

Good afternoon everyone, and welcome to our Webinar: “Three Decades of Consolidation in U.S. Agriculture.” My name is Kellie Mendonca and I will be your host. Our speaker today is James McDonald.

James McDonald is Chief of the Structure, Technology and Productivity branch of the USDA's Economic Research Service. He supervises work on the changing structure and organization of US agriculture, the economics of technology adoption on farms, agricultural productivity, and science policy as it relates to agriculture. He earned his PhD in economics from the State University of New York at Buffalo, and his bachelor's--also in economics--from Siena College. I think we're ready to start so, Jim, you may begin your presentation.

Thank you, Kellie. Let me start with a little bit of background for why we got into doing this report. Agriculture has been consolidating for many years. Farms have been getting bigger since at least the 1930s. They've been getting more specialized, really since 1900, and certain types of tasks have been moving off the farm, actually since the 1800s. Our focus on the last three decades, though, arises from the fact that consolidation has gotten much more complicated since 1985. There are more large farms, but there's also more very small farms as well. We're going to see that there's been major consolidation in most farm sectors but, in fact, none in some important sectors. So we're going to have to look a little bit more closely at some different types of measures to be able to track consolidation in the last three decades.

Now this is drawn from an Economic Research Service report just recently released, “Three Decades of Consolidation in U.S. Agriculture.” I'm one of the authors. Bob Hoppe and Doris Newton from the ERS are my co-authors. What we do here is to exploit farm-level data from the census of Agriculture from 1982 to 2012 and farm-level records from the annual agricultural resource management survey covering 1996 to 2015. Now the census data comes from the census of Agriculture; that's performed every five years. We are currently in the field collecting data from 2017, so the most recent census data that you'll see in here is from the last completed one in 2012. The Agricultural Research Management Survey (ARMS) has a much smaller sample than what you see in the census, but we do it annually, and at the time we wrote this report the most recent data in the ARM survey was from 2015, and we'll show you a little bit of that as well. These data allow us to pursue some new approaches to measurement and reporting, and allow us to account for that greater complexity that's characterized a consolidation in agriculture in the last three decades.

Let me start with an area in which we have not seen consolidation: this is in pasture and rangeland, which accounts for about 45% of all farmland in the United States. The other big category, which we'll get to in a moment, is cropland, which covers about 43% of all farmland. What we show here is an area chart that sorts pasture and rangeland across six different farm size categories, covering the census years from 1987 to 2012. The big green area at the top is the largest-size class of farms that operated at least 10,000 acres of pasture and rangeland. If you look at the 1987 axis over on the left side there,

you can see that that green area takes up about half the chart. In fact, about 52% of all pasture and rangeland was in those largest ranches back then in 1987. You can also see that the green area shrinks modestly over time as you go to 2012, actually shrinks by about 7 percentage points as land moved away from the very largest ranches, and we can also see where it moved. If we look at the bottom of the chart, those two smallest size categories, the blue representing less than 100 acres and the orange representing 100 to 499 acres, we can see each of those growing, not by a great amount, but nevertheless growing over time so that in essence, pasture and rangeland moved from farms in the largest size class to farms in the small size class over that period of time.

Let me contrast this with cropland where we've seen a major shift of acreage and production to much larger farms. This again is an area chart sorting total cropland in the United States according to six different acreage-size classes of farms. Here the green area is farms that operate at least 2,000 acres of cropland, and what you can see back in 1987 is it they held a relatively small share in total, about 15% of all cropland in the United States within that largest size class of a farm in that year. You can also see that that green area grows quite a bit over the next 25 years, and by 2012, farms in that largest size class held 36% of all cropland, so 21 percentage points shifted into that largest size class. Where did it come from? Well, if you look at the bottom, the smallest size class, less than 100 acres, you can see that doesn't change at all. So about 8% of cropland was in farms that had 100 acres or less of cropland. And I might add these are farms that have cropland, so actually it's farms with one to 100 acres of cropland. That share didn't change over time. You can see though that the area in the middle shrank, those 3 size classes noted by the orange, gray, and yellow areas covering 100 to 999 acres. In fact, their share shrank from 57% of all cropland in 1987 to 36% by 2012. So essentially, cropland moved from mid-sized crop farms into the largest size class over time. Now even though the shift in land is quite striking, it is still a complicated shift.

In this next chart I show two lines tracking, again, consolidation in crop production. The dashed line in the upper part of this chart tracks the midpoint farm size. The midpoint is that farm size in acres at which half of all cropland is on larger farms and a half of all cropland is on smaller farms. So you see it intersects the vertical axis at 600 acres in 1982, so what that's telling you is, that in 1982 half of all cropland in the United States was on farms that had 600 or more acres, and half was on farms that had no more than 600 acres. That midpoint increases steadily over time, up to 2012 where it lightly exceeds 1,200 acres. So that's showing you pretty much just what you saw in the previous chart: Land is shifting to much larger farms, and that midpoint of the distribution of crop land acreage rises steadily over those 30 years.

Now here's the interesting and tricky part: The line at the bottom is average cropland size--average size of a farm that has cropland, so it's total cropland divided by the total number of farms that have cropland. You can eyeball that quickly and see that it changes hardly at all, over time it remains flat. If I use that, it would tell me that I really

don't have any shift towards larger farms. Now we can look a little bit more closely at that issue in the next table, and understand what lays behind these diverging trends.

All right, here we show a table; in the top panel we show you total number of farms with cropland, total acres in cropland, and therefore one divided by the other is crop land per farm. Over a 25 year period, you can see a very little change in that average size. Just as we saw on a previous chart, the panel at the bottom though sorts those farms with crop land into five different size categories of crop land. Let's start at the top, at the numbers outlined in red for 2,000 or more acres, and what you can see there is a near doubling of the number of farms with at least 2,000 acres of cropland between 1987 and 2012. That's consistent with our earlier chart and our earlier observation that land is shifting to much larger farms. Similarly, if we look in the middle at 100 to 999 acres, you can see a large decline in the number of farms. Again, this is consistent with the story that land is moving out of mid-sized farm classes and into the largest class.

The interesting point is at the bottom; even as this is happening, when we look at very small crop farms with one to 49 acres, see actually see an increase, nearly a 20% increase in those over time. Now, part of that increase is real, that is, small farms that weren't there before that may be doing a little bit of fruit and vegetable operation or some other small acreage crop production, but some of it is also statistical. I should tell you that USDA has gotten better, particularly in the census, has gotten better at finding and counting small farms. So some of that increase reflects the fact that we find farms that actually were already there. Now whether it's a statistical increase or a real increase, and I think some of it is each, we are recording more very small farms. They account for a very small part of total acreage and a small part of total production. So even as we're counting more very small farms, we see an acreage and production shifting out of that mid-sized category into much larger farms.

Now we pursue this in a little bit more detail, looking at acreage for specific crops. Let me start here with a chart with five major field crops: corn, cotton, rice, soybeans, and wheat. And what we've done for these is, for each census year in the bars, we're recording the midpoint harvested acreage for that crop. So, for example, the very first bar in the chart under "corn" with 200 labeled on the bar, tells us that in 1987, the first census year that we're tracking in this chart, the midpoint acreage for harvested acreage for corn was 200 acres; half of harvested corn acres was on farms that harvested at least 200 acres. Half of corn acres was on farms that harvested no more than 200 acres, so it was the midpoint, and you can see for corn that the midpoint increased in each year thereafter, and by 2012 the midpoint for corn was 633 acres--a substantial shift of production to much larger corn enterprise.

Now if you sit back and look at this chart across the five major field crops that we're showing, I think three factors stand out. First, the 25-year change in the midpoints is quite large in each crop commodity; it's more than a doubling in each one, so substantial consolidation occurs in each of these major field crop commodities. Second, the consolidation is widespread. Each of the five we show here shows a large increase

in the midpoint. It's not concentrated in one or two crops. Third, the change is persistent over time. If you notice, we see a steady increase from each census in each of these commodities. The one exception is in cotton between 2007 and 2012, when the midpoint actually declined; for each of the other crops, in each of the census years we see an increase. So, consolidation in crops, at least in this story, so far looks persistent and steady over time.

