Good afternoon everyone and welcome to our webinar: Farm Income and Financial Forecasts August 2018 Update. My name is Nancy McNiff and I will be your host. This webinar is being recorded and will be posted on the ERS website. At any time during the webinar you may enter a question into the chat feature at the bottom left-hand corner of your screen, and our speaker will answer at the end of the presentation.

Our speaker today is Carrie Litkowski. Carrie is a senior economist and farm income team leader at USDA's Economic Research Service. Carrie is responsible for developing sector-wide measures of farm income, value-added, and the aggregate farm sector balance sheet. Previously, Carrie served as an economist at the Bureau of Economic Analysis where she was responsible for the production of farm income and employment statistics nationwide. I think we're ready to start now Carrie, so you may begin your presentation.

Thank you Nancy. Good afternoon. I am pleased to present you with our Farm Income and Financial Forecast for calendar year 2018. These have been updated from the forecasts we released earlier this year in February, to include some new and updated data as it has become available. Including survey based data on planting and production, and the latest forecasts from the August World Agricultural Supply and Demand Estimates, WASDE report. This forecast will be updated again in November of 2018 and also next February. With this release we're also converting our 2017 forecasts into an estimate that incorporates NASS estimates of state and U.S. production, and expense data that has been gathered through the 2017 ARMS survey. Also, state-level farm income estimates for 2017 are now available for the first time.

So what does our forecast cover? My discussion today will start by looking at the farm sector of the whole, which is comprised of a little over 2 million farms to operate over 900 million acres of land. Next, I'll discuss the income and finances of the approximately 990,000 farm businesses that account for about 90 percent of the total value of agricultural production. Lastly, we'll look at the well-being of the over 6 million people who live in farm households.

Here are some of the summary points to take away from today's presentation, and the main point being that overall, net farm income is forecast to decline in 2018. Specifically, net cash farm income is forecast to decline about 12 percent from 2017, and net farm income, a broader measure of profits, is forecast to decline about 13 percent. Note, all these figures I'll be talking about on this slide are in nominal dollars. This decline in farm income is despite an expected slight increase in the value of agricultural sector production. This increase primarily is following an increase in farm related income, as commodity cash receipts are expected to be largely unchanged from 2017. Government payments are forecast to decline about 2 billion dollars in 2018, reflecting large declines in ARC and PLC payments that more than offset increases in disaster payments. Note, this forecast does not include payments recently announced under the Market Facilitation Program which were intended to assist farmers in response to trade disputes. Some details of this aid package and the MFP, Market Facilitation Program payments, were announced just earlier this week, and it's still too early to tell how many producers would complete the enrollment process and receive payment in calendar year 2018 versus calendar year 2019, or how the eligibility criteria would impact the total level of payments. The biggest driver of the decline in income are total production expenses, which are forecast to increase almost 12 billion dollars in 2018. On the farm sector balance sheet, farm sector assets and debts are both forecast to increase slightly with overall equity rising by almost one percent in nominal terms. For farm households, median household income is forecast to decline slightly in 2018.

Looking at our two primary measures of farm income, we have net farm income represented by the blue line, and net cash farm income represented by the orange line. Net farm income is considered a broader measure of income because it includes both cash and non-cash income and expenses. After three years of decline, net farm income increased 20 percent in 2017 and is forecast to decline nearly 15 percent in 2018. Now this chart is in inflation-adjusted dollars, specifically 2018 dollars. So we've gone back and reflated the values prior to 2018, to be consistent to 2018 dollars. Net farm income is forecast to be slightly higher in 2018 than in 2016, which was the lowest level it had been since 2002. In 2018, net cash farm income is forecast to be at its lowest level since 2009. For 2016 through 2018, both net cash farm income and net farm income are below the average across the period of 2000 through 2016.

