The Outlook for U.S. Agriculture – 2019: Growing Locally, Selling Globally

U.S. Department of Agriculture
95th Agricultural Outlook Forum
Arlington, Virginia
February 21-22, 2019

Welcome to the 95th annual Agricultural Outlook Forum (AOF). As Deputy Secretary Censky just mentioned, we have a great program for you. The theme this year is "Growing Locally, Selling Globally" (see title slide 1). As in previous years, we will focus on improving productivity in the agricultural sector and expanding markets for U.S. producers —this year we will also explore the timely issue of biotechnology and its tremendous potential for enhancing productivity, improving nutritional value, and fighting animal and plant diseases. For instance, we'll be discussing the marketing and productivity aspects of animal and plant biotechnology, such as through biofortification of crops as with golden rice, or by conferring immunity for pigs to diseases like PRRS, or Porcine Reproductive and Respiratory Syndrome.

While there is always much to discuss, events shaping this year's outlook have been. Consider major legislation, such as the Bipartisan Budget Act, which changed farm programs for dairy and cotton and provided $2.4 billion in relief following the disastrous 2017 hurricane and wildfire season. Then last spring, the United States imposed steel and aluminum tariffs on some of our major agricultural trading partners, who then unfairly retaliated by placing tariffs on U.S. agricultural products. Some of those tensions have eased with agreements such as the new U.S.-Mexico-Canada Agreement (USMCA), but uncertainty remains about access to some of our largest markets. In addition, this past fall we had another season of strong hurricanes affecting agricultural producers in the Southeast. And, at the end of the year, the new farm bill was enacted, which will bring some changes to farm programs such as the Agricultural Risk Coverage (ARC) and the Price Loss Coverage (PLC) programs and to the safety net for dairy producers through the new Dairy Margin Coverage (DMC) program.

We will explore many of those issues in detail over the next two days. Most notably, Secretary Perdue will be hosting Agricultural Secretary Villalobos from Mexico and Agricultural Minister MacAulay from Canada to discuss opportunities generated by the new USMCA agreement. You will have the opportunity to text in questions during their discussion, and at other times during the forum, using the www.SLIDO.com website, the event code #AOF2019, and using the directions on the cards you received.

Moving to my presentation, I plan to cover four main sections this morning (see slide 2) —the farm economy, the outlook for crops and livestock, the outlook for trade, and the new Farm Bill.

Global growth has weakened over the past year.
A number of economic organizations have revised their forecasts for world and regional growth lower over the past three or four months. For example, the International Monetary Fund (IMF) issued a comprehensive set of forecasts last October, but were compelled to revise those forecasts lower just last month.

The IMF's projected global GDP growth for 2019 was lowered from 3.7 percent in October to 3.5 percent in January, and the forecast for 2020 was also reduced by 0.1 percent. That may not sound like much, but cutting growth in just those two years lowers global GDP by roughly $700 billion between 2019 and 2022 (see slide 3) compared to estimates from four months ago. For the fastest growing markets, in emerging and developing economies, the loss is about $300 billion.

So, what factors did the IMF consider when lowering its projection? Weakening financial market sentiment, uncertainty about trade policy, and concerns over China's outlook weighed on U.S. investments. Outside the United States, industrial production has decelerated, particularly for capital goods and global trade growth slowed to well below 2017 averages. But even those indicators may be weaker than the data show today, as import front-loading was likely ahead of anticipated tariff hikes.

On the bright side, the U.S. economy remains strong, with GDP growth estimated to average more than 2 percent over the next two years, above the trend since the turn of the millennium. That growth will is supported by expanded government spending, a strong labor market, and healthy consumer spending. Of course, U.S. economic performance could still be adversely impacted by trade protectionism and weakening growth in Europe and China. Conversely, it could be boosted by trade agreements with China and other trading partners.

U.S. dollar appreciation mixed going forward.
Potentially increases in U.S. interest rates coupled with a robust U.S. economy and emerging market concerns pushed the dollar universally higher since last February. However, the U.S. dollar is unlikely to strengthen quite so broadly versus other major currencies over the next two years.

Several factors do point toward continued appreciation: a strong U.S. economy; a slowdown in China's economic growth, which dampened regional growth in Taiwan, Korea, and Australia, among others, and was a major reason for the fourth quarter downturn in the European Union (EU); the European Central Bank may need to keep a fairly expansionary monetary policy, as Italy's national debt grows; and the outcome for Brexit will suspend quite a bit of investment activity in Europe. In short, the potential for financial market instability outside the United States remains high, which will cause the dollar to strengthen. Even since August we have seen the dollar gain against several currencies, including Russia, Canada, and Argentina (see slide 4). That effectively makes agricultural exports from those countries cheaper for their foreign customers, relative to U.S. products.

However, in the other direction we have seen developments that may strengthen foreign currencies. The Brazilian real appreciated following the election of Jair Bolsonaro and the reaffirmation of an independent central bank. If reforms continue, the real will continue to strengthen, or at least remain stable. Meanwhile, China's yuan rose recently as the People's Bank of China has intervened heavily to keep the currency from falling, which would accelerate capital flight and further erode confidence in their financial system. The Japanese yen has also gained as the go-to currency for investors seeking a safe haven. The currencies of Russia, Canada, and Mexico were all set back by falling oil prices in the last third of 2018, but oil prices have been gaining in early 2019. The Argentine peso has risen about 10 percent since its record low of 41 pesos/dollar, reached after the IMF-backed plan to contain inflation was implemented last September.

Lower commodity prices continue to affect farm income.
A growing U.S. economy helps farm household income, but falling commodity prices in recent years for a host of reasons have weighed on farm income. Over the past couple of years the dramatic fall in net farm income in 2015 and 2016 seems to be leveling out at a lower level (see slide 5). The current expectation of farm income at $66 billion in 2018 is a long way from the heights we saw when real net farm income peaked at $134 billion in 2013. Relative to the 10-year average, real net farm income is down 28 percent. Looking forward, net farm income is expected to rise slightly, remaining below $80 billion annually over the next 10 years.

As farm income has fallen over the past few years, farm equity has also fallen, but it is only down about 5 percent from the peak in 2014, stabilized by high land values. During the 1980s when we lost overseas markets due to a global slowdown, we saw farm debt *and* equity both fall by roughly 44 percent. Since the 54-year low point for farm debt in 1992, farm debt has slowly increased (see slide 6). With low commodity prices, farmers have increasingly tapped into their real estate equity to provide operating funds. Today, total debt is approaching record levels in real terms, and real estate debt has reached a record high in 2018.

However, overall measures of financial solvency remain firm, underscored by relatively high land values and current low interest rates. The debt-to-asset ratio remains relatively low, under 15 percent for the sector, compared to more than 20 percent in the mid-1980s. Debt financing has been rising since 2013, however, reaching 25 percent of net farm income in 2018 (see slide 7). While still a long way from the peak of 60 percent in 1983, the growing share of farmers' crop and livestock cash receipts that goes towards financing debt is likely to cause cash-flow problems for producers without significant land equity.

That said, the percentage of farm business that are highly leveraged has remained relatively constant over the past few years at about 1-in-10 crop businesses that are in a highly leveraged situation (defined as debt-to-asset ratios of higher than 0.40), and at about 1-in-15 livestock or dairy operations are in a similar situation. This suggests there is a relatively stable majority of producers with sufficient assets and operating structure to remain solvent under the tight financial conditions we have seen over the past few years.

When producers face declining income, erosion of working capital, and growing debt, they likely will refinance their debt, typically with longer maturity periods, but at higher interest rates. The Kansas City Federal Reserve has reported that refinancing is occurring with commercial banks and their farm customers. They have also reported farmers' ability to manage debt has also been declining since 2014, reflected in a rising share of nonperforming loans, albeit remaining at relatively low levels historically.[1]

It is clear that the memories of the farm crisis from three decades ago still carry relevance today. At that time, Colomiris, Hubbard, and Stock (1986) noted reasons for the 1980s farm debt crisis: rising commodity prices in the 1970s and sharply rising exports led to increasing farm incomes; as a result, farmers expanded production, taking on substantial new debt; then in the 1980s farm

[1] See https://www.kansascityfed.org/research/indicatorsdata/agcreditsurvey/articles/2018/8-9-2018/a-dip-in-the-farm-economy.

prices declined, the dollar appreciated, and exports fell sharply. That then led to a sharp decline in the ability of farmers to meet their debt obligations and to the corresponding rise in farm bank failures.[2] Some of those same statements can be made today: there was farm sector expansion fueled by a commodity price boom of 2012 and 2013; debt has been rising in the farm sector; the dollar has appreciated following the 2010 recession; and growth in exports has slowed.

Yet other indicators do not yet support the notion that we are heading into the same situation. First, both interest rates and inflation remain low, which has kept debt financing low and which also have helped maintain equity in high farm land values. Second, fixed-term debt has generally replaced the variable-rate debt of the 1980s. And third, banks and farms entered the downturn beginning in 2014 in a healthy financial condition (see discussion by the Farm Credit Administration, 2017 and Boehlje and Hurt, 2008).[3]

Another indicator we are watching is the bankruptcy rate. Ultimately, when farmers declare bankruptcy, we will see that show up in the quarterly Chapter 12 filings. Nationally the rate of bankruptcy per 10,000 farms remains low—sitting at approximately 2.35 bankruptcies per 10,000 farms, lower than the 3 bankruptcies we saw in 2010-2012 period, and much lower than the rates in the 1980s (see slide 8). However, it is clear that the bankruptcy data has generated substantial interest recently in the media. For example, on February 6, 2019, the *Wall Street Journal* reported the high percentage increase in actual bankruptcies at the state level, but across all states the results have varied significantly indicating that a variety of forces are likely at play. A number of important agricultural states had more bankruptcies in 2018 versus 2017 (particularly Nebraska, Wisconsin, Minnesota, and Kansas), but not all states with elevated 2018 bankruptcies are above the 10-year average level. For example, a number of agricultural states such as Georgia, California, and Florida, have had fewer bankruptcies over the past year than the 10-year average.

Based on the economic uncertainty this year, one might expect the level of optimism to have been volatile as well. Indeed, the overall outlook of farmers regarding their economic prospects has been up and down over the past 15 months (see slide 9). At the moment farmer optimism is on the uptick, almost 6.5 percent higher than this time last year. It may be that payments are arriving in farmers' accounts from programs such as the Market Facilitation Program, a cornerstone of efforts to mitigate the retaliatory tariffs on agricultural exports, which has so far disbursed $7.1 billion. Or increased optimism may be buoyed by recent strengthening in commodity prices (e.g., corn cash prices are up by 2.3 percent compared to last February) and optimism about improving trade partnerships.

Regarding the broader economy, a recent Gallup poll suggests most Americans think they will be better off financially over the next year.[4] However, amongst other market participants there seems to be less optimism at this point compared to last year: general consumer sentiment is down, main street business optimism is down, and homebuilders' optimism is also down.

---

[2] See https://www.brookings.edu/wp-content/uploads/1986/06/1986b_bpea_calomiris_hubbard_stock_friedman.pdf.
[3] See https://www.fca.gov/template-fca/download/EconomicReports/WhyWeAreNotFacingAnother1980sStyleFarmSectorCrisis.pdf and http://www.agecon.purdue.edu/news/financial/crisis_return_80s.pdf.
[4] See https://news.gallup.com/poll/246602/americans-confidence-finances-keeps-growing.aspx.

Many questions remain for the 2018 Agricultural Outlook.
Beyond the general economic setting, there are several uncertainties this year that have a direct impact on the outlook for crops, livestock and dairy this year. Questions about policy, trade, weather, and market information all are having an impact making the outlook less certain than perhaps any time since the first year of Freedom to Farm in 1996. Will the incremental strengthening in commodity markets or recent optimism about the trade outlook carryover to the new crop year? Let's turn to the agricultural outlook and find out (see slide 10).

First, our general expectation is for continued declines in real agricultural commodity prices over the next 10 years (see slide 11). Falling commodity prices are the result of continued production growth, which continues to outpace global demand. The remarkable increases in food production have resulted in large part from productivity growth, and have resulted in falling prices for agricultural commodities over the past half century. Since 1960, soybean production has increased nearly 1200 percent, while real soybean prices have fallen by 52 percent. Corn production has grown by more than 400 percent, and prices have fallen by nearly 60 percent.

We saw low stocks relative to demand boost prices after 2012 (see slide 12). However, global demand relative to supplies (measured in days of use) has tightened for some crops recently. We can expect global corn and soybean prices in particular to be supported by over the next few years by that growth in demand.

In addition to global or domestic stocks relative to use, prices will be affected by the impacts of retaliatory trade tariffs on commodities. For example, soybean prices deteriorated by 20 percent following escalation of the trade dispute and improvement in growing conditions over the summer. The 25 percent retaliatory tariff effectively blocked U.S. soybean sales to the Chinese market, forcing U.S. soybeans to sell at steep discounts in other markets relative to our main competitor Brazil. That discount reached over $90 per metric ton in October (see slide 13).

While U.S. soybean prices have been slightly buoyed amid some signs of progress in negotiations, the export outlook for this year's crop (2018/19) remains challenging. Currently, the U.S. has exported 24 million metric tons of soybean (see slide 14), down 13.5 million metric tons from this time last year. Under the trade dispute, exports to China alone have plummeted by 22 million metric tons, or over 90 percent. Sales to the EU, Egypt, Argentina, and many others are up this year due to the discount that had been available on U.S. soybeans, however, sales to other countries have not been enough to make up for the lost exports to China. With the narrowing price gap and the on-going South American harvest making export markets outside of China more competitive, we expect little export recovery for the remainder of the marketing year.

As a result, U.S. producers and shippers have been storing more soybeans and for longer periods. Carry-out stocks are expected to grow 472 million bushels to a record 910 million bushels this marketing year. Stocks recorded on December 1, were 3.74 billion bushels with 1.94 billion bushels being held on farm in a significant increase in both stocks and the share still held on the farm. The record high stocks in the U.S. due to the trade situation will take several years to unwind, which will weigh on U.S. prices going forward even with potential China purchase agreements (see slide 15). Compared to our 10-year projection of soybean prices from last year, our current estimates show that prices for soybeans are likely to take at least until the 2020 crop year to

recover. The loss in crop receipts to U.S. soybean producers over this period relative to last year's projections is approximately $7.9 billion.

Expanding global stocks of wheat and soybeans (again for soybeans, primarily in the United States) and tightening global corn stocks significantly influence the outlook for area and prices in the coming crop season. Under the expectation of continued Chinese tariffs, soybean prices are expected to rise modestly, up $0.20 to $8.80 per bushel as the market begins the multi-year process of working down large stocks, but this follows the prior year's decline of $0.73 per bushel (see slide 16). Alternatively, corn is expected up $0.05 to $3.65 per bushel, but is a second year of price increases as carry out stocks are expected to continue their multi-year tightening. Wheat prices are projected up a modest $0.05 to $5.20 per bushel, but have risen significantly since a near-term price bottom below $4 per bushel in 2016/17.

Large stocks are expected to buffer any price increase from lower rice area, and the all-rice price is expected to rise $0.10 per cwt to $12.20. Not all crops are expecting to see a higher price. The large growth in production is expected to push cotton prices sharply lower, falling 7 percent, or $0.05 per pound, to reach an upland cotton farm price of $0.67. Global economic conditions and trade barriers with China will be significant uncertainties for the cotton market in the coming year.

Producers of course will not base their planting decisions on prices alone, but also on relative prices and expected revenues. With the large overhang in soybean stocks, soybean area needs to adjust to work down record large soybean carry-in stocks. As a result, soybean area is expected to fall 4.2 million acres, to 85 million acres in 2019 (see slide 17). Despite the large stocks, the decline in soybean acres is tempered by current forward pricing opportunities with current harvest time futures prices setting the soybean to corn price ratio at about 2.4:1. This is notably below the ratio at this time in the prior two years but above that observed in 2015 and 2016.

Corn is expected to be the primary beneficiary of the decline in soybean acres, rising 2.9 million acres to 92.0 million, the largest since the 2016 planting season, when the price ratio was more favorable to corn.

This past fall with the weakness in soybean prices and anticipated modest improvement in grain prices, there was a focus on winter wheat area and speculation that it might continue its rebound and grow in areas where soybeans have encroached in recent years. However, winter wheat planting conditions proved unfavorable across several states and as a result, winter wheat planted area is currently estimated to be the lowest in 110 years, or since 1909, the first year the USDA survey was conducted. Winter wheat area fell notably, year over year, across Kansas (-500,000 acres), Oklahoma (-200,000 acres) and Nebraska (-170,000), which also recorded a record low planted area of 930,000 acres of winter wheat planted. Across crop areas, late season field work, including input applications, were also disrupted, resulted in fewer acres being 'locked in' as we approach planting this spring. This has added to the challenge of projecting crop area for the 2019/20 crop year.

While winter wheat area is already in the ground, the strong contraction in area is expected to support wheat prices and expand spring wheat area in the Northern Plains, with spring wheat area rising year over year while overall wheat area falls 800,000 acres to 47.0 million. Any change in

the current status of trade with China could have significant impacts on prices, both relative and absolute, and could shift acreage allocation in the coming year.

The three-crop total (corn, soybeans and wheat) for 2019/20 is expected to contract modestly, falling from 226.1 million acres to 224.0 million acres. Prevent plant acres were reduced last year as planting weather was largely favorable, this year, an expected return to 'normal' prevent plant area would explain much of the decline in the 3 crop area total.

Cotton area is expected to increase modestly by 151,000 acres despite recent softening prices. Relative returns, along with moisture conditions, are expected to support cotton planted area. That same moisture is also expected to reduce abandonment in the coming season and boost production significantly despite the modest increase in planted area. Rice area is expected to contract on a sharp growth in the stocks–to-use ratio in the U.S. this year.

Outlook for livestock and dairy is for continued record total meat and dairy production.
Let's turn to the outlook for meat and dairy sector in 2019 (see slide 18). Feed prices during 2019 are expected to reflect the divergence in price movements between corn and soybean meal. Corn prices are forecast higher for both the 2018/19 and 2019/20 crop years, but lower forecast soybean meal prices are expected to help offset the higher corn prices.

As with crop production, animal production over the long run is characterized by amazing progress in productivity with subsequent declines in real prices. Over the past half-century beef, pork, and chicken prices have fallen by more than 50 percent and output in the United States has more than doubled. We would expect that to continue over the next 10 years (see slide 19), particularly with new advances in biotechnology, as we'll discuss in our Plenary Panel later this morning.

Many things will affect U.S. livestock and dairy prices in 2019. For example, we assume at this time the continuation of retaliatory dairy and pork tariffs. If those are resolved, we would expect prices to rebound. Another factor affecting prices and production going into 2019 will be how recent outbreaks of African Swine Fever (ASF) in China, the world's largest pork producer and consumer, will evolve (see slide 20). Hog prices saw marked volatility in 2018, falling by over 20 percent from its highs following the tariff retaliation and stronger supply, and then some signs of recovery amid ASF outbreaks and uncertain prospects for China demand.

The expansion in animal production following the end of drought and moderating feed prices has generally been depressing prices for U.S. animals and milk since 2014. While growth in production will likely continue, we see a mixed outlook for prices this year (see slide 21).

Fed steer prices are forecast to settle at $118.50 per cwt, up about 1.2 percent year-over-year, supported by solid demand. Hog prices are expected to decline to $42.50 per hundredweight, down 7.5 percent from last year under the weight of large numbers of hogs with the decline tempered by demand from expanding slaughter capacity. Prices for broilers have recovered in 2018, but are expected to settle at $97 per hundredweight, as production expands modestly in 2019. Turkey prices are expected to rebound by 7 percent, but this comes as the industry adjusts to current market conditions following the poor prices and weak demand of late-2017 and 2018. Milk prices are expected to improve in 2019 with a modest production expansion and improved demand. The all-

milk price is expected to rise 6.5 percent this year to more than $17 per cwt. Cheese prices show some decline as large domestic stocks weight on prices while butter show modest gains on strong domestic demand. More export-oriented products, like nonfat dry milk and whey, are expected to show price strength on improved prices in the global market. With modestly higher feed prices and improved milk prices, margins are expected to improve modestly in 2019.

With low and stable feed costs over the past few years and projected going forward, the outlook for livestock and dairy is for another year of record total meat and dairy production (see slide 22). We project that total meat and poultry production will hit nearly 105 billion pounds in 2019, as production of beef, pork, and broilers all increase. The modest growth in beef production in the first part of the year is expected to reflect a slower rate of marketings and lighter carcass weights as wet fall weather and cold winter temperatures are thought to have trimmed rates of gain for some animals. The rate of growth in pork production in the near term will largely reflect increased supplies of slaughter hogs due as producers had expanded production in late 2018. Continued growth is expected to reflect increasing sector expansion, as producer increase farrowings as well as gains in pigs per litter. Broiler production is also expected to rise modestly as the broiler:feed price ratio improves and slaughter capacity is expected to increase. Milk production is also projected to surpass 220 billion pounds in 2019. Despite a slight contraction in the herd; growth in milk per cow is expected to increases and support higher production.

Outlook for Trade is uncertain.
With expected growth in crop and livestock supplies in the United States, it is clear that trade will remain vital to maintaining farm incomes. But of course there are many countries willing to compete for those sales (see slide 23), as is shown by this ship at a COFCO terminal filling up with soybeans in Argentina last year.

Overall, U.S. agricultural exports are currently forecast at $141.5 billion in fiscal 2019, down $1.9 billion from 2018 (see slide 24). The share of total U.S. agricultural exports to China in value terms is projected to be 6 percent, down sharply, with China falling from the top market in 2017 to fifth place. As discussed earlier, several of our international commodity markets have been severely disrupted by the ongoing trade tariff situation, even though sales to other countries, including Canada, Mexico, and the EU, are projected to increase in 2019 and offset some of the reduction in exports to China.

Over the longer term, USDA projects U.S. agricultural exports to continue to grow over the next 10 years, despite the assumed continuation of retaliatory tariffs over the forecast period. Significant growth is forecast for meat and dairy exports (see slide 25), with pork exports approaching 7 billion pounds and skim solids exports exceeding 50 billion pounds by 2028. International demand for livestock products continues to be fueled by rising per capita meat consumption in emerging markets. Growth in skim-solid dairy exports is significantly higher compared to fat-basis, reflecting strong domestic demand for high fat products such as butter, and growing global demand for lower fat products such as skim milk powder and whey.

More moderate growth is forecast for U.S. crop exports (see slide 26). In the case of soybeans, the continuation of retaliatory tariffs leads to lower exports for the duration of the projection. Nevertheless, soybean exports are still projected to grow, rising to 61 million metric tons in 2028.

Rising meat consumption, which increases feed demand, helps support growth in U.S. soybean and corn exports. However U.S. market share for corn and soybeans is projected to decline due to growing competition from South America as its production increases both from yields and area expansion. Over the next 10 years, the U.S. share of global corn and soybean exports is expected to fall to 36 and 31 percent, respectively, or roughly 6 percentage points lower than 2017/18 shares. Similarly, U.S. wheat exports are relatively flat over the projection period due to increased competition. While the U.S. remains the top global cotton supplier, projected export growth is marginal (at 0.9 percent annually). U.S. market share falls in the near term as India's production recovers and Brazil and Africa increase production in response to relatively more favorable cotton prices, but remains stable through the out years.

U.S. competitiveness in the global marketplace will depend in part on market access into key markets. In 2017, U.S. agricultural exports to the top five markets totaled $83 billion. For markets such as Canada and Mexico, where the U.S. has duty-free access, U.S. exports make up a large share of those countries' imports. However, the U.S. share is much smaller for China, Japan, and the EU, where the U.S. doesn't have preferential access (see slide 27). Better access to customers in emerging markets in Southeast Asia, Latin America, Africa, and the Middle East remains important to expanding U.S. exports.

We've seen a proliferation of trade agreements among our top trading partners that exclude the United States. Based on preliminary research we would expect those trade agreements to result in other countries' exports crowding out U.S. products without parallel or similar bilateral agreements with the United States. Our own agreements, such as USMCA and new negotiations notified with Japan, the EU, and the UK, should help preserve and expand our access. While implementation will take some time to complete, USMCA will modernize and strengthen food and agricultural trade in North America by preserving or expanding access to the top two U.S. export markets, as well as stronger rules that address new trade issues (see slide 28).

Slight changes to farm programs.

As I noted earlier there were a number of policy changes in 2018 setting the stage for U.S. producers in 2019: the Farm Bill, changes to renewable fuels policies, and changes to regulations, among others (see slide 29).

With my remaining time, I'll focus on the new Farm Bill (see slide 30). On December 20th, President Trump signed the Agriculture Improvement Act of 2018. The new Farm Bill is expected to cost approximately $428 billion over 5 years, slightly higher than the cost of continuing the 2014 Farm Bill. Overall, the nutrition title is expected to have outlays of $65.2 billion per year on average, or roughly 76 percent of the total. Crop insurance expenditures are expected to average $7.6 billion per year, commodity programs are expected to have expenditures of $6.3 billion per year on average, and conservation programs are expected to have expenditures of $5.9 billion on average. In total, farmers and ranchers are expected to receive a little under $20 billion per year, only 5 percent as much as the projected annual value of the crops and livestock they will produce.

U.S. farm policies have evolved over time, moving from reliance on programs that controlled how much and what producers could plant (i.e., the "coupled" programs in slide 31) to an array of programs that give producers the chance to make decisions based on market signals and their own

risk management preferences. Crop insurance has become increasingly important, with premium subsidies rising as a share of support to producers since about 2007. Average annual premium subsidies over the last 10 years have been $6.2 billion, contributing one-third of the average $18.7 billion per year in commodity, crop insurance, and conservation assistance. Farm payments have generally been trending downwards, but this year ad hoc disaster assistance was provided to producers through the Bipartisan Budget Act to help offset the 2017 hurricanes and wildfires (payments under this program appear in FY2019). In addition, you can see the uptick in coupled payments in FY2019, which represents the expected payments made to producers under the Market Facilitation Program, intended to offset costs associated with disrupted overseas markets that we've discussed earlier.

Looking quickly at Title I, we see Congress rebalanced base acre payments, with a significant drop in expected peanut payments, but an increase in rice base payments and the addition of seed cotton payments. Both corn and soybean base acre payments ticked up slightly, while wheat base acre payments fell slightly. However, the change in payments is also driven by changes in price projections between June 2017 and January 2019 (see slide 32).

The new farm bill also established new parameters for the dairy program, now called Dairy Margin Coverage (DMC). Dairy was a focus of the new Farm Bill, but the Bipartisan Budget Act last year also changed some of the dairy provisions. Persistently tight margins in the dairy sector have contributed to a steady consolidation over the past 15 years. In 2010, 22 percent of milk production came from farms with at least 2,000 head of dairy cattle; by 2016, 33 percent of production came from farms of that size. As of 2012, the median dairy herd size was 900 cows, up from 570 in 2007 and 275 in 2002 (see slide 33). Overall the dairy herd stands at just below 9.4 million cows. The number of licensed operations has fallen from 70,000 in 2003 to just 40,000 in 2017. I would expect that the February milk report from NASS and the new Agricultural Census to be released on April 11th to show continued declines in dairy herds and growth in median herd size.

For a median dairy of 900 cows, nearly 20 million pounds of production, we can see that participation in DMC at the highest margin available will cost much less and pay out more often than the old Margin Protection Program (MPP) would have. Dairy producers will be able to cover production history up to 5 million pounds at the new $9.50/cwt margin with a much lower premium of $0.10/cwt and then pay a *de minimis* amount for the remainder of coverage under a $4.00/cwt catastrophic margin coverage or choose not to cover more than 5 million pounds of their production history. Based on the previous 5 years of milk prices and feed costs, a producer enrolled in DMC is better off covering only 5 million pounds versus covering additional production history at the $8.00/cwt coverage level (see slide 34). Also under the 2018 Farm Bill, producers can now enroll in both DMC and a livestock insurance product, such as Livestock Gross Margin for Dairy or Dairy Revenue Protection.

Dairy margin payments under the previous program parameters resulted in low participation and few payments to producers, and even negative net payments, as premiums and fees were consistently above payments under the former program. Under the 2018 Farm Bill, producers will be eligible to recoup some of those net losses over the past 5 years through provisions to refund net premium payments. Dairy margins are likely to remain below $9.40/cwt through 2023, meaning that producers will receive positive net payments at the $9.50/cwt coverage level for the

duration of the 2018 Farm Bill. Given the $9.50/cwt coverage level is only available for the first 5 million pounds of production history —roughly the equivalent of production from 230 cows— the DMC program will be particularly beneficial for small producers.

Conclusions.

Returning to the theme of our forum, "Growing Locally, Selling Globally", I wanted to highlight that despite difficult financial times for many producers, the American farmer is producing and selling an enormous amount of food that feeds people not just in the United States, but globally. In 2018, the U.S. produced the most corn and soybeans in the world, more than 1/3rd of total production, and made up more than a third of total corn and soybean exports. The U.S. is the world's number one beef producer and largest beef exporter at over $7 billion in annual sales. For other important commodities, such as pork, wheat and cotton, the American farmer is anywhere from the 3rd largest producer to the 5th largest; however, we export relatively more of what we produce —we export more cotton and corn than anyone in the world, we export the second most wheat and soybeans (see slide 35).

Increasing productivity at home and growing export markets is what we expect over the next 10 years. A lot could affect our ability to meet or exceed those expectations: public spending on agricultural research and development has slowed, trade agreements and disputes between us and our trading partners may help or hinder export potential, and as we've seen the past two years, disastrous weather here or in other major producing regions can impact global supplies. We also expect science and biotechnology, where the U.S. has a leading edge, to play an increasingly important role in supporting the agricultural sector.

But we are not the only country with expectations of productivity growth and export market expansion. South America continues to expand production of oilseeds and corn. Russia and Ukraine have been rapidly expanding production of wheat, corn, and other grains. Much of that increase in production is being exported, keeping prices competitive for most commodities.

Ultimately competition will motivate our producers to be more efficient and to innovate. U.S. farmers have shown time and again their resilience and ability to compete globally. We expect more people to have improved access to food in the coming 10 years as real food prices fall and global growth continues to boost purchasing power. The share of people who are food insecure globally is expected to fall from more than 20 percent of the world's population in 2018 to about 10 percent in 2028, despite a much larger global population (see slide 36). These numbers mean an expanding market for U.S. producers and more opportunities to grow and to sell globally.

Thank you.

Robert Johansson, Chief Economist
U.S. Department of Agriculture