Now those are five major field crops. We followed that up by looking at 55 crops in total: 10 more field crops, 20 vegetable and melon crops, and 20 fruit tree nut and berry crops, and we found the same pattern: consolidation is large. That is, on average, the increase in the midpoints from 1987 to 2012 was over 100%, over a doubling; it's widespread: Midpoints actually increased in 53 of the 55 crops. We saw a decline in two of those crops, so consolidation is quite widespread across crops. Finally, it's persistent. We see steady increases from census to census among these 55 crops.

I should say, in this slide, we also looked at cropland, not only for the whole United States, but across each of the 50 states. And what we find there is the same pattern--a large increase. It's quite widespread, although the increases are largest in the major field-crop producing areas of the Corn Belt, the Plains and Delta, and they change. Growth within each state is persistent and steady. Over time, that pattern becomes more important when we come back to talk about why we may be seeing consolidation.

But let me leave that aside for the moment and shift over to talk a little bit about livestock. First, some background. I'll just tell you, and then show you in a moment with charts and tables that consolidation in livestock is sometimes dramatic--much larger than what we see in crops. It is also, however, episodic. It occurs, we see it happening in large chunks in five to 10 to 15 year periods, and then we see no change in other periods, so it is episodic rather than persistent over 25 or 30 years, as we see in crops. Finally, these episodes of major consolidation in livestock are often associated with periods of major industry organizations, with extensive changes in how business is done within these industries.

Let me start by drawing a comparison between two extremes in livestock: dairy, that is, milk cow herds, and beef cow herds. Here we show midpoints for herd sizes between 1987 and 2012 for milk cow herds, and beef cattle herds. In 1987, the dairy midpoint was 80 cows: half of all cow milk cows in the United States were in herds of 80 or more cows; half were in herds of 80 or less. And you can see over time that it increases slowly at first and then just explodes. By 2012 the midpoint herd size in milk cows was 900--about an 11-fold increase compared to 1987. If you recall when we looked at those crop measures before, what we saw was two- and three-fold increases. This is a dramatic increase on milk cows. At the same time if we look at beef cows, we see hardly any change in midpoints at all. Actually, goes from 89 in 1987 to 110 in 2012.

Now to draw us a little further back in the presentation, if you recall, we saw no change in the consolidation, or in fact less consolidation in pasture and rangeland. The primary

user of pasture and rangeland are cattle. We get some goats and some sheep and some horse on them, but the major users cattle. And so in a significant section of U.S. agriculture, the cow-calf sector, cattle stocking operations, and the associated pasture and rangeland, we see no consolidation. We see it everywhere else. However in agriculture, let me leave those two striking extremes behind and pull up a table.

Now that shows us a little bit more for several other livestock commodity categories. Here we're reporting midpoint values for several different selected census years. We have values for what you've already looked at: beef cows and milk cows with, on the one hand, a tremendous increase over time; and on the other hand, very little change. Just above them in red is egg layers. In 1987 that midpoint was 117,839, so half of all egg-laying hens in 1987 were on farms with flocks that were at least as large as 117,839, and half of all hens were in smaller flocks. You can see that midpoint changes quite dramatically over time. By 2012 that midpoint is nearly a million hens on a farm. The panel above changes the focus slightly. Here we're no longer looking at flocks and herd sizes because these upper commodities cover a lot of farms in which young animals are brought to the farm and fed. You don't really have herds giving birth and so, as a result, what we're tracking here is the midpoint for the annual number of animals sold or removed from the farm. The red line in the bottom of that upper panel is hogs, and that shows again a dramatic increase in midpoint sizes; as we know, hogs really went underwent a dramatic reorganization and a shift to much larger operations starting in the 1990s.

The top three commodities—broilers, fed cattle, and turkeys--are all businesses that had major reorganizations that developed the modern business for those animals in the 1960's and 1970's. And what you see there is a modest continuing increase in midpoint sizes of turkeys. You see a large increase in midpoint sizes in broilers as you go to much larger farms by 2007, but then it kind of stops. In fed cattle you see a major increase between 1987 and 1997, and it again stabilizes after that. So we see large changes over time. But consolidation in livestock appears to be episodic. It's not a steady increase as we see in crop production. Nonetheless, everywhere but in beef cows we see large increases in midpoints and substantial consolidation in livestock.

Now, a related point: We've seen shifts of production to larger farms and most agricultural commodities, but we also see increased specialization on these farms. I'm going to show it to you for both livestock and then for some field crops. I'm now relying on data from the agricultural resource management survey. The first year of that survey was in 1996, the most recent year that we had available when we did this publication was 2015. For each of those two years, this chart shows the share of production in each livestock commodity that came off of farms that had no harvested crop acres. That is to say, they purchased all the feed for their animals; they're not involved in crop production at all. And I must say they also sold or moved off the farm all of their manure, as well. You can see in each of these categories an increase over time. The red bars are

substantially higher than the blue bars, so a substantial shift of production towards more specialized farms that, for this measure of specialization, do no crop production.

We also looked at specialization in field crops, and what we can see here is, again using ARMS data for that 1996 to 2015 period, a shift towards fewer field crops on the farm. Now the way we measure it is to look at the percent of a crop's production that originated on farms that had two or fewer crops. Very few farms produce only a single crop, so very few farms, for example, produce only corn. Many of them have produced corn and soybeans, so if we look at this chart for example, when we start with corn, the blue bar is about 38%. It tells you in 1996, 38% of all corn production in the United States came from farms that produced two or fewer crops, typically corn and soybeans.

The red bar shows a big jump, actually to 58%, so a big jump of production towards farms that are producing 2 or fewer crops. That is greater specialization. Typically, you might think of this as being a farm that at one time produced corn, soybeans, and wheat; maybe sorghum. And they're now shifting to just corn and soybeans. However, as you look across these other crops, you see a similar pattern is going on with all of them. And in fact, substantial shifts in peanuts and in rice; a little bit of shift in wheat, cotton and hay. So generally we see a movement in field crops away from farms producing three, four, or five crops and towards farms producing typically two crops. So we see crop producers focusing on fewer field crops, and we see a separation of livestock and crop production.

Let me take a moment to talk about the drivers of consolidation. These patterns that we've observed--persistent for crops and quite widespread across crop and most other commodities-- indicate the commodity programs and crop insurance programs really can't be the dominant forces in consolidation, because they are really focused on field crops. While there is some crop insurance for livestock commodities, and there is some crop insurance for fruit and vegetable commodities; most of it focuses on field crops and the big expansion of crop insurance happened after 1996. What we see in our patterns is that steady increases in consolidation occurred across all crop commodities, fruits, vegetables, as well as field crops, and large increases of consolidation among livestock commodities, which themselves are not supported by commodity programs. So it is difficult to make the argument the commodity or crop insurance programs can be driving forces in this consolidation, because it happens in all those places that really don't get that kind of support.

In this report, we argue the technology plays an important role. To put it very briefly, changing technology allows a farmer or a farm family to manage more acres or more animals than they could have 20, 30 or 40 years ago. Some of that arises because of larger, faster, and smarter equipment that allows a farmer to complete a field task in less time. In turn, that leaves the farmer more time to manage more acres. We also think there are certain developments in inputs and production practices, typically tied to feeds and pest management, which similarly reduce the amount of labor hours required for an acre of production.

On the livestock side, developments in confinement feeding matter. Animal housing and feeding systems allow less labor and, therefore, allow a farmer or farm family to effectively manage larger herds and larger flocks. And my emphasis here on a farmer and farm family derives from the observation that most farms in the United States are still family farms. Most depend heavily on the labor provided by that farm family and, often, related families operating the farm.

I'm going to shift to that issue now. Family farms still dominate US agriculture despite this shift and consolidation. At ERS, we define a family farm is one in which the principal operator and people related to that principal operator, by blood or marriage, owned more than half of the farm business. So we tie operation of the farm--that is making the day-to-day decisions--and ownership, and for us a family farm is one in which related people operate and own it. We sort farms here using the ARMS data from 2015, into four size classes. And what you can see is that family farms, as we define them, account for nearly 99% of all farms. And even among the largest-size class farms with five million dollars or more in sales, family farms account for 78% of all farms. They account, in that largest-size class, for 73% of all production and, overall, all family farms account for 89% of production. So they still dominate U.S. agriculture despite consolidation.

In consolidation, what we see broadly is a shift towards much larger family farms. Let me make a further point here. We looked very closely at large, non-family farms. They tend actually to be pretty tightly held. We estimate from our 2015 data that there were a little over 65,000 farms with a million dollars or more in sales. Let's call those large farms. Over 90% of them were family farms as we define them, but even among non-family farms, most of those fall in partnerships among unrelated people. But a relatively small number of them are organized as corporations. Most of those farms, however, are small corporations with a few shareholders, similar to tightly held partnerships. About 20% of those large, non-family, corporate farms report more than 10 shareholders. And if walked through all this and do the math, that comes to about 350 large farms in the United States that are owned by large, complicated, typically publicly held corporations.

Let me talk a little bit more about the role that a large corporations play in US Agriculture. They do operate some farms, a few hundred large farms, primarily poultry hatcheries, sow farms, egg farms, cattle feedlots, some fruit and vegetable operations. Their larger role is actually to coordinate production through contracts with growers. We see that particularly in broilers, and in hogs, but also in fruits, nuts, berries, and vegetables. And they provide inputs to agriculture. But it's still a case that family businesses dominate most production in agriculture.

All right, let me wrap up by talking briefly about the future for consolidation. The report finds some evidence that consolidation was slowing between 2007 and 2015 in livestock. Only dairy showed dramatic, continuing, rapid consolidation. We saw it either slowing or stabilized in other livestock species. In crops, there's some evidence of

slower growth in midpoints in 2007 to 2012. And if we, instead, try to measure consolidation in farm sales, we see also see slowing consolidation after 2007. However, the profit measures that we record still show strong incentives to grow. The largest farms still show persistently higher rates of return than smaller classes, and we don't see any diminution in those rates of return, so we can't say that the slowing in the last decade is anything more than a pause. There's still a very strong profit incentive behind consolidation.

Finally, I had mentioned we think the technology is a major driving force. So, what about the technology of the future? As we think about that, key things include robotics and equipment, that is autonomous vehicles on the farm, digital technologies that allow farmers to gather more information, assess it and make decisions with that information, particularly decisions that allow them to farm more precisely, all of this comes under the heading of precision agriculture. There's a lot of evidence that the technologies and precision agriculture that have been adopted so far favored larger farms and, as one source of consolidation that we've seen in the past, it's worthwhile to ask whether they will continue to favor larger farms in the future.

I can say that there are some examples of newer technologies that may favor smaller farms, particularly some of the newer robotic technologies, so I believe this is still an open question for the future. It's one that we do spend some time on in the report.

OK, that concludes what I have to say. What we have here on the last slide is contacts for me, Jim MacDonald, and Bob Hoppe, my co-author. Our third co-author, Doris Newton, has retired. We also have a link to the report and associated article in our Amber Waves magazine. That concludes my presentation, so I should turn it back over to you again, Kellie.

Thank you, Jim. We have some questions. Here's the first one. Why is there an increase in the number of small crop farms when the number of mid-sized farms is falling?

That's a good question. As I indicated, some of that may be statistical, and for two reasons we have gotten better and put more effort in and gotten better at both counting and measuring very small farms. We've probably gotten a little better at counting and measuring all farms in the census, but particularly better at measuring small farms. Further, the definition of a farm set by Congress in the 1970s defines a farm as any place that sells or potentially could sell a thousand dollars' worth of farm commodities. The "potentially could sell" relates to the land and livestock assets that they may hold on the farm, even if they don't make any sales from them. That has not been adjusted for inflation since the 1970s. As a result, more very, very small places doing very little production would get defined as farms over time.

Now it may also be the case that retiring people, and there are more retiring people given the baby boom generation moving to retirement with some wealth, like a farm



lifestyle, they buy some land, raise a little bit of crops or livestock on that land, and some part of the increase in very small farms probably reflects those decisions as well.

Okay here's another question. In many business sectors one parent company will have several separate subsidiaries under different names. In agriculture you could have a parent with 20,000 acres of cropland split among five subsidiaries of 100 to 10,000 acres. How would such a company be counted in your survey: under a single parent or five subsidiaries?

That's a very good question, and I will say it's a challenge for USDA for the future because it is something that may be growing. We count our surveys (the individual subsidiary farm). USDA surveys do not link subsidiary farms. We do go into that issue in the report, and try to estimate the number of farms in agriculture that are part of a larger, multi-farm business. We think that's important in certain commodity areas, particularly fruits and vegetables, and some livestock areas as well, so we put some significant effort in the report to tracking exactly that question. But I must say our surveys focus on the individual farm itself and do not look into whether it is linked to a larger operation.

Okay, why is there more pasture and grazing land in smaller operations?

Another good question. I have to say I'm not quite sure. I suspect that some of this represents large Western ranches selling off land to retirees who still maintain some livestock on a little bit of land. So, I'm inclined to believe it is a shrinkage of some large ranches through land sales to people with rural residences who are operating small ranches, still with a few animals, perhaps a few cattle, or a few horses on them, who still qualify as a farm. And I expect that that's the major force behind that type of shift that we're seeing.

All right, here's another question. Could owning a farm business happen, even if all the land was rented by the farm business?

Yes, there are farm businesses that rent all the land. That will still be a farm business. It will have cash, it may have equipment, it may have other things that are assets of the farm and are owned by that farm family, but certainly there are farms that rent all of their land. And I must add in our definition of land, here we're focusing on land operation, meaning land owned plus land rented by the farm.

All right, here's a question. You mentioned there are strong profit incentives behind consolidation. Is there any headwinds of consolidation such as the lower current economics, let us credit in the country etc.?

Well, certainly we're at that. We've been at a low part of the cycle now for several years with net farm income declining. And that certainly may have some impact on the pause and consolidation that we've seen. We know it has an impact on things like equipment purchases, and it may have an impact on expansion decisions among large farms, so certainly that could be a reason for the pause we've seen in recent years. However, on

the whole, the returns to farm size still look very strong, and for that reason I think looking out beyond the business cycle of farming, I think that there is likely to still be a strong force for consolidation.

Thanks, and can this data be broken down by crop reporting region? For example, California dairies are much larger than Wisconsin dairies.

Yeah the underlying farm level records we use, those are confidential, so they're made available to the ERS researchers. Under certain conditions we can make them available to academic researchers, but we have a lot of strong restrictions to maintain the confidentiality and security of the data. But once you start with farm level records, you can do the same types of analyses by state or by crop reporting, district, region or by different types of locations.

Another question. Why are family businesses so predominant in agriculture?

It's good question. I think there's a couple of major reasons. One is, in agriculture, localized knowledge matters a lot. That is, understanding the particular soils, particular attributes of weather, and climate in your area matters a lot and, in addition to localized knowledge, I think the ability to be flexible, that is to get your labor out there late at night if you have to do it, or to move quickly and make quick decisions matters a lot in agriculture. So I believe that localized knowledge and labor flexibility continues to be a strong attribute of family farms. And those attributes matter a lot in farming.

Okay, thanks. And another question: How much has agriculture transitioned to production contracts for marketing contracts, and what is the role of production contracts in consolidation?

Well, as you see, we saw a major consolidation going on in the hog vector. And in some livestock areas where we see major consolidation, there is a broad set of reorganizations going on. In hogs, producers not only got larger, but they also specialized in a particular stage of production. And most of those farms are linked by a network of production contracts operated by an integrator who contracts with a series of farms. So I think production contracts have played an important role in the transformation of hog production. I can say that they also played an important role in the transformation of poultry production. I can't say that they've been particularly important in driving consolidation anywhere else, and we have not really seen major shifts in the use of even production or marketing contracts in the last 10 to 15 years.

All right, do you view farm consolidation as a negative trend for agriculture or as a positive as efficiencies being found in the form of economies of size?

I think we've done quite a bit of work at this at ERS, and I think that consolidation has contributed to productivity growth in agriculture and has enabled improved efficiency, and, in some areas like dairy and pork, the sectors have become internationally competitive and become net exporters where they were once net importers. And I think some part of that shift in international competitiveness derived from consolidation and

associated cost efficiencies. Having said that, consolidation--particularly of livestock--also consolidates manure and creates environmental risks. And so you get, I think, increased regulation along with it, and some trade-offs between environmental risks and consolidation.

Another question: What is driving the rise in cash renting highlighted in your report? (I'm sorry, could you repeat the question, Kellie?) Yes what is driving the rise in cash renting highlighted on your report

I don't think that this report showed an increase in cash renting and I don't know, I don't believe that in the aggregate in crops that we see an increase in cash renting over time, or if we do it's fairly modest. Now, most cropland is rented and most cropland in large farms certainly is rented, but I'm not sure that we see any significant aggregate increase in the amount of cropland that's being rented. I may be wrong on that, but in any case it is not something we really covered in the report.

Okay, here's another question: What are the two commodities among the 55 surveyed that did not show consolidation?

I'd have to pull up my report. One was lemons and the other was cantaloupes. And don't ask me why, I don't have a good story for why they did not show an increase in consolidation.

All right, here's another question: What do you think could be supporting the move in consolidated livestock operations to bring in feed rather than producing their own?

I think, in many of these cases, that farmers gain from specialization at, for example, on a number of dairy farms that I have visited. The people running the farm, even if they have their own cropland and feed is grown on the farm, the family tends to focus on the herd and the milking operation. And they hire custom service providers to handle the crop production, planting, spraying, harvesting for them, so even though they operate the cropland they leave those decisions to somebody else, and they specialize in the livestock part of it.

I think that is one way to think about this shift. It allows some producers to focus their investment of time and knowledge and effort on the livestock side. That requires them to be able to have a consistent, a high-quality feed that they can purchase. And, in fact, often for many of these farms I think they feel that through the market they can purchase feed that is tailored better to their animals, and they could produce on their own, and it frees up their time to focus on the herd. So I think, briefly, that it reflects both the development of markets in feed, improved transportation of feed around the country, and the realization by some producers that their time is better spent focusing on their animals than on also running a cropping enterprise. That, of course, depends upon the actual assets you have available to the farm, and then the set of interests and skills of the family running the farm.

Another question: It seems there is a misconception in some places that corporate farms are taking over, when it appears from this study that they are not. Why is that?

That's a very good question. This is something we report on quite frequently at ERS, and we find really very little change. Family farms dominate U.S. agriculture, even if they are much bigger family farms than they used to be. Nonetheless, even though we've been reporting this for many years, I agree that there is a misconception that corporations are taking over production agriculture. Now they certainly play an important role in livestock and broilers and hogs where Tyson's, Perdue's, or large corporations like that contract with growers and run a tightly integrated system, so they play an important role. But again, the vast majority of production and, certainly in field crops, the overwhelming majority of production comes from family farms. That's just, I think, a misconception that's out there and I'm not sure what to do about.

All right, here's a question: Is the day of a diversified farm less important now? Your chart on more livestock farms being devoted only to livestock and not also crops?

Yes, I think that our data show a fairly strong shift away from a highly-diversified farm operations. That's not to say that they're not out there, but I think they are a smaller part of the farm sector than they once were, and I would emphasize that it is not just a shift towards corn and soybean operations. In most field crops we see greater specialization of farms on two or three crops rather than producing four or five or six crops. So yeah, I think that certainly diversified crop farming operations are accounting for a smaller share of agriculture than they once did.

Alright, and here's a question: Is the amount of harvested acres consolidated by large producers, is that largely from rented land?

Yes, we have some statistics on that in the report. I don't recall it off the very top of my head, but almost all large crop producers rented at least some of their land and, in the aggregate, I think they probably rent 60- to 65% of their land, all told. So much of it is on rented land and if you're a very large farm, somebody in the business probably has a responsibility for trying to deal with the various landowners that you're renting land from.

All right and we have time for one more question: Why is there little or no consolidation in the beef cow-calf sector?

That's a good question. And I think that in, for example, broilers and hogs, people found ways to make genetic innovations to allow them to produce animals more quickly in a more uniform manner. And I think similarly that happened in dairy. And people also developed ways to house the animals and confine them within buildings, actually control their climate better and manage their feed, their growth efficiency, and manage diseases well within those climates. And for whatever reason, I think people have not really been able to make the sort of development in cow production. And I must say, it takes a much longer time to raise an animal and, in addition, most cow, calf, and stocker operations still occur on relatively inexpensive land around the country. And so

the sort of innovation that one might need to develop a completely different way of doing business, has to compete with people that are not using a lot of inputs, don't pay a lot for their land. No one's found an economic way to beat it yet and, so as a result, I think those small-scale, relatively small-scale cow-calf and stocker operations continue.

All right, thank you Jim. Well I think that's all the questions we have time for so, thank you all for joining us and good day!

Thank you.