$5.3 billion compared to a scenario in which the United States does not participate in TPP. Other Asian countries, including South Korea, the Philippines, Taiwan, Indonesia, and Thailand, have expressed interest in joining the TPP. China is also paying close attention to the TPP process and is redoubling its regional trade negotiations.

In fact, TPP is not only important for the new market access it delivers, but also to address preferential access that U.S. competitors have achieved in this region. For example, Australia and Japan have a free trade agreement that gives Australia preferential access into the Japanese market, which disadvantage U.S. beef producers. A recent study by USDA's Economic Research Service (ERS) indicates that the Japan-Australia Economic Partnership Agreement (or JAEPA) cuts into U.S. beef exports by about \$100 million a year relative to a recent baseline period (2012-14). If U.S. beef exports gain equal access into the Japanese market, U.S. beef producers would gain slightly, as would Australia and the rest of the world. If the baseline period is changed to the current situation under JAEPA, which has already been in effect for a year, U.S. beef exports under the same equal access scenario are projected to increase by over \$100 million a year, more than the trade lost as a result of JAEPA (see figure 17). That is a conservative estimate, as it assumes market access for the United States equal to what Japan provided to Australia, and the TPP goes further than that. The TPP agreement contains important outcomes for tariff liberalization and addressing nontariff measures that set a high standard for future U.S. FTAs, and will be discussed in greater detail during the afternoon session on TPP.

Another important development that could boost U.S. agricultural exports is the normalization of trade relations with Cuba. Cuba's geographical proximity and demand for U.S. products makes it a natural market, where we sell on average about \$350 million in agricultural products annually (2012-14 average). In fact, from 2003 to 2012, the United States was the leading agricultural exporter to Cuba. However, in 2013 the United States slipped to second place and to third place in 2014, behind the EU and Brazil. One reason U.S. market share has fallen is that our competitors have gained an advantage through the use of export credits, a financing tool not available for U.S. exports to Cuba. A normalized trade relationship with Cuba will benefit both countries and help address the competitive disadvantages that U.S. agricultural products currently face in this market. For comparison, U.S. agricultural exports to the Dominican Republic (with a similar population and GDP) averaged \$1.1 billion a year (2012-2014) and span a much broader range of products—beef, turkey, breakfast cereals, and fresh apples—than current sales to Cuba (see figure 18).

Outlook for Crops

I would like to turn now to what I see as the major factors influencing the market for agricultural commodities and provide the first look at area and prices for major field crops for the upcoming season (see figure 19). In tomorrow's commodity outlook sessions, our analysts will offer a more detailed look at USDA's projected balance sheets for the 2016/17 marketing year. Those have changed since the baseline projections came out in December. Since then, the dollar has strengthened relative to the Brazilian *real* and Argentine *peso*. Argentina has taken actions to be more competitive in world commodity markets. Oil prices have continued to weaken as have fertilizer prices. Slowing demand from China has lowered the premium for sorghum in the United States, and the U.S. rice market has tightened, making planting more attractive for producers.

Production has outpaced consumption for many grains and oilseeds over the last three years. Relatively high prices for much of the last decade have resulted in increased production both in the United States and around the world. We have had record or near record world crops for corn, soybeans and wheat over the last three years (see figure 20).

While world consumption has also grown, it has been outpaced by increased production leading to a building in global stocks. Cotton stocks remain very high relative to use. Corn, wheat, and soybeans stocks have begun to edge up, as measured in days of use, and put downward pressure on prices, but are not yet back to the levels seen in the 1990s (see figure 21). Rice is a notable exception, as rice stocks at the world level have tightened considerably through 2015.

Policy changes around the world are also impacting stock holding in the global market. Recent reforms in Argentina, including changes in export taxes and a sharp depreciation of the now free-floating *peso*, have improved prospects for agricultural production and trade in the country and reduced incentives for stockholding as a hedge against inflation. At the same time, stocks in China, corn and cotton in particular, are large and overhang the market (see figure 22). China's farm policy has used support prices for important commodities to provide a steady income for farmers, while restricting access to cheaper imports using a variety of border measures. As a result most of China's agricultural commodities are now expensive relative to the rest of the world, with China holding an outsized proportion of global stocks for commodities, such as cotton, corn, rice and wheat.

It is currently estimated that China holds more than half of the world's stocks for cotton, rice and corn. And wheat is not far behind. Given those stock levels, changes in China's agricultural policies can have significant impacts on global markets. For example, China's cotton stocks represent approximately two years of China's cotton use. While that stockpiling temporarily inflated global cotton demand, China is now cutting back on cotton imports. Changes in China's cotton supports are expected to reverse that accumulation of stocks this year and are expected to depress cotton prices even as global stock levels decline. The government is also trying to unwind the price imbalances for other crops, such as corn, by lowering the support price. However, the government has yet to reduce support levels for wheat and rice.

U.S. prices for most agricultural commodities have fallen with the increase in stock levels, as anticipated, but remain above levels seen in the period 2000-2003 (see figure 23). Further price reductions are expected for the 2016/17 marketing year for corn, soybeans, wheat, and cotton. Wheat prices are estimated at \$4.20 per bushel, a decline of 16 percent from the current year. The strengthening dollar and increased competition have sharply reduced prospects for wheat exports and prices. We have already seen winter wheat area come in below trade expectations suggesting producers are already adjusting their plantings. Corn prices are projected to fall to \$3.45 per bushel for the 2016/17 marketing year. Soybeans prices are forecast at \$8.50 per bushel. The all-rice price is forecast flat year-over-year at \$12.90 per hundredweight. Cotton prices are projected at 58 cents per pound.

Lower commodity prices are expected to idle some land which had been brought into production as commodity prices rose through 2012 (see figure 24). With the continued pressure on margins, the 8-crop area total in 2016 is expected to fall by 2.5 million acres from last year even as CRP area continues to decline, and would be down 8.5 million acres from the recent peak in 2014 (see figure 25). Lower crop returns will push some area out of production while shifts in relative returns will reallocate planted area among crops. Along with weather, changes in prices and input costs between now and planting time will determine final acreage.

We have already seen some decline in crop area for 2016 with winter wheat seeding down 2.9 million acres from a year earlier to 36.6 million acres, sending an early indication that lower prices are pressuring area. Spring wheat area is expected to follow suit, declining by 5 percent, leaving all wheat area down 3.6 million acres from last year at 51.0 million. So far, growing conditions for the winter crop have generally been favorable. Although U.S. exports are projected higher, competition from other wheat exporters will continue to limit gains in the U.S. share of world trade and pressure U.S. farm prices lower.

Overall corn and soybean acreage is expected to total 172.5 million acres, up 1.8 million acres from 2015. Corn area is expected to increase by 2 million acres to 90.0 million in 2016 with lower fuel and fertilizer making corn more attractive relative to other crops. With higher production and larger beginning stocks, corn supplies are projected to be record high. Strong competition from South America will likely limit any increase in exports, and as a result, U.S. corn ending stocks are expected to reach a 12-year high at the close of the 2016/17 marketing year, pushing prices lower.

Lower-priced forward marketing opportunities and changes in input prices, which favor corn over soybeans, are projected to reduce soybean planted area in 2016 by 200,000 acres to 82.5 million. Along with corn, these area changes from last year also have to be examined in the context of larger-than-average prevented plantings in 2015. With higher beginning stocks more than offsetting lower production, U.S. soybean supplies also are projected to be record high with prices expected to fall for a fourth straight year, much as with corn.

Area for the minor feed grains (barley, oats, and sorghum) is expected to decline. Sorghum area in particular is expected to fall, declining by 14 percent from last year. The sorghum price premium to corn observed at planting in 2015 and driven by Chinese demand, has returned to a more normal discount to corn as China changes its domestic grain policies.

Rice area is also expected to increase as a flat all-rice price in the face of declines in alternative crops raise area to 2.8 million acres, up 7 percent from the prior year. Long grain plantings in the southern states are expected to rise while medium- and short-grain plantings decline. Total use is projected to be the highest in 6 years, as both exports and domestic use are expected to increase. All-rice exports for 2016 are projected up 5 percent from a year earlier, driven by increased competitiveness in the Western Hemisphere. All-rice ending stocks are projected to reach the lowest level in 3 years. The all-rice price is projected the same as in 2015.

The all-cotton area (upland and ELS) is projected at 9.4 million acres in 2016, an increase of 820,000 acres or about 9.6 percent above 2015. Cotton area is expected to increase primarily as a result of a return in 2016 to more normal planting conditions. Last year a large number of acres were prevented from being planted. While cotton prices are projected 1.5 cents lower to 58 cents a pound in 2016, expected prices and returns for other crops including corn, soybeans, and sorghum are also lower, holding cotton area in production.

Outlook for Livestock and Dairy

Turning to the livestock, dairy and poultry sectors, we project that total meat and poultry production will be at a record high of 97 billion pounds in 2016, as production of beef, pork, broiler, and turkey all increase (see figure 26). If realized, this will be the first time since 2008 that production of all major meats increase during the same year. Milk production is also projected to be at a record 211.9 billion pounds in 2016 (see figure 27). Although prices for livestock, poultry, and milk declined in 2015, lower feed costs and, in the case of beef and dairy, improved forage supplies provided the impetus for expansion of flocks and herds. In the case of hogs and turkey, further support for growth reflects recovery from disease outbreaks, which affected hog production in 2014 and turkey production in 2015.

Beef production is forecast to increase as the supplies of cattle have increased. The cattle herd expanded in 2015 for the second year, as continued improvement in pasture and forage conditions and high returns encouraged producers to retain animals for herd expansion. Cow and heifer slaughter as a proportion of total slaughter has fallen dramatically as producers retained cows and heifers to expand the breeding herd (see figure 28). The number of beef cows on January 1, 2016 was up 4 percent from 2015 and the number of heifers retained for addition to the beef cow herd was 3 percent higher. The latest USDA National Agricultural Statistics Service (NASS) cattle inventory last month estimated cattle numbers at just under 92 million head, 3 percent higher than 2015.

U.S. meat exports are expected to increase in 2016 following declines in beef and broiler exports and relatively slow growth in pork exports in 2015 (see figure 29). Exports in 2016 are expected to be up from last year as increased supplies and lower prices increase the attractiveness of U.S. products to foreign consumers. Broilers were affected in 2015 by the closure of markets to U.S. poultry as a result of the discovery of Highly Pathogenic Avian Influenza (HPAI). A number of those markets have reopened, supporting increased exports, although some remain closed limiting growth opportunities. However, a relatively strong dollar, Russia's continued ban on imports of U.S. meat and relatively slow economic growth in a number of markets may also constrain export growth for meats. Nonetheless, exports over the longer term are projected to grow. Over the next 10 years, broiler exports are expected to grow by about 20 percent, pork exports are expected to expand about 22 percent, and beef and veal exports are expected to grow by 37 percent.

Until last year, dairy exports were growing fairly steadily; however, the confluence of a strong dollar, large competitor supplies, and lower imports in key markets resulted in lower exports in 2015. Many of those conditions have carried into 2016 and exports on both fat and skim solids basis are expected to fall slightly in 2016 (see figure 30), as a number of products, including nonfat dry milk (NDM) are pressured by large competitor supplies. Over the next 10 years, however, dairy product exports are expected to grow 44 percent on a skim-solids basis.

As mentioned, last year we saw one of the worst animal epidemics in U.S. history. Overall we lost about 50 million layers and turkeys –about 13.7 percent of the layer and 3.3 percent of the turkey populations (see figure 31). Indemnification of those birds cost roughly \$200 million. In addition, we lost a number of export markets for poultry products. As noted, many of those markets have now reopened, increasing export expectations in 2016. Producers are rebuilding turkey and egg-laying flocks lost to HPAI, with production of turkey meat and table eggs expected to increase year-over-year during the second quarter of 2016. For 2016 as a whole, turkey meat production is expected to reach 5.95 billion pounds, not only exceeding 2015 levels, but approaching the 5.97 billion pound record set in 2012. Table egg production is expected to increase to 7.05 billion dozen, almost 4 percent above 2015. However, this will be only the third highest production level after 2014 and 2013.

As a result of increased production in 2016, prices for cattle, hogs, broilers, and dairy product prices are projected to fall from last year's levels (see figure 32). Fed steer prices are forecast to decline to \$137 per cwt, down 7 percent as increased cattle supplies move through feedlots. Hog prices are expected to fall to \$47 per hundredweight, down 6 percent from last year. Broiler prices are expected to average 88 cents per pound, down 3 percent from 2015.

As the prospect for constrained exports weighs on the dairy market and production expands, 2016 milk prices are expected to fall 8 percent from last year, to \$15.65 per cwt. Although domestic demand is expected to provide some support for product prices, supplies will remain large, pressuring prices. Butter and cheese prices are expected to

decline less than for more export-oriented products like nonfat dry milk and whey, and milk prices are expected to fall. While dairy producers benefit from low feed prices, the expectation for falling product prices at the end of 2015 and into 2016 indicates the margins between feed costs and milk prices, as measured by the Margin Protection Program (MPP), may fall below \$8 per hundredweight by the spring of 2016.

Outlook for the Farm Sector

Overall, the financial health of the agricultural sector is strong even as the pattern of lower crop and livestock prices continues (see figure 33). ERS projects that net cash income and net farm income are both expected to fall slightly compared to 2015, but by much less than last year. Net cash income is expected to fall by 2.5 percent, or about \$2.3 billion, and net farm income by 3 percent, or about \$1.6 billion. Last year net cash income fell by 27 percent and net farm income by 40 percent (see figure 34).

However, high net farm income levels from several years ago helped U.S. producers strengthen their financial base and that is still reflected in the financial outlook. Heading into spring planting this year, USDA projects a slightly higher debt (mostly from operating loans) and lower assets (from some erosion in land values), resulting in a slight increase in the debt-to-asset level in 2016. While such an increase indicates rising financial pressures, those ratios remain near historic lows.

The ratio is forecast to rise from 12.7 percent in 2015 to 13.2 percent this year. That is only slightly higher than the 11.3 percent recorded in 2012 – the lowest value in decades – and is well below the 22.2 percent peak in the 1980s. Higher debt relative to assets can be an indicator of financial stress. For example, the farm bankruptcy rate also peaked in the mid-1980s. However, both the debt-to-asset ratio and the farm bankruptcy rate have remained very low for well over a decade. ERS will be presenting more of this research later in the Forum.

What is clear from the farm income forecast is that farm budgets have been tightening with lower prices. For example, this crop budget calculator from the University of Illinois uses costs from last year, but has been updated to show expected prices for corn and soybeans in 2016 (see figure 35). Revenue to cover such things as rent and salary after accounting for other costs is lower than the average cash rent value in Illinois from 2015, and much lower than the cash rent value of highly productive farmland. This illustrates some places where producers could seek to tighten budgets: chemical inputs, seed purchases, crop insurance, machinery costs, etc. In addition, government payments could contribute to net revenues; a county-level Agricultural Risk Coverage (ARC-CO) payment of \$30 per acre is assumed in the calculator, but that could be higher or lower depending on the benchmark revenues for that county.

One way farmers will make ends meet is by taking out new operating loans and restructuring their debt. According to the Kansas City Federal Reserve Bank, which collects information about farm banking and credit, debt has been increasing at agricultural banks since 2011 (see figure 36). In late 2015, farm debt at commercial banks was running about 8 percent higher than in late 2014, and operating loans have become

more important. This trend is also apparent in data from USDA's farm loan programs. Applications for USDA's Farm Service Agency (FSA) direct operating loans have increased by 40 percent since 2007.

That underlines how farm debt is changing with lower commodity prices and lower farm income. While the ratio of most non-real estate loans to farm income remained flat, operating loans relative to farm income saw a sharp increase in 2015, raising levels to the highest since the mid-1980s and leading people in the industry to point to rising risks as costs outstrip revenues for some producers. However, despite rising levels of debt, we are seeing delinquency rates on farm loans fall (see figure 37). The delinquency rate for non-real estate loans is falling and currently stands at less than 1 percent, near its lowest rate in at least 15 years. The delinquency rate on farm real estate loans is higher, at almost 1.5 percent, but is also falling and remains near 15 year lows.

Another area where we would expect to see adjustments is in land values and cash rents. When U.S. farm income boomed, land values rose as well (see figure 38). Land values for cropland and rangeland, tracked by the Chicago and Kansas City Federal Reserve Banks, picked up steadily, with year-over-year growth of about 20 percent at end of 2007. After a brief pause, these land prices picked up for another round of over 20 percent year-over-year growth. Recent data show that land values might have hit a plateau; fourth quarter 2015 data show flat rangeland value. And in general, farmland land values in the region have been weakening lately.

Is land still valued too highly, and if so, by how much? One way to think about this is to compare land value and the income stream from cash rent. This comparison shows that the land values could make sense in some regions. For example, in the Corn Belt, with projected 2016 cash rent and the current low-risk interest rate, the revenue stream is rising (see figure 39). The income stream is not as strong if we assume that interest rates rise in 2016 to the levels of a couple years ago or if cash rents fall, but in either case, present value of the income stream remains above the average land value in the Corn Belt. So, given forecast cash rent and current interest rates, the income stream could support the current land value in the Corn Belt. Of course from our earlier slide we know there will be pressure to renegotiate those cash rents lower, but this comparison lends some weight to the notion that such adjustments will likely be slow.

With softening commodity prices and tightening balance sheets, we expect the new farm bill programs to be important in assisting producers in times of lower farm incomes. The new ARC-CO program, which saw the largest sign-up for corn, soybeans, and wheat base acres, will vary across the landscape depending on yield variability instead of being paid at a constant rate. Those payments trigger when county revenue is low compared to the historic 5-year Olympic average revenue for that county. To illustrate how that differs from previous farm programs, the 2014 ARC-CO payment rates for corn base, which were paid out to producers in October of 2015, can be compared to direct payment rates under the 2008 Farm Bill (see figure 40).

Areas in red indicate counties where 2014 revenue exceeded the 5-year Olympic average, or where a shortfall was small enough to trigger a per-acre payment rate smaller than the direct payment rate. Areas in green indicate counties where 2014 revenue fell far enough below the 5-year Olympic average to trigger a larger payment rate per acre compared to direct payments. As this map shows, areas where corn yields were especially strong in 2014 received lower ARC-CO payments, since those higher yields compensated for lower prices in the revenue calculation. Overall, however, 2014-crop year payments for corn base were higher under ARC-CO compared to 2013 direct payments by about \$1.82 billion. Together, 2014-crop year ARC and PLC program payments totaled around \$5.2 billion, exceeding 2013 direct payments by about \$500 million.

The new farm bill also provided producers with more options for federal crop insurance, including new policies like peanut revenue insurance. We can see that producers use the Federal crop insurance program extensively to manage risk on their operations (see figure 41). For the 2015 crop, producers of major crops purchased coverage on between 72 and 94 percent of acres, most of it above the catastrophic loss level (50 percent) and most of it as revenue coverage (83 percent).

Outlook for Food Prices

Turning to implications of agricultural production and commodity prices for food prices (see figure 42), we can see that annual food inflation was only 1.9 percent in 2015, down a half point from 2014 and below the 20-year average (figure 43). Prices for food consumed at home rose more slowly in 2015 (at 1.2 percent) compared to food away from home, which rose at a rate of 2.9 percent. With continuing lower commodity prices and falling energy prices, it is likely that annual food inflation in 2016 will remain at or below the long-run average of 2.8 percent. ERS currently is forecasting a range between 2 and 3 percent and will discuss this later today.

Overall some food categories are likely to show more or less inflationary tendencies compared to overall food inflation (see figure 44). Prices for cereals, fruit, and vegetables are currently rising at relatively low levels. A large change from last year is inflation for meat prices. While meat prices rose by 3.0 percent annually in 2015, the January year-over-year change is down 4.7 percent, suggesting lower meat prices will persist in 2016. Egg prices were much higher in 2015, rising by almost 18 percent over 2014 levels due to the loss of layers to HPAI last spring. Pork, dairy, and fish prices were all down in 2015.

Conclusions

To conclude, weak economic growth outside the U.S. and the strong dollar contribute to a competitive trade environment in 2016. That coupled with record global crops for grains and oilseeds and moderate demand growth over the past few years have contributed to stock building and prices declines over the past year. Those trends are expected to continue into 2016, but level off as trend yields would be expected to produce 2016 crops slightly lower than this past year's record production.

Because global stocks for most commodities have grown, markets will be less sensitive to global production disruptions and concerns about price volatility should diminish. We

have seen commodity prices soften, and food prices for most commodities are expected to show little inflation in 2016.

Domestically, lower commodity prices will likely lead to reduced planted area, which is forecast down about 2.5 million acres for the 2016 major field crops. Lower prices for crops imply a slightly lower forecast for overall farm incomes. However, despite lower commodity prices, debt-to-asset ratios remain near historically low levels and a majority of farm households are expected to see increases in household income in 2016, a sign of a strong overall economy and falling expenses.

Producers still have access to relatively inexpensive credit and are likely to continue to use operating loans to mitigate slowing revenues relative to costs, although some tightening of credit availability based on tightening production margins is expected. In addition, we would expect to see farmers renegotiate cash rental agreements, which will, in turn, contribute to a softening of land values. The new farm programs will benefit many producers, falling energy prices will continue to lower input costs, and new crop insurance products will cover more products at higher coverage rates than in previous years.

And to finish, I will note that while producers may adjust input use to reduce their costs of production, we expect no significant change in the upward trend in farm productivity (see figure 45). Since the 1920s, milk per cow and potatoes per acre have steadily increased by more than 80 percent and corn per acre by nearly 90 percent. That holds for newer measures of productivity as well: pigs per litter have risen more than 20 percent and tomatoes per acre more than 30 percent in just the past 15 years. While expectations are for such productivity gains to start to taper off at some point, given flattening investments in agricultural research and development, producers have so far been finding ways to continually improve their efficiency. Through periods of both high and low farm income; producers have transformed their operations by adopting technological solutions to rebalance inputs as the world around them has changed.

Thank you.