We derive net farm income by measuring its component parts, this allows us to deconstruct the forecast change in 2017. This chart is now back in nominal dollars, and we can see that the forecast decline in income is largely due to higher production expenses. On the far left, we have net farm income in 2017, on the far right, we have the net farm income forecast for 2018. The bars in blue show which components would contribute to growth in net farm income, and the bars in red show those that take away or detract from growth in 2018. Looking from left to right, crop receipts are to be largely unchanged in 2018. The crop inventory adjustment is up 1.6 billion from 2017, as farmers sold less in inventories in 2018 compared to in 2017. Net farm income represents income from current production, so in the calculation of net farm income sales from inventories are removed because they represent sales from the prior year's production. Livestock, or animal and animal product receipts, and inventory adjustment are relatively unchanged in 2017, but the big red bar that you see here is for production expenses, which by far are contributing most to the decline in net farm income. They are forecast to increase almost 12 billion dollars or three percent. The higher expenses are draw-down to net income, or subtraction in the calculation of net farm income, so that's why they're shown as a negative or decline here. Government payments are expected to fall 2 billion dollars, again not factoring in the recently announced Market Facilitation Program payments. And the last blue bar, all other changes, primarily reflects growth and insurance indemnities in 2018.

In total, cash receipts are forecast to remain at 374 billion dollars in 2018, but that doesn't mean that prices received for farm commodities and/or are quantities sold were unchanged from 2017. Through a simulation, we can identify price and quantity effects that are changing cash receipts, or in this case not changing cash receipts. This chart decomposes the change into a price effect and into a quantity effect. The other changes include those commodities for which data doesn't exist to allow us to separate price and quantity effects. Overall, lower calendar year prices received are expected to be mostly offset by increases in quantity sold.

Total crop cash receipts are forecast to be largely unchanged from 2017, with most major categories forecast to be flat or decrease modestly. The climbs are expected for corn, vegetable and fruit and nut cash receipts in 2018. Soybean cash receipts are forecast relatively flat in 2018, as prices are expected to decline, but to be offset by higher quantities sold. Wheat cash receipts are forecast to increase about six percent as a predicted decline in quantity sold is more than offset by an expected increase in the price of wheat.

Animal and animal product cash receipts are also forecast to be largely unchanged from 2017. This is after increasing eight percent in 2017. Receipts for broilers are forecast to continue to

increase in 2018 due to higher prices and quantities sold. Dairy receipts are forecast to fall about seven percent due to expectations for lower milk prices.

Another component of farm income is direct government payments, these are farm program payments made directly by the U.S. government to farmers and ranchers without any intermediaries. After declining in 2017, government payments are forecast to continue to decline in 2018, following 2 billion dollars or 17 percent. Most of this decline is in payments that are a function of crop prices; these are the green bars shown on the chart. USDA's price loss coverage, PLC, and agriculture risk coverage, ARC, programs account for nearly all these types of payments. ARC and PLC are both forecast to decline by 3.5 billion dollars, combined, in 2018. The government payment forecast also reflects a nearly 1 billion dollar increase in nominal dollars, in supplemental and ad-hoc disaster assistance, which is included in the purple bar, the top bar on the graph. Much of this represents payments in calendar year 2018, for 2017 losses related to Hurricane Harvey and Irma, and the Western wildfires. Again, this forecast does not include payments to farmers recently announced as part of the package to assist farmers in response to trade disputes, specifically the Market Facilitation Program, which would represent direct payments to farmers. These payments will be included in all other payments on this chart once they are made.

Direct government payments does not include insurance commodity payments or indemnities, these are payments to farmers for covered losses which also can contribute to farm income. This chart shows how federal indemnities and government payments account for relatively small share of net farm income for the Ag sector as a whole. Note this chart is in inflation-adjusted dollars. The chart also shows that the amount of direct payments has always exceeded net indemnities. Net federal indemnities, represented by the top peach bar on this chart, represent indemnity payments to farmers less the premiums paid by the farmer. These are forecast to increase almost 1 billion dollars in 2018.

Up until now I've been discussing the sources of farm income and revenue, now let's look at the cost of goods and services used to produce agricultural output, or production expenses, which are forecast increase in 2018. This chart shows total expenditures in nominal and inflation-adjusted dollars. Expenses peaked in 2014 following the 2013 peak in net farm income, then in 2018 dollars declined and flattened out across 2015 and through 2017. For 2018, we're forecasting expenses to increase in nominal dollars three percent, which, because expenses are so large in the aggregate, amounts to a nearly 12 billion dollar increase. In inflation-adjusted dollars the increase is smaller, about one percent or 4 billion dollars. Still, expenses remain below the peak in 2014.

This expected growth in production expenses reflects increases across most categories of expenses. Now we're looking at nominal dollars, and we're comparing the level of expenditures in 2017, by category, to the level in 2018. Those expense categories above the dotted line represents categories where we expect expenses to increase, and the ones below where we expect spending to decrease. Interest expenses are forecast to increase what a fifth consecutive year due to expected increases in interest rates and rising debt levels. For the second year in a row, spending on fuels and oils was forecast to increase due in part to higher prices for diesel fuel from the Energy Information Agency. The largest category of expenses is feed purchased, and this is expected to increase due partly to forecast higher feed prices. Of those categories expected

to decline in 2018, those below the dotted line, most of the declines are small; fertilizer expenses are forecast to decline due to declining prices paid for fertilizer.

While profit or income is expected to decline, it can also be valuable to look at the farm sector balance sheet which provides information on the value of physical and financial assets, and the level of debt in the U.S. agricultural sector over time. Historically, the balance sheet remains strong with farm equity near the record high in 2014. In nominal dollars, farm equity, which is the area in green on the chart, is forecast to rise slightly or about one percent in 2018. But when adjusted for inflation, farm equity is forecast to decline by about one percent, following an expected decrease in farm assets and an increase in farm debt. Farm real estate assets or the value of land and buildings, accounts for 83 percent farm sector assets. When adjusted for inflation, real estate assets are expected to decline slightly for the second year in a row. Farm sector debt is forecast to increase 1.4 percent in inflation-adjusted dollars. The 2018 debt is at its highest level in inflation-adjusted terms since 1982. This increase in 2018 is being driven by a forecast increase in real estate debt which accounts for about 60 percent of all debt.

Another way to look at farm sector debt assets and equity is by looking at solvency ratios, which compare the amount of debt relative to equity or assets invested in the farm sector. The ratios provide a measure of the sector's ability to repay financial liabilities, debts, or loans through the sale of assets. This chart shows the debt-to-asset ratio in blue, and the debt to equity ratio in red. Both ratios have been gradually increasing since 2012, and are expected to continue to increase in 2018. Both ratios are above the average for the prior 10 years and suggest some weakening of the farm sectors balance sheet. However, solvency ratios for this sector still remain historically low, although some individual farmers may still be struggling.

Up to this point, we've been discussing sector-level forecasts, the whole population of the 2 million farms. Now we can look at how the sector-level forecasts can be expected to affect farm businesses, which are an important subgroup of all farms. A farm business are all farms where the primary occupation of the operator is farming, plus those farms that have $350,000 or more in gross cash farm income before expenses. There are roughly 990,000 farms that meet this definition, and they are represented by the blue and red segments for commercial and intermediate farms on this chart. Residence farms, shown in gray, account for the majority of all farms, but commercial and intermediate farms account for the largest share of farm production, debt, and assets. Using data from the 2017 Agricultural Resource Management Survey, the ARMS, we're able to estimate how the second level forecasts can be expected to affect farm businesses, and break down the forecasts of farm business income by commodity specialization and geographic region.

Looking only at farm businesses, average net cash farm income for farm businesses in total is expected to continue to decline in 2018 for the fourth consecutive year. Using ARMS, we can categorize farms by commodity specialization, which means that at least 50 percent of the value of production is from a particular commodity. Average net cash farm income for all types of crop businesses are expected to decrease in 2018. Note these are in inflation-adjusted values. We're forecasting the largest decline in average net cash income for specialty crop farms, these are fruit, nut, and vegetable farms, largely due to higher production expenses and lower cash receipts. Average net cash farm income for soybean farms is expected to decline following a decrease in government payments, and an increase in expenses. Again, note that these forecasts for 2018 don't include the recently announced Market Facilitation Program payments.

The average net cash farm income for all types of farm businesses specializing in livestock is forecast to decrease in 2018. We're forecasting that farm businesses specializing in dairy or hogs will see the largest drops in net cash farm income on average, due largely to lower forecast cash receipts which reflect the declining prices for hogs and milk. And although poultry cash receipts are forecast to increase in 2018, average net cash farm income for poultry farm businesses is forecast to decline due to higher production expenses.

By looking at how agricultural production is distributed geographically, we can forecast how average net cash farm income for farm businesses is expected to change in 2018 by resource region. Overall, average net cash farm income is forecast at about $83,000 per farm, down about 20 percent from 2017 in nominal dollars. This reflects the drop in net cash farm income for the farm sector as a whole. We're forecasting that, across all regions, average net cash farm income will decline in 2018. So that's why you see a whole lot of red on this map. Dairy's weak performance, forecast performance, and lower livestock receipts for 2018 are expected to affect many regions; contributing to the almost 25 percent decrease in average net cash farm income for the Northern Crescent. Farm businesses in the Eastern Uplands, and Basin and Range are forecast to see the largest declines in net cash farm income, largely due to higher production expenses.

Using ARMS data, we can also forecast debt and assets for farm businesses. As discussed earlier, the debt-to-asset ratio for the farm sector is relatively low, but there are individual farm businesses that hold a higher share of debt relative to assets or are highly leveraged, indicating that they may be at higher risk. This sharp shows highly leveraged farms, those farms with a debt-to-asset ratio between 41 percent and 70 percent, and very highly leveraged farms, those were the debt-to-asset ratio of 71 percent or greater. Recall that for the sector as a whole, the debt-to-asset ratio is in the range of 13 percent, so these are very highly leveraged farms. For crop farm businesses, the share of farms that are highly leveraged has been decreasing since 2015, and its forecast remained relatively unchanged in 2018, but the share of very highly leveraged farms increased in 2017, and is forecast to increase in 2018 as well. This suggests that some farms might be moving from highly leveraged into the very highly leveraged category. For livestock farm businesses, the share of highly leveraged and very highly leveraged farms decreased in 2017, but the share of highly leveraged farms is forecast to increase in 2018. Still, only about nine percent of all crop farm businesses and six percent of livestock farm businesses are forecast to be highly or very highly leveraged. And these shares remain below the peak in 2002.

We've discussed the financial performance of the farm sector as a whole and farm businesses, but this often may not give an accurate or complete picture of the well-being of households associated with farms. Farm profits are often shared with other stakeholders such as landlords or contractors, and the well-being of farm operator households is determined by a combination of on-farm and off-farm activities, with the majority of farm household income coming from off the farm. So now we're going to look at just, at all the 2 million farms, not just farm businesses, and the farm operator households.

The majority of farm household income is coming from off-farm sources, as shown in this graph. 2018 median household income from farm income was negative and is expected to decrease from 2018. Recall that most farms are residential farms, which are usually small farms. This results in a low median farm income. Median off-farm income is forecast to increase slightly in

2018; off-farm income sources include wage income, non-farm business earnings, dividends, and transfers. Overall, median household income is forecast at about $75,000, a slight decline from 2017, or 2.8 percent decline in inflation-adjusted dollars.

All the information I presented today is available on our website, along with our historical estimates for prior years. We have a number of data visualizations that allow you to dive deeper into the farm sector statistics, and we also have tailored reports and archived datasets. Our next release is going to be on November 30 of this year, and at that time we will update the 2018 forecast with the latest information.

With that, I am now open to questions.

Thank you Carrie. This is a reminder, if you have any questions, you can enter them into the chat feature at the bottom left-hand corner of your screen. And we have a few questions for Carrie already, does your presentation account for the impact of recent tariffs on U.S. ag exports?

Yes. It doesn't, well taking it aside, not including these recently announced government payments to farmers, our forecasts are using production and price forecasts from the World Agricultural Outlook Supply and Demand report, the WASDE or the World Agricultural Outlook Board. Or they're all coming from experts inside ERS, and they are considering the trade situation that existed at the time that the forecast was made. So, we're using the August report. So yes, that is including information about what happened, the trade changes that happened in July.

Do you see any difference in impact from them in your estimates or do you see any areas that are impacted by them?

Yeah, I mean we certainly wouldn't for soybeans. For example, the price forecast for calendar year, I mean for crop year 2018 and 2019 came in lower and that is factored into our cash receipt forecast for 2018 calendar year. But again, we're just using the price of production figures in our numbers so they're kind of embedded in that, in those figures, and those are coming directly into our accounts and then into our forecast.

Okay. We have another question about, is income stabilizing after the collapse of the commodity boom?

Okay, that's an interesting question. I'll bring up the net farm income and net cash income chart. Yes, I think the commodity boom, I assume you're referring to the kind of increases across 2012 and 2013 in particular, those are, you know, partly reflecting the effects of the drought increased commodity prices in that period. And they have been declining from that period, and yeah I would say there is a bit of a, 2016 the decline stopped, and there was a modest increase in 2017, and then we're back to a decline in 2018. But yeah, that is relatively flatter than the increases that we were seeing around 2013 and 14.

Okay, here's another question: it looks like the estimate of net cash was raised significantly from February's estimate, is that true, and if so, why?

Yes, that is true. We did revise when we converted in February, the 2017 data was a forecast and with this release we're converting it into an estimate, and with that distinction it's primarily that we have more data on which to base our estimates on. One thing that was revised in particular, wasn't the only revision, but one particular revision that we made to the 2017 data was to cash

receipts for fruits and nuts - that was revised upward. And when we were able, our forecasts we're relying on an aggregate price and quantity index in order to get that forecast, but with this release we are now able to incorporate some data, actual data, by commodity on sales and production for fruits and nuts which is increasing the quality of the estimate in 2017.

Thanks Carrie. We have another question: do you have debt-to-asset ratio of commercial farms and how that compares to the historical averages? Do you have those, that data?

I don't have that data right in front of me, but that is something that I believe you're able to get from the ARMS, the Agricultural Resource Management Survey data. We have the data currently on our website through 2016. The 2017 data is still being processed in this preliminary, but that will be posted in November or December and that can provide some information, additional information, on the balance sheet of commercial farms.

Okay, now we have another question: it seems the reason for 2018 expenses to increase is mainly because of their respective price increases, but not the use of input quantity increases. Is that correct?

Yes, certainly prices are playing a role. I mean, I talked about that, for instance the interest rates are increasing, we're forecasting an increase in feed purchased and wage rates. So yeah, I think prices are a role, especially in the forecast because we're often using price indexes and forecasts to help us forecast out into 2018. But I think there's also some quantity change going on; we're not able unfortunately to deconstruct the price and quantity effect for expenses like we are for cash receipts, but the amount, the quantity of crops, the amount of acres that are being planted, unless it needs to be seeded and fertilizer and stuff, that is staying pretty strong. I mean, not probably a dramatic increase but that would also, I think, contribute some but probably not as much to the overall increase in production expenses.

Okay, we have one more question: on slide number seven, the one on crop cash receipts largely flat in 2018, how is it possible that soybean farms cash receipts are not forecast to be down in 2018 when soybean prices have gone down?

That's a good question, but keep in mind that our 2018 forecast is for sales and calendar year 2018. Roughly half of the forecast value for 2018 soybean cash receipts came from sales that occurred in the first half of the year, so sales through June. And about, a lot of those sales are coming from the prior the 2017-18 crop marketing year, and it was sold prior to China raising the import tariffs on U.S. soybeans in July. Certainly after that point, we are seeing soybean prices, are being expected to decline in calendar year 2018, but we're also seeing that overall soybean production quantities are expected to be up slightly both in the 2017-18 and 2018-19 crop marketing years. So you have a bit of a play with, prices may be lower, but we do have some higher quantities being sold.

Okay, we have one last minute question: is the expected decline in land values broad-based or more regional?

Well, for this forecast we are only looking at the U.S. farm sector and the change in land values for the U.S. as a whole. So I don't have that information really, on the regional break out of the decline in land values, but I know NASS as a report, the National Agricultural Statistics Service, has a report on land values that I believe provides information by state on land values.

Okay, I think that's all the questions we have, so thank you Carrie. And thank you all for joining us today for this webinar, and everyone please have a great afternoon.