

Interview with David Seibert

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Interviewer: Dick Hull

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Hull: Hello, my name is Dick Hull. I am a volunteer for the Abraham Lincoln Presidential Library. Today is September 18, 2008, and we are interviewing Dave Seibert. Dave is a University of Illinois animal systems extensions educator. Dave, tell us a little bit about yourself and your early years.

Seibert: Dick, I was born and raised in south-central Illinois—actually in New Athens, which is fairly close to Belleville. I was born and raised on a livestock and grain farm. It was a diversified livestock farm: we had beef cattle, swine, and dairy. During my high school years and even grade school years, I was involved in 4-H and FFA. For those, beef cattle was the projects that I had. And with the FFA, I was involved in officer—actually president of our local chapter, and active in 4-H offices as well.

At the completion of my high school education, I went to Southern Illinois University down at Carbondale. I majored in animal science, and with that, I obtained a BS and MS degree. During my undergraduate [studies], I was involved in livestock judging. I traveled and was part of the livestock judging team. For my Master’s, I did my Master’s work in swine production—actually, genetic aspects

of swine production. Also during my Master's, I was a teaching assistant and worked with the animal science classes that were out at the farm as well as assisted with the livestock judging team at SIU.

Hull: When did you decide that you were interested in Extension?

Seibert: Actually, it went back a few years. There's, I would say, some individuals that were very influential. One, during my Master's degree, I worked under a gentleman by the name of Dr. Howard Miller. And Dr. Miller knew individuals in University of Illinois Extension, notably Dick Carlisle—Professor Dick Carlisle—who was well known as the Swine Extension Specialist. And with that, I got to know Dick, and enjoyed what he was doing—the type of work he was doing—in assisting livestock producers throughout Illinois. So really, I would say even before my Master's, in my undergraduate work, I was leaning towards going into the Extension service.

Hull: And these two fellows were your mentors, is that right?

Seibert: That's right, yes. As I mentioned, during college, it was this Dr. Howard Miller, the Swine Extension Specialist [Professor at SIU]. And then throughout many of my Extension career, Professor Dick Carlisle who is nationally known—internationally known. He had a great influence on my career choice as well as those changes that I made during my career, in which I was first of all moved from a county Extension office, back to campus, and then, of course, went into an area position [in Peoria].

Hull: And where was that area?

Seibert: The first employment I had was in 1968. I started my Extension career in McDonough County, which is located at Macomb, western Illinois. I worked as what they called assistant and associate ag advisor—Extension advisor back then. Even had a specialty of working with livestock; they call it livestock specialty. And then I was there for three years—actually I started in '68, through 1971. In '71, I went to the University of Illinois and managed their swine nutritional research farm. The University of Illinois has a very strong swine department. Many of the nationally-known professors came through the University of Illinois or were at the University of Illinois. And nutrition is especially their strong point over at the U of I. And by managing the swine nutritional research farm, I worked closely with people like [Dr.] Dave Baker and [Dr.] Bud Harmon. These are all professors at the U of I. Al Jenson—Dr. Al Jenson. Dr. Gene Becker, who was really my—he was in charge of the farm. He was department head at that time. So it really allowed me to have very close contact with many influential people and gain a tremendous experience.

So I went in 1971. I was there [U. of I.] until December of '73, for just about two and a half years. And then starting in January of '74 is when I moved to the Peoria area and started my career as first of all an area livestock advisor, and then

as they reorganized in 1993, as an animal systems educator. And I've been at Peoria since 1974.

Hull: And an animal systems educator—what's your function there?

Seibert: Okay, actually the role of Extension is to transfer research-based information to producers. And of course, Extension has many different areas they work in. Actually, there's thirteen different specialties on an educator area. But in my particular one, as mentioned, I was transferring research-based information from University of Illinois, other universities, as well as USDA¹ research stations, to producers. This might involve numerous different areas. It could involve rations, maybe new rations that are coming; different management techniques; housing—there's been a lot of changes in housing; in management, of how you manage those animals; in selection and breeding; carcass evaluation, in which you really look at compositions. So what you do is try to have producers adapt new technology that would make their operation more efficient, more profitable, more sustainable. And that was my main role.

My vehicle of doing that would be several. Probably the educational-type meetings, seminars, field days—those types of things are many times the backbone of our program over those years. Another thing [method] would be one-on-one consultation, and that might be by phone calls, where you receive a phone call request discussing maybe one-on-one particular problems that they would like to have answers to. It might involve more recently, internet, e-mail requests for information and sending that out to them. The one-on-one might even be going to the producer's farm and actually on-site providing of the information or assessing what their needs are. And then, of course, even more recently as well, is the development of web-based sites in which we develop websites and post information that would be of value to them. So there's multiple vehicles that we transfer information to producers.

Hull: Dave, can you tell us a little bit about the Extension—how it came about, like a little history on that?

Seibert: Yeah, actually going back even a little bit before Extension, the Morrill Act was passed in 1862, and this particular act established what we call the land-grant colleges or land-grant university—land-grant act. And of course each state has a land-grant university, and the one here at Illinois is the University of Illinois and Champaign [-Urbana]. And then, of course, starting in 1914, an act was passed that was called the Smith-Lever Act. And the Smith-Lever Act was passed to mainly set up the Agriculture Extension Service. And of course, early years, that really meant the farm advisor, the ag agent. And then later years, came along the home demonstration agent or the home ec advisor. And that was really to provide for each county a place where that would, you know, coordinate, would set up, would assist farmers, and of course homeowners and housewives, in adapting new

¹ U. S. Department of Agriculture

technology or improving agriculture production initially. And I guess something that's happened over the years is by, I think, really having that vehicle out there, we have greatly improved the production, whether that might be corn production or soybeans, or the growth of livestock or reproduction of livestock, composition. All these things was in. And it was really set up so USDA had a vehicle to really expand the development of food first of all, and then later, the family. And I think over the years, we of course have become an exporter of many of those products, whether it's feed grains or whether it's the finished product, meaning, beef exported to other countries, pork exported to other countries, as a result of the Smith-Lever Act and as a result of the Morrill Act that has really allowed research to be used, adapted very quickly by the producers out in the field.

Hull: And who funds that? Is that funded through the USDA, or...?

Seibert: Yeah, actually the local Extension or Extension is a partnership. There's money comes from federal for a certain percentage of the support, there's state money that's also appropriated through the state of Illinois, and then there's local support. In the county base, there's referendums passed, there's county support from the county Board of Supervisors. So it's really a tri-partnership as far as the funding of that organization—of the Cooperative Extension Service. And it initially started as a Cooperative Extension Service, over the years, it's changed its name to now, where we're called University of Illinois Extension.

Hull: I think that probably, the way I understand it, you've kind of moved into cattle. You've left the Extension part of the hogs, but you have specialized in the cattle end of it now, is that right?

Seibert: That's right. Actually, as I mentioned, when I was at the University of Illinois—well, first of all, I got my Master's in pork production, and that was the influence of the major professor, my mentor [Dr. Howard Miller], when I was at Southern Illinois University. I went to the University of Illinois because of Dick Carlisle—Professor Dick Carlisle—telling me, “This would be a good career move.” And that, of course, managed the swine research farm at the University of Illinois. And then when I came back into Extension, we were really area livestock advisors, so we really covered all areas—but mostly beef, swine, and sheep was the area. But when I first started, because of my background experience, I probably spent 60 percent, maybe 65 percent of my time in the swine area, and then additional amounts were spent, of course, in beef, and some in the youth area as well, which had been the 4-H livestock program.

However, if we go back to what's happened, and we will kind of share some of the changes in numbers that has occurred, the swine area has really consolidated, meaning that there was probably when I started around 35,000 [50,000] pork farms when I came into Extension in 1968. And of course, through consolidation, I believe the number now in year 2008 is down to 2,800. So there's really been a consolidation of numbers, and of course, that's really resulted in much larger operations. And really, that same thing has happened in all species.

It's happened in the number of farms and the size of those farms. As we see a decrease of those specie operations and those farming operations, we usually see a resulting increase in the number of animals or number of acres that's in a farming enterprise.

So at that point, I really decided to kind of specialize in an area, and even though my youth area was with beef cattle and I've worked a lot with beef cattle, that's the area that I really expanded into. And I would say now, I probably spend probably 90 percent of my time in the beef cattle area, with much of that in the cow-calf area. I do work out of Peoria, which is in the north-central part of the state. And of course, in beef cattle production, we can have the cow-calf—we can have a stocker program, where the cow-calf takes those calves up to about four to five to six hundred pounds, and then we have a stocker operation that may grow those to around 800 pounds, and then we have finishing that takes them all the way to market.

But really, in my area, there's probably a fairly high percentage of the operations are cow-calf operations. Not that many feedlots, really, in Illinois, and most of the feedlots are located in western Illinois and also in northwest Illinois. So that's really resulted in my working mostly in the cow-calf area, and as I mentioned, probably spend 85-90 percent of my time working with cow-calf producers.

Hull: Would you like to kind of share some of the history of how the progression of cattle was selected and...?

Seibert: Yeah. I guess, if we go back, and this might be in the—let's say in the mid-1800s—we would see probably animals that would be somewhat of this type here, that was just kind of a mixture of multiple animals. And we can even go back prior to that. When we think about Abe Lincoln, when he was out at New Salem, there was the oxen out there at that time that was used for multiple purposes. They were used for draft, to pull carts; they were used for the hides; might have also been animals within that population that was used for milk production. And probably if we go back to that same time, maybe the beef part of it was the lesser importance of those animals out there.

Then, of course, as other genetics were brought in, we probably would see something like these animals I'm showing right here that would be found on many of the farms. And then as we kind of move from there, we could probably see animals that were the longhorns. And the longhorns were very popular out West. Again, animals that would thrive on a little less forage production and may not have quite the growth potential we have in animals today. So the mixture of animals I showed previously, the oxen I talked about in Abraham Lincoln's time, as well as the longhorns, were kind of the early animals—beef cattle animals—that we had in the United States.

From there, we of course were importing animals. We brought in the British breeds from Europe [England]. These would be familiar that you've probably heard, many people, of Angus—Angus beef and that type of thing. They were brought in. There's a breed called Herefords that were brought in, also from England. These were all British breeds. As well as Shorthorns. Those were some of the early breeds that were brought into the United States. As well as down South would be Brahman-based cattle, and then also Charolais, which was a French breed, was brought in. And the whole concept there was to improve the quality of those animals that I previously shown, whether that might be the reproduction, whether it might be the growth rate, whether it might be the [meat] palatability—meaning their juiciness, flavor, that would be found in the lean. And much of this occurred during the mid- to latter part of 1800s that we were going in to Europe and bringing those breeds back.

Then as we move into the early part and through the mid part of the 1900s, we started to exhibit those animals, show those animals. And then, of course, the eye of the master, the eye of the stockman, was the person who really decided what type of animals that we might have. And this particular slide right here kind of shows a change that we had in those animals. The upper-left part of the slide would show in the fifties and the early sixties as what we refer to as really belt buckle—a very small frame, almost baby beef-type cattle. And they felt that the family was going to be fairly small, so we really didn't want this large cuts of meat or this real big animal. And of course, what happened at that point is these animals wouldn't grow very fast. They would mature—meaning get to a market weight—at a fairly light weight, and then also the product had a fair amount of fat in it.

The feedlot people and the people out West, they really felt we needed a much bigger frame, a much faster-growing kind of animal. And in the center of the slide would depict what was kind of selected in the 1970s: a little bigger frame, a little more moderate frame. But it seemed like in livestock production or in many things, we always overcompensate for our previous mistake, meaning we got them too small, so what we did then was make them too big, and that would kind of depict this animal down here. And this is kind of the wilt-and-stilt concept, is depicted down here, meaning going from one extreme to the other extreme. So we got them too big, and that was really in the eighties.

Another phenomenal happened during that period of time is we started bringing in a lot of Continental breeds, we called them. And these were European breeds, and they were breeds that was used in Europe for draft, for milk, as well as for meat reasons. And examples of those would be like the Simmental breed, and the Limousin breed, and the Gelbvieh, and the Maine-Anjou, and there's a number of those breeds. And they were used then, they were brought in in the late sixties and through the seventies to really increase the growth of the lean composition of the cattle that we had here, to use in crossbreeding.

Hull: But in that selection, sometimes things went awry, is that right?

Seibert: Yeah, that's right. And we mentioned one earlier regarding the really big-framed cattle. And there's probably a lot of people we can kind of blame for that, and probably university people had a lot to do with it because they were, many times, the people who were the judges at some of these events. So that was one problem. A second problem occurred as, again, we had this British breed base that most of our cow herds—their genetics. And of course, when they brought in these Continental breeds and used what we call that first cross, meaning that Continental breed on that British-bred female, it was really a great response that we got. It increased the growth, it increased the frame, it increased the muscle and everything. And then, of course, with success, we tend to do that [breed to the Continental] again, and we had three-quarter bloods. And then all of a sudden, they did it again; we had a seven-eighths. And really, the feedlot operators, said, "That's more than we need," because they couldn't get these cattle to marble. And second of all, the cows got really big then, too.

We got this factory out there in the beef cattle industry, and it's called this beef cow, that we have to make sure that she's efficient, that she rebreeds, that she doesn't require more feed than the environment—meaning the pastures that we have for her, will sustain [her production].

Moderation in many things is kind of the best thing, and that's where we need to really be. And our result of getting cattle too big—they weren't moderate-framed, you know; they were just really, extremely big-framed. The cows were just definitely too heavy, too big a frame. And the same as we start incorporating some of the Continental breed into them. We can get too much of that half-blood, quarter-blood—meaning a quarter Continental, which would be like the Simmental, the Maine-Anjou, the Limousine, and three-quarter British, is kind of ideal. Maybe half-Continental, half-British is a good mixture as well.

Hull: Putting that large-frame bull on those smaller heifers, sometimes run into calving problems, right?

Seibert: Yeah, that's exactly correct. And of course, your background experience in the vet business—I'm sure many times you were called out in the middle of the night, where a British-bred female was having calving problems. And the British-bred animal, usually seventy, eighty pounds is kind of our average birth weight. And of course, these Continentals, you know, and all of a sudden, we were having ninety-and a 100-pound calves, or maybe even a little more than that. So that was really a serious problem, and one that people, you know—many times, people that was their first experience, meaning they had to set a British-bred cattle, that were probably fairly small-frame kind of cattle, and you brought in this big Continental bull on them. And you had two things there. First of all, his birth weight was a lot heavier. Second of all, and when we start crossing animals like that, we call that "hybrid vigor" or "heterosis," and with that, we can jump up the birth weight as well, even more than the average of the two. So there was compounding factors there that was occurring, and if they bred those Continental bulls to some smaller-frame British heifers, they were in a lot of trouble. And that was many people's

first exposure to the Continentals, was when they first dropped those calves on the ground, and that was a bad experience for a lot of people.

Hull: Dave, can you kind of tell us what part the state of Illinois played in the cattle industry? Give us a little history on that.

Seibert: Yeah. The state of Illinois really has a terrific background, you know, as far as the impact they had on the cattle industry. And of course, if we go back early on, one of the early things—when we think about the Chicago fire, and the story of Mrs. O’Leary’s cow kicking over the bucket, of the milk cow and burning down a good portion of Chicago. So that really was a factor that occurred that I think has a big influence on the cow, on what happened here in Illinois. Second of all, out West where many of the cattle are raised, they would tend to bring those cattle up to maybe a rail head in Kansas or somewhere, and of course, where would they ship them? They’d ship them back East. And where would they end up at? Well, quite often, Chicago, because Chicago was kind of a central hub for several things, and one of those things was the Chicago Stockyards. Chicago Stockyards was without a doubt the largest stockyards in the world. They handled millions of cattle there, it was a very big facility, and it was the place where people wanted to get cattle to, especially if finished cattle—whether they were grass-finished cattle, as we produced many years ago, or whether they were grain-fed cattle as was shipped there.

And then, of course, we had the stockyard. So what attracts the stockyards is a packing industry. And of course, Chicago was really the meatpacking industry of the world—of the United States. And there was names that we think of in the packing industry. Armour—that’s a name that was originally from Chicago. Also, Swift is a family that started the meatpacking industry in Chicago. So that really resulted in those cattle coming to Chicago, going through the stockyards, being harvested at the packing plants in Chicago.

Of course, being the center of that, there was another facility up there [Chicago] that had national recognition, and that was the Chicago International Livestock Exposition. It was without a doubt the center of showing cattle and bringing cattle in the United States. And of course, many times the bulls that was chosen as the champions in Chicago, at the International, were those that generated the [future] seed stock. And of course, what people would want to do is—back then we were not using AI—artificial insemination—so they would try to buy a son out of one of those bulls. So that really influenced a lot about the breeding that took place—the Chicago International.

Then, you know, after that, another thing was the Cows on Parade, or the figures that they had on display—I think that was in the late nineties—in which they had like 300 fiberglass cows that they painted up and decorated and had in Chicago. And that was probably the first place that had ever had that type of thing. And I know since then, there has been different cities that have picked up on that with their particular thing that they have there.

The other thing that happened, too, is when you think about beef cattle production, we have different quality grades, and those quality grades might be something that people hear of—Choice—and then of course, they might hear also one called Prime. And those really dictate what we call the palatability of the steaks that we eat. And probably the Chicago stockyards and maybe even, as well, Illinois, it might be the prime beef capital of the world. A lot of cattle feeders would want to ship their steers to Chicago, and it was quite an honor to what we call topping the market up there—getting the highest price, and that were probably cattle that were grade Prime. And of course, from there, those Prime cattle would result in producing steaks for the very best steakhouses not only in Chicago, but all the way into New York and the East Coast. So Illinois has a terrific history and impact on the beef cattle industry in the United States, and some of those were centered around Chicago, but the others were centered around the state of Illinois.

Another thing that happened too is—we talked about bringing those breeds over from England. And one of the very first breed associations was the American Angus Association. And it was started in Chicago. The headquarters for that was in Chicago. And of course, as result of that, we had some of the very best purebred operations here in Illinois. And certain names like L.B. Pierce and Sons from Creston, Illinois—that's really in the northern part of the state. There's also one that's probably, when you talk about genetics in Illinois, is J. Garrett Tolan, and J. Garrett Tolan was at Pleasant Plains, which is actually just west of Springfield. And that particular operation probably had more of the really elite sales and provided a lot of genetics for the Angus breed. Also there as other breeds as well, and I think another one, located just west of here [Springfield], was the Les Mathers herd. It's really called Leveldale Farms. And they were some of the early people to bring Shorthorn cattle into United States. They were nationally recognized for many years. I actually worked with that operation when I first started into Extension. And back then, when you won the Chicago International, you were probably given a ribbon, but more importantly, you were given a plaque—it was a metal plate that you would probably hang above the animal at the fair, and then, of course, you took that home with you. And I remember working with the Leveldale Farm, and when we processed cattle in their facility—which is Mason County, just west of Springfield—they would have many of those plaques or those plates nailed up in their barn for their winnings that occurred in the 1950s and the early 1960s and things. And then there's another farm, too, in northern Illinois; it's called Northern Pump. And it's a Hereford farm, and they were nationally known, as well.

Illinois has some of the very best seed stock [operations]—meaning purebred, and that would pertain to a particular breed—operations that we find in the United States. Had a great influence on the genetics that was used in the United States. And I think of those purebred operations is kind of because we were close to the International, which had such a great influence on genetics that was developed in the early years.

Hull: I think you had some pictures here of the old stockyards. Is that...?

Seibert: That's right. Actually, this first one I have here is of the International Amphitheater, where the International Livestock Exposition was held in Chicago. Of course, it's not there any more, but that facility named many of the grand champions. Matter of fact, when we talk about beef cattle, early years, it was mostly straight-bred cattle that was raised. And then, of course, crossbreeding came into use. And the first crossbred steer that won in the Chicago International I think was about 1969, maybe 1970. And I was there that particular year when they chose the [first crossbred] grand champion steer. Don Good, who was the chairman of the department out at Kansas State University, he judged that particular show, and he was a Charolais-Angus crossed steer. So even though it was a show, it really impacted what many people did in the livestock industry. And we can talk a little later about crossbreeding and some of its values. But that was one of the milestones that happened in the state of Illinois.

You also mentioned the Chicago stockyards. This particular picture here is the entrance to the Chicago stockyards. It still stands—it's actually a historic site. Also, too, this would be many of the pens that you would see. Actually, the Chicago stockyards covered I think fifty or sixty acres. I mean, it was a huge facility. They had up to, I think one time, 25,000 people working there. So that was quite a development up there, and one that really set the market for livestock in the United States, especially finished livestock. This, of course, is no longer standing—it's been converted into industrial use—but it did have a great history of beef cattle production in Illinois and in the United States.

Hull: Can you tell us a little bit about—you mentioned the crossbreeding and types. You want to go into that a little father?

Seibert: Yeah. We have different breeds, and we mentioned many of those breeds. And this would kind of depict some of the breeds that we have here in the United States. We talked a lot about the British breeds, which of course, you notice up here, we have an Angus—we even have a Red Angus—there is a red gene in the Angus industry—as well as Herefords. And this shows the number of purebred cattle that's raised. You notice here about 56 percent of all the purebred cattle raised in the United States are of the British breeds. Then, of course, we talked about the Continental breeds. These would be your Charolais and your Limousin and Maine-Anjou and that type of genetics. Those are brought in from Europe, and they offered a bigger frame, more muscle, more milk production. And then down at the bottom here, we have the Brahman influence. Now, we don't have many Brahman cattle in Illinois—there are a few down in the southern part of the state—but most of them would be your British-bred cattle and your Continental-type cattle.

And of course, as you straight-breed those, you don't obtain what we call "heterosis." Heterosis is when we start crossing animals of different genetic background, and there's different crossbreeding programs. We can have just the initial cross, which we call the F1 cross, and we get a tremendous response from that, but many crossbreeding programs are set up so that they can sustain

themselves. They might be a two-breed backcross, in which we use Angus and maybe Simmental, and we just keep backcrossing those two [breeds].

What happens in that particular situation? First of all, we improve conception rate by using crossbreeding. Second of all, we improve the percentage calf crop. We get more cows to calve and have live calves. And third of all, we increase our weaning weight. And weaning weight usually occurs at about 205 days, and we can pick up an additional thirty or forty pounds by doing that. And then, of course, from there, we put them into the feedlot. We have more rapid gain. And then probably really of importance is you start combining breeds together that will allow you to end up with an end product that has more lean composition—more muscle—and maybe has adequate marbling. So what you do is blend different breeds together in order to get all these added effects, and actually, it can come up to about 25 percent more pounds of calf wean per cow exposed, which is considerable.

I talked about different crossbreeding programs. This is actually what we call a three-breed rotation. And we can start over here with breed A, and of course, we mate that to, let's say, a set of cows, and their offsprings—their daughters—we mate to breed B down here. And then, of course, their offsprings, we mate to breed C. So you might have the Angus, you might have Simmental, and you might have Hereford, and you just rotate those three breeds around, and that's how you can really tend to pick up additional pounds of calf wean. At the end of the feedlot, you can end up with a lot more pounds.

Just a pictorial part of that would be this picture right here, which shows what we call a Baldy cow, meaning this is a black cow that has a white face. So you kind of think of that cow being an Angus-Hereford cow. It's what we refer to as an F1 cow. And then you would take that F1 cow and you mate it to a Charolais bull. And a Charolais bull it would be, is a Continental; it's a French breed. It's a very heavy-muscled, fast-growing breed. And then as a result of that, you end up with this calf right here that is a Smokey calf. And of course, as far as hybrid vigor, heterosis, that's what we call a terminal crossbreeding program. And you can probably obtain maximum heterosis by using this type of crossbreeding here. So really, crossbreeding can really add some additional pounds, some additional economics, to an operation.

Crossbreeding doesn't come with all positives, and one of the negatives that we have is many times in crossbreeding, people do not continue with an organized crossbreeding program. So they really kind of don't set it up as a two-breed backcross, or let's say a three-breed rotation or a terminal cross. In a terminal cross program, all offspring go to market, so you have to go out and buy the replacement heifers, and that can create a problem as well. So crossbreeding is a great management tool, breeding tool, but again, you have to make sure you do it in an organized fashion with the different breeds that match and meet together, and also that those cattle have economic value, meaning—and we'll talk about a little bit later on about genetic merit, meaning how do we know that those animals—where

they rank within their particular breed? So crossbreeding is an excellent tool, one that's used throughout Illinois, but without good management, it can result in disappointment.

Hull: You mentioned earlier that there's been quite a change in the farming practices—the size of farms. Just what has changed? Can you kind of highlight that just a little bit?

Seibert: Yeah. We talked earlier about some of the things that have occurred as far as size of operation. And let me just slip over here and pull out a little more... (pause) And what I'm going to do is base these numbers all on the past forty years, because that's kind of my career span. As I mentioned earlier, I started in Extension in 1968. Again, this past August, I just completed my fortieth year of working for the University of Illinois. So I'm going to kind of talk about the changes that have occurred during that period of time. And of course, I'm going to start, first of all, talk about farm numbers and farming operations.

And if we go back to 1968, we have about 131,000 farms in Illinois. And if we look at this year, now—2008—we have about 72,000. So we decreased almost half—actually 46 percent of the number of farms. And that's due to consolidation. I mean, I was born and raised on a small family farm—it was a diversified farm—and to try to sustain a family on that farm as your only source of income would be very difficult anymore. There is people who farm smaller farms, but usually they do that somewhat as a hobby, and they do work off-farm.

But of course, now we see a lot of those farms being consolidated together, and that results in a number of acres. Of course, we had a reduction in the number of farms, about 46 percent. Likewise, we had an increase in the size of those farms, and that's occurred about 68 percent, going from about 227 acres up to 377 acres, or we're pushing up towards 400 acres per farm. And of course, there's a lot of farms much larger than that, but of course, we've had decrease in numbers, increase in acres.

The cow-calf operation—I talked a lot about cow-calf operations. Worked with those. There was about 35,000 [68,000] cow-calf operations when I started in 1968. Now, there's about 14,700. So we've seen about a 60 percent decrease in the number of cow-calf operations, and of course, the resulting increase of the number of cows per operation from the low twenties to just right at thirty cows per operation. And now we see operations that may have 500, 600, or 700, or maybe even a few more cows. That's kind of unusual, but we see larger operations.

I guess our hog thing has changed probably the most. And as I mentioned, earlier on when I came into Extension, I worked extensively in the pork production area. And if we go back to 1968, we had about 58,000 [50,000] hog operations. I mean, it wasn't unusual to drive down a rural road and pass a number of farms that would have swine as a part of their enterprise. And of course, we've had terrific consolidation; from those 53,000 operations, we're down to 2,800 operations now.

So a terrific amount of consolidation in the swine area. And of course, the resulting change in the number of hogs they marketed. Back in 1968, the average number of hogs that were marketed per operation was 119, and now we're almost 1,400 per farm, as far as the number of hogs, and that's actually over 1000—almost 1,100 percent increase, you know, in the number of hogs marketed per operation.

Another area would be like in dairy production. We had 18,000 dairy farms, and as I mentioned at the very beginning, we had dairy cows at home. Not many, but we had I think twenty, twenty-five dairy cows. And of course, we're down from 18,000 forty years ago to only 1,200 now. And of course that would result in only having an average of eighteen cows back then, so we were kind of average back in 1968. And now there's eighty-six cows per operation.

And sheep production—about 16,000 farms; we're down to about 2,000 farms. Ewes, of course, have increased. And then turkey production, just terrific increase in that as well.

When I talked about specializing earlier, the reason I specialize is because I really went with an area that I enjoy working with, which is beef cattle, but more so, there's still 14,700 operations out there that have cow-calf in Illinois, so there's a lot of clientele to work with. And that's one reason I went that way, is because a lot of clientele. You hold educational programs, and you usually get a pretty good response.

Hull: Now, is that specialization—do we see a drop in the amount of animals actually marketed?

Seibert: There has been. Actually, there has been a reduction in the number of animals that we have in Illinois. Actually, nationally, there's been a reduction in the number of animals in almost all areas. Maybe not so much in poultry or turkeys, but I would say of our beef, swine, dairy, sheep, we have seen a reduction. And one reason for that is the animals have become much more productive. When we think about weaning weight in cattle, they used to wean maybe under 400 pounds, and now, it's not unusual to have weaning weights of 600 pounds. When you think about market weights, we used to market them at 900, maybe 1,000 pounds—probably 900. Now, 1,300-1,400. They grow much faster. Their reproduction as far as conception rate and calving percentage is much higher now as they used to be in the past. So with fewer units, and especially so in the swine area... In pork production, we used to—if we had sixteen pigs per sow per year, we'd farrow twice a year. Now, twenty-five, twenty-seven pigs per sow per year is not that unusual, and of course, they grow so much faster as well. Dairy production, we probably went from fifteen, sixteen thousand pounds of milk, maybe even less than that, up to 22,000-23,000 pounds of milk per cow. So we become much more efficient, whether it's the reproduction that we're doing, whether it's the rate of grain we're doing, whether it's the product—for example, in dairy, the milk they produce. So nationally, almost all of our species have reduced in number. Poultry

probably hasn't, but we're producing more pounds of product going to the market—the retail market—than we did in the past.

Hull: You mentioned that Chicago was such a large processor for beef. What has filled that void since they've closed the markets up there?

Seibert: There's really only one packing plant in Chicago. It's called Aurora Pack. And what's happened is the feeding industry used to be in the corn belt. I mean, just as every farm would have maybe some dairy cows or maybe some hogs, they usually had a feedlot as well because we had a surplus of grain. What happened, as many of these feedlots have moved west to, let's say, Kansas, Nebraska, Texas panhandle, even into Colorado. And a couple reasons for that is much of our grain here—we still maintain our pork production, because the Midwest is really the main pork production area. But with the cattle, many of the commercial cowherds or ranches or things were located out West.

Also, too, in Illinois, we have a thing called the Mississippi and Illinois River that we could export a lot of grain down the Mississippi and export it to numerous other countries. So when we think about pricing that grain, the price of corn was much higher here, along the Mississippi and Illinois River, because of the export market, than it was out West—let's say in Nebraska and Kansas. Things started happening out there, too. They started irrigating out there. If you just fly over Nebraska and Kansas, you know a lot of center-pivot irrigation takes place out there.

So what happened to those packing industries—and first of all, the feedlot industry moved out West, simply because cheaper feed grains out there. Second of all, the environment was a little more moderate out there for those feedlots. And then third of all, the feedlot industry moved out there; the packers moved out there as well—moved close to the feedlot industry. So Chicago lost their center as far as being the center of the packing industry a number of years ago.

Hull: Good. Let's move to... Tell us a little bit about your involvement with the Illinois Performance Tested Bull Sale. When did that get started, and just how involved have you been in that?

Seibert: Yeah, actually as people wanted to, you know, we used to select cattle—and all species really—kind of the eye of the master would select what they think was right. And of course, that served us fairly well, but that really didn't have a lot of economic value to it when we think about some of the important traits—for example, the reproduction and the growth and the composition and that type of thing. So we started back in the—let's say it was in the sixties. The early sixties is when we started talking about performance testing. And performance testing was developed—usually many of the universities had a person and field people like myself that would start working with producers to go out and start collecting information on their herd. And that collection of information would include, first of all, when the cow calved, and of course, they'd have to tag the calf at that time.

We would also collect what we refer to as weaning weights, and that's adjusted at 205 days. And then we also would collect yearling weights.

But moving back to weaning weights, we can have animals that may calve almost at the same time but may have forty, fifty, 100 pounds difference in weaning weights. And by taking that information and feeding it through a computer and making numerous adjustments—meaning age of birth, sex of the calf, age of the dam. You know, a two-year-old dam is going to produce a different-weight calf than let's say a mature five- or six-year-old dam. Well, by using computer programs, we can start adjusting all those calves back to a common age and a common sex, and we start comparing those cows. And what that resulted in is you had some cows that were doing a great job in herds, and then you had some cows that year after year weren't producing a very heavy calf or a very profitable calf. So what do you do? You multiply and keep heifers out of those very top calves, and you market those bottom calves.

That's really the basis of performance testing, is going into herds, and trying to collect data, and comparing animals within a herd to make genetic improvement. And while the university—and ours was called the Illinois Performance Testing Program—was doing genetic improvement, the breed associations were starting their breed program. Probably one of the best-known is the Angus, and we talked a lot about the Angus. It's called AHIR—Angus Herd Improvement Records. And of course, for the different purebred herds, they were sending in [weight and measurement] to their association. So they started tying those different weights to the pedigree, and then of course, from there, identifying animals that were superior in performance criteria.

Actually, forty years ago, we started a thing [program] that we call the Illinois Performance Tested Bull Sale. It's an event that has been held here in Springfield for forty years. Actually, one year it wasn't. And what we do is identify and bring in bulls to that sale that excel in genetic traits, and we sell those to purebred [and commercial] producers. About 20 percent of them go to purebred operations. And what we do is we identify actually six different traits that we think are of economic importance. One is birth weight, and you mentioned earlier about the problem we had when we started bringing in the Continental breeds and using them on British breeds, that we had a birth weight problem. And we place emphasis on birth weight, that we want lighter birth weights in those bulls, so when they go out, the people who buy those bulls will not have calving problems. The second thing we look at is weaning weights. And that weaning weight—we want to add as much growth up to weaning to those herds that purchase those genetics. Another one is yearling weight, and that would be a 365-day weight. For the feedlot operation—how much they're going to weigh at the end of their feeding period. And then there's two carcass traits that we look at.

One is rib eye area, and that's your rib eye steaks that you would go to the store and eat. And of course, the bigger the rib eye the better—and that's what we're trying to do, is put more muscle into those cattle. And the other one is what

we refer to as marbling. And marbling is really those little flakes of fat within the lean. And that's really what gives us our juiciness and our flavor to our beef. And that goes back to when I talked about Choice beef and Prime Beef—the more marbling adds value to those calves, as well, once they go into the feedlot. And of course, when you ship cattle to market and you got, let's say, some Prime beef cattle going in, and let's say—there's Prime, Choice, and then Select—and you've got Select beef, there might be a fifteen-dollar difference in the price that you receive for those.

It all goes back to the bull sale, where we try to select traits of economic value and show differences in those genetics—for commercial people, mostly, but there's about 20 percent of those bulls going to purebred herds. Some of them have even gone into AI—artificial insemination—studs.

Hull: And you get that information through sonograms, is that right?

Seibert: That's right. The birth weight, weaning weight, yearling weight, and even the maternal milk, those are all weighed traits, meaning those animals are weighed at a certain point. Now the carcass traits—we used to only be able to get carcass traits by harvesting animals, meaning that the breed association would take—much of it was what we called a standardized test, in which they used multiple sires, identify the offsprings of those, put them through the feedlot, harvest them, you know, on the rail, and collect the data.

Of course, through technology, and really pulling equipment from the medical field, we use ultrasonics now. And we can go in now at yearling weight, we call it—365 days, and we can scan future herd sires, bulls, and then heifers in a herd, and we can collect that carcass data, and yet also be able to use the animal then for reproduction purposes. So it's really had a major impact on improving lean composition, which is the size of the eye, and of course, quality, which would be the marbling of cattle. And that's all fed into this association, and the association, actually, they take these, and it really results in millions of data that was collected, all the way from an animal's born all the way until maybe the data is collected through ultrasounds. There might be some half-sibs that would go onto the rail and be harvested. Or maybe bulls that are used, and their offspring. So you use this whole thing, and it's all fed into the university. They actually historically have used supercomputers to analyze this information, and it's all compressed down to a trait that has really impacted all species of livestock, and it's called EPDs—Expected Progeny Differences. And what it tells is how much differences there's going to be in pounds at calf wean, weaning weight, yearling weight, size of the rib eye in square inches, amount of marbling. So it's driving the seed stock industry, as far as what the value is of purebred animals that go into commercial herds.

Hull: Now, at the bull sale, do they have to be registered, or do you have crossbreeds there, too?

Seibert: Actually, our British breeds, which would be the Angus, Shorthorn, and Hereford, they have to be purebred. All animals are registered, you know, in our bull sale, but those three have to be purebred, meaning that you can trace their pedigree back many, many generations. As the composites—as the Continental breeds came into the United States, there was two things that happened there. Early on, much of those animals' semen was brought in. And of course, what they did was they crossed those Continental breeds with existing—and many of them were British-bred animals—and they produce what we call F1s. And then they would upgrade those to F2s, which would be three-quarter bloods, and then to seven eighths and fifteen sixteenths.

So many of those breeds were really brought in, and in a grading up program, by having different percentages. The other thing, of course, some of them [Continental] were actually brought in as the animal, and they might have also brought some ETs—that's called embryo transfer—they might have brought some embryos in as well. So you have two things there. You have what we call full-bloods, and those would be the ET or the purebred animals that were brought in; you have purebreds, which are graded up animals that might be fifteen sixteenths, thirty-one thirty-seconds, or something of that nature.

Now, in our sale, then, the Continental breeds of Simmental, Limousine, all those breeds, we sell half-bloods, as well as three-quarters, as well as seven-eighths and on up the line. And really, in our breeding program, there's a pretty good demand for half-bloods and three-quarter-blood Continentals. And when you think about that cross-breeding program, it really maintains kind of that half-blood or quarter-blood Continental and British breeding in the finished product. So yes, we do allow—and we call them composites, which would be the half-bloods, three-quarters, seven-eighths, and that can happen in the Simmental and all the Continentals. The British breeds, we require them to be purebred.

Hull: Dave, where do you think the cattle industry is going to go from here? I mean, we've seen so many changes in the forty years you've been in Extension. Looking in your crystal ball, what do you see is the changes out there in the future?

Seibert: We're going to see specialization, you know. First of all, I think the size of the operations will probably continue to increase. We see some of those herds already getting larger. I think the second thing that's going to happen is we're going to see more specialization. Meaning specialization, there's a lot of niches out there as far as the beef cattle industry. When I talk about niches, I'm talking about branded-type products, I'm talking about how that animal might be raised. And when I think about branded-type products, there's one that probably stands out, and that's Certified Angus Beef. That has been a brand that probably has been around the longest than any of them and has the largest volume of any branded products. It's probably a name that's known. Of course, there's others. There's Certified Hereford Beef. So some of those are all breed-oriented.

The other thing is there's natural-type beef that's becoming very popular. Meaning those that may not have any growth-promotants or maybe not antibiotics, and each of those different brands have their own specifications that they must meet. And then, of course, there can be organic—there's organic-type beef. And of course, with that, organic-type beef, you have to have your pastures and all your feedstuff that you provide to those animals have to be organic-certified. There's been a lot of interest lately in grass-fed beef. And actually, when I think about the beef cattle industry and beef that's consumed worldwide, grain-fed beef is kind of a common factor here in the United States, but throughout most of the world, grass-fed beef is really the norm, especially as you travel to Australia, to Brazil, to Argentina. Grass-fed beef is the only beef you find in most of those, simply because they don't have the feed grains that we have here. And that's really the result of our grain-fed beef, is surplus of feed grains that we had here. And of course, then the taste and the tenderness and the juiciness and the flavor, you know, of those grain-fed beef. Actually, if you look at the number of brands, there's over fifty different brands that we have, that are produced here in the United States, and some of those we've mentioned—breeds—some of them are method-of-production, some of them are different types of [specifications]—whether it's natural, organic, grass-fed. So that's one thing we're going to see, is a lot more specialization. And as long as there's a market for that, I think we'll see a great expansion of that.

The other thing, I think efficiency of production. To maintain cows during a year is a very, very costly enterprise, meaning that cow usually produces one calf, and once she's weaned that calf, you have to maintain that cow on pasture or something. So what we're trying to do now is reduce the cost of wintering those cows. Historically, we used hay as our main feed source. I think we're going to move to crop residues, meaning corn stalks, straw, that type of thing, to help winter those cows to reduce the cost. And then we have another product here in the United States, and that's really our co-products, I call them, out of our ethanol industry, which would be our corn glutens and our distills grain. And they are playing a much, much bigger role in the beef cattle industry simply because they can supplement those poorer feed supplies—the straws and the stalks. And I think we might even see some of the feeding industry maybe move back to the Midwest, simply because of the amount of feed grains that we have available here. We're sure seeing it happen in the dairy. You know, much of the dairy industry went to California, and we're seeing that come back to the Midwest simply because the cost of feed out there is just too much.

There's going to be more specialization, larger herds, probably trying to reduce the cost of maintaining those cows around. Another area that's receiving a lot of play is efficiency. There's a lot of research being done now on identifying animals that have differences in their feed efficiency, and it just goes all back to the EPDs, the Expected Progeny Difference. We have around thirty of those [EPD] traits that we've identified. We don't have one that's a feed efficiency yet, but they're working on it. Actually, the University of Illinois is very, very involved in working with two breed associations. One is the Angus Association, that have

genetics based on a lot of cattle out of Dixon Springs, which is one of our research stations down in southern Illinois. They're [U. of I.] working on the Simmental as well, and that would be cattle that are brought out of Montana to the University of Illinois and put on feed lot, feeding troughs simply because they have a new facility over there that can measure feed efficiency for each individual animal that goes through the facility.

Hull: We see, anymore, quite a bit of discussion with consumers on what they want to dictate to the producer as to animal welfare situations. Do you see that that is going to play a part in the beef industry, as well as what we see in the poultry and the pork industry?

Seibert: It used to. I mean, not in the past, it didn't. And when we think about what has happened in livestock production, we used to just raise whatever species it was and take it to market, and sell it at the market, and the person would buy it, and you wouldn't know anything about it from that point on. Well, as we went to these branded products—and that's kind of the result of consumers. They're saying, "Hey, I don't want..." Not all the cars are black and of the same color anymore. You know, whenever automobile industries first started. Everybody has different desires and different tastes and different criteria they would like to have. So the consumer, over time, is playing a big part in telling and dictating, you know, what we're doing. And the branded product was one of those.

The other thing I think that's becoming more and more is we're tending to trace those animals all the way from where they're calved or where they're born all the way through the packer and into the retail location, because that consumer wants to know how that animal was raised, that there's no residues in the product that they are purchasing. So the consumer is playing, and will continue to play, a very large role in what type of product we produce—also how we raise that animal and maybe how we care for that animal.

Hull: That brings us to premises ID and animal ID. You're seeing more of that being practiced now?

Seibert: Exactly. And that goes all the way back to first of all, premise ID is really mainly to prevent the outbreak and spread of a disease that might come to the United States. If a disease would occur in a particular area that we know where all the other animals are within, let's say a twenty-mile or a thirty-mile range, or a five-mile range of that animal... And that's really premise identification, and that would greatly help in case of any outbreak of a disease that might happen. And of course, in order to market animals, many of the packers now are demanding that you have a premise ID. Before you can actually market it, you have to have a premise ID. And the next step, then, beyond that, is to have individual animal ID. And of course, many operations here, and I think in the Midwest, at least, with beef cattle, dairy—maybe a little bit less for sheep—have individual animal identification. As we move to some of the other species, poultry and hogs, they would have PIN identification. So yeah. And now, of course, we have access to electronic

identification in which we can go in and electronically read those animals. It has a button tag beyond the visible tag that we see in animals. And of course, as we process those on the farm, as they move through let's say a marketing setup or even into the packer, that we can maintain that identification all the way through.

Premise IDs are something that we definitely should be doing, and it's not required, but it's something that we highly recommend that producers do. Packers require it as well. Individual animal identification is still in the development stage as far as its being required, but I think it's moving there as well. And then, of course, the other thing is country-of-origin. I think that's going to help drive both those, I think, as well—the premise ID as well as the individual animal ID.

Hull: Currently, where is the beef producer on those issues?

Seibert: I would say if you're a progressive cattleman, meaning for sure a purebred person, you have individual animal identification anyway. If you're a progressive commercial operation, you most likely would have individual animal identification. Because it helps really build and determine the economic value of all of your animals, as well as being able to sort off those that are not near as performance-oriented and market those. So we're definitely moving to it. We encourage it, but we haven't gotten there yet. I think with time, people will realize that it's something they need to do.

Hull: Have we missed any points you want to bring up, Dave, at all?

Seibert: I think we have pretty well covered most things. I guess the important thing is, beef cattle used to be just something we did, but it's a very scientific business now, just as so many. And there's a lot of technologies out there that we can use, and those might be in type of rations we use, and in my meetings, I encourage people to collect feed samples on the feed that they have. I encourage them to use ration-balancing programs because the cost of feed is one of their biggest inputs. Reproduction has really changed as well. We see a lot of AI being used—artificial insemination. We now even have estrus synchronization, where we can go in and synchronize a group of heifers or a group of cows and what we call time-mate those. And then, of course, in the purebred industry, the ET—the embryo transfer—is being used extensively. Because that way, instead of getting one offspring per female, all of a sudden, you can what we call super-ovulate that cow, and we can end up with six, eight, ten, twelve, maybe even fifteen or twenty offsprings per female. And that allows us to really multiply the really superior animals. And I guess over the years, AI—artificial insemination—has really had a super big impact because it allows the concentration of the very best sires in a breed to be used by anyone that's a purebred breeder as well as a commercial producer. So all these technologies are being used. It has really improved the efficiency of operation, and I think we'll probably see more of them come down the line. And the important thing is incorporate those [new technologies] as rapidly as possible, because that gives you a competitive edge. And we here in the United States, we have to compete with Australia and New Zealand, Argentina,

Brazil, even a country down South America—Uruguay is a very progressive country. They're mainly a grass-fed country, but they use all the technologies we have up here. So we have to really make sure we become an efficient producer of a high-quality product as possible.

Hull: This afternoon, we have an opportunity to visit a farm that's applying all these basics that you've been talking about this morning. Where do you think we're headed with Extension in the state or in the country, as far as that's concerned? You've been forty years into it now.

Seibert: Yeah, as any governmental agency, or many businesses, we have some economic restraints right now. And really, the past year or two, we've seen some real troubling times for Extension. One of the things that we had was the County Extension Offices, who we mentioned had these three-pronged—or Extension in general—have these three-pronged support. One of them is federal support. And over the years, the federal support has been what we call level funding. And of course, with inflation, you tend to have an erosion of dollars there; you don't have as much. The second of all is state funding, which we've seen some increases in that over the year, but just in the past year, we had a loss of much of that state support because of the budget here in Illinois. And it really resulted in what we call our match for our county offices. They raise funds locally, and then they also get a match from the state. And they thought for a while that they money to make that match would not be there. So it was really tough sledding for those counties. That money did come through, but I think this next year, now, they're funding at 85 percent. So we're seeing some real reduction in the amount of funding.

And then the other area is myself as a center educator, and then also we have the state specialists that work across all areas. That's supported by general revenue funds, and we've seen that money actually decrease over time. So in my particular situation—I'm an area educator, really an animal systems educator. I cover a fairly good-sized area. Actually, I've been in [Extension], like I mentioned, in this forty years, and I've covered over sixty counties in Illinois with only four being the same. So I basically cover anywhere from Interstate 80 down to Interstate 70, and even lap over some from that as well.

When we moved to our center concept, there was like 150 positions, and now we're down to about ninety positions. So we've seen a decrease in people like myself, and we're going to see further erosion of that as well, on the area basis as well as the state specialist. So there's going to be fewer Extension people in the future, especially specialists and educators.

Hull: One more question. In your forty years professional Extension, what do you consider your greatest contribution?

Seibert: Actually several. Two areas I mainly work with. One, in the youth area. And I haven't mentioned a lot about that, but I have worked extensively in the 4-H program and across the youth program, whether that might be in the county basis,

whether we provide workshops there; whether it might be on an area basis—and I hold a lot of area events. One of them I've been holding in Morton, Illinois; it's been a meats-judging contest, and I think it's been almost thirty years that I've held that meats-judging contest. I was also involved in the state fair, for it was over thirty years I was involved in the state fair. So that impact... I guess as I noticed young people coming through 4-H or FFA, or working with livestock, having an influence on them has really been something that I really treasured. And I've coached the State Livestock Judging team four years. I ran the national contest down at Louisville, Kentucky, at the North American, for four years. So that's one thing that's happened, is working with young people, seeing them maybe going into agriculture, maybe going into another field, has been very rewarding to me, because you influence people. And that's what we're about; we're about influencing people.

The other thing is—probably what's most rewarding—is working with an operation and seeing that operation develop and mature, and use all these technologies we talked about. That is very encouraging, and to look back and say, “Well, I had an impact on that operation,” and I had impact on hopefully many operations throughout the central part of Illinois—maybe even broader-based than that.

The other thing that I've done a lot is travel internationally. I started, actually, when my daughter going to Australia. And I went down to visit her and went to a number of stations and studs down there and developed a PowerPoint presentation. I actually gave it I think thirty-two times throughout Illinois, Missouri. And I've done the same thing by going to Brazil, Argentina, to Uruguay, the Ukraine, Mexico, and bringing back and sharing international agriculture with people in, like I say, the Midwest. Mostly about livestock production, mostly about cattle production, but also talking about the countries. I've greatly enjoyed that—sharing international agriculture. And it goes back to many years ago. I had a coworker, and he was very fluent in Spanish; he went down to Brazil, mainly to talk about soybean production down there. And I remember him coming back and saying, “Well, they will never be competitive with us in soybean production.” And unfortunately, they are the leaders in soybean production. And I guess that's what we have to be aware, that the world has shrunk, in the sense that the technologies we develop or they develop, we use and exchange, and they can be just as competitive, just as efficient in production, as we are. So the international travel, the working with producers to really improve their productivity, their enterprise, and then the youth component has been very rewarding.

Hull: That's what Extension's all about.

Seibert: Right.

Hull: Thank you, David Seibert. We appreciate this time.

Seibert: I enjoyed it.
(end of interview session)

Interview with David Seibert

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Interviewer: Dick Hull

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Hull: We're on a farm here, with Dave Seibert. Can we start over? Okay, here we go. We're at a cattle farm here that we're going to try to illustrate the practices that we talked about this morning with Dave Seibert, who will explain this forge cutter and how it works. So, Dave ...

Seibert: In beef cattle production, of course, there is really two different seasons that's probably the most important on feeding the beef cattle herd. Of course, during the winter season most of the time we supply cows with a harvested feed product and probably the one that is used the most in Illinois and used for many years, has been hay as being that source of winter feed. Hay can, of course, be harvested all the way from just loose hay if we go back many years ago whenever they just harvested and then put up loose hay. Then we came in with small balers and then, of course, big round ers; now we're using quite a few big square balers. In that hay field, which is usually cut maybe three, possibly up to four times a year, the first thing you got to do is use some type of mower to mow that hay. This particular mower here – it's actually a pretty good size mower – on the front here

has a disk blade that cuts it. You can either have a disk type blade or a cycle type blade mowing the hay. This is actually not only a mower but it is also a hay processor in which that hay flows through. It has rollers back here that actually would roll that hay; that kind of conditions the hay. The reason for that is it really makes the hay dry out a lot faster. And then these wings on the back of it can either allow the hay to be disbursed just the way it's cut, or even moved together in to a windrow. So it can mow a lot of hay. It's a big mower and, of course, also process that hay.

Hull: Very good. Can we go ahead and proceed to the rake. That's the next process I think in the hay making. Okay, we're standing in front of a hay rake. Dave, you want to kind of tell us how it works.

Seibert: Yeah. That mower back there, it looked it might have been a twelve foot mower or something of that size. Quite often with the baling of the hay, they want to bail more than that. So this is really kind of an open wing rake here where you can pull maybe two of those rows together. Again, what it does is brings the hay and puts it in to what we call a wind-row and then, of course, with that they can come in and bale the hay. The thing about this particular type rake here, the important thing, is to handle the hay gently. This is getting pretty close to being dry, ready for bales. In the hay that you're making, especially the legume part of that hay, the leaves are what really is a nutritious part and if you have a rake that just beats the thunder out of it, you knock a lot of those leaves off. So you want to handle that hay real gently. You want to get it into a row so that baler can come in and, of course, harvest that, bail it and get it ready for storage.

Hull: Okay. Dave, what do you call this piece of machinery?

Seibert: Well, this would be a bale hauler or bale accumulator. This particular operation uses big round bales and, of course, when they are baling the hay, the bale, once it's fully made, it's just dropped out in the field. So what you have to do is move that bale off the field so you don't have a dead spot where it is and, of course, take it to storage. So what this does actually, as you drive down, this arm here would actually pick up this round bale and put it, you know, over onto the hauler. There actually can be two sets of bales here. You can have a row over on this side over here as well as a row back here. So, what this does is puts probably six bales on here and hauls six bales at once, as compared to just putting one on the back of the tractor and taking it to storage. So, it transports the big round bales from the hay field to the storage to the location where it's stored.

Hull: Okay. Now let us take a look at the baler itself.

Seibert: Okay, yes.

Hull: Okay, Dave. This is what we call a round baler, is that right?

Seibert: That's correct. Last time we just saw the hauler. Of course, once we break the hay, this would actually be what puts it in the big round bales. The pick-ups are down here. Actually, there's belts on the inside that will start that bale in a small circle in a cylinder; it will just keep expanding that cylinder until it gets – and I suspect this is probably a five and a half or six foot round baler, they call it – once it, of course, gets that ... and there's some compaction occurring there. Uh, the nice part about round bales is it tends to help shed the rain. When you think of the old haystack as being something that the water would run off of, a similar type thing happens here with round bales, especially if it has some grass in it. Now once that bale is fully developed, then they can do different things. One is they can put string around that bale and it's usually about ten or twelve wraps of string around the bale. The other thing is, what this particular baler uses here is a net wrap; we'll see bales here before long that actually have a net wrap on it. Again, it holds that bale compact and really it reduces the amount of spoilage that can occur as compared to a bale that's not wrapped. One thing important about a bale is try to protect it, not only from rain on the top and that kind of helps do that somewhat, but also moisture on the bottom. We'll see that in a while. So mostly round bales are made here or that's what their source of roughage is, is round bales. Of course, all of this would be for winter feeding the beef cattle.

Hull: And what's the piece of equipment right behind it?

Seibert: That is actually a hay processor. This is where you take the bale and you can see up here actually where they pulled the net wrapping off, because you don't want that plastic to be ingested by the cow because it can create some problems with the digestive tract. But what they can do is in here is put the one bale here. Another bale they can carry out there. This does have a chopper or a kind of a flailer on the side here. Then that hay is conveyed out, and hits this, and really lays the hay in a row. So this is what we call a hay processor that processes that hay, lays it out in a row for the cows to consume. (pause) There's different ways we can feed hay. One, and what a lot of people do, is use round bale feeders and actually they take the bale out. They would put a ring around it and limit the access to the hay. Another way, of course, is the hay processor. A third way is actually what we call a hay—well, it's also a hay processor—but actually it's a grinder in which you would drop one or two bales. It would have scales on it so you know how much feed you put in there. It would tend to grind that up. You would also put other types of feed with it, meaning sources of protein supplement, some other feeds that you would balance a ration with. So that is, like I mentioned, three different ways of actually feeding hay. One is a round bale feeder. Second one would be a processor. The third is where actually you take the hay, grind it up, mix it with other ingredients to have a complete diet then.

Hull: Now behind you is a feeder, is that right?

Seibert: Yeah, this is actually a feed hauling and conveying system with the long auger on here; it probably would be best to take the feed and convey it in to some type of stationery feeder. We had out here some creep feeders and this would work quite

good for that. You would mix your diet into it and you would haul it out to let's say the pasture, or wherever that it is—maybe a feed lot and put it in a bin and then, convey the feed out of the bin, or either you would be a self-feeder that you would feed or convey out of the feeder to feed. So, this is really a kind of transport system to move the feed to another storage area.

Hull: Now, that's basically for the calves, right?

Seibert: That's right, yes. Like the creep feed, this would be for the calves or it would be, if you had some cattle in a feed lot where you would have self feeders there. Maybe you have a storage bin close to a feed lot in which you want to store some feed there. Kind of hand feed them. So, this is a transport feed to a storage location or to a self feeder.

Hull: And we have another feed wagon here?

Seibert: Yes, this is actually a mixer. You couldn't put big round bales in this particular one. It has to be feed that is already processed and if you had, let's say out in the pasture or even a feed lot situation, where you had a trough you could, of course, mix feed in this and then, of course, go out and just ... on the other side is actually the conveyor that conveys it out and you can drop it in-to a trough area. So it's the feed cattle in a pasture situation made most likely along a trough. And that point is put there, that would be the conveyor. That's where it has an auger in the bottom that conveys the feed forward. Those augers there actually would carry the feed out and dump it in to a feed trough.

Hull: And keeping in mind that this is only a cow-calf operation, so we wouldn't be feeding calves any larger than probably five to six hundred pounds?

Seibert: Yeah, they would have heifer development that they would use this for as well. They have fed some cattle, not a large percentage of them. Most of the cattle go to a feed lot, but for their heifer development, if they want to supplement those calves that is strictly on hay or maybe on pasture and it gets dry, they would use this feeder here to go out and supplement additional feed to them. Feeding as we mentioned, just kind of sounds just like taking some feed and dumping it out for the cattle. Well, it's much more important not to just take feed out but to make sure you got the right balance of feed of different ingredients. This here is actually an electronic scale. This whole mixing thing is setting on a scale. So when you put in, you may have to for that ration put in, an energy source like maybe soy hulls. You might have to put in some protein supplement. You might have to also put in minerals and vitamins by your ration. You hopefully have a ration balancing program; it would be a computer program that requires x number of pounds of this ingredient and x number of pounds for two or three other ingredients. Of course, with this electronic scale, it will tell you exactly how many pounds you have of each of the ingredients as you add them in; it allows you to come up with the proper mix of ingredients that meets the nutritional requirement of the animals that you are feeding. Of course, there's a lot of difference in what the nutritional

requirements for let's say a bunch of calves that maybe are creeped² as compared to heifers that's being developed, as compared to steers that's being finished, or even brood cows that may need some winter supplement. So, again, the scale is real important and it ties to a ration balancing program.

Hull: Dave, we're looking at a new source of feed supply for cattle here. Can you elaborate on that?

Seibert: Yeah. We're real fortunate here in the Midwest because of the expansion of ethanol plants. You know, many people think that once they use corn the only product they end up with is ethanol. But fortunately for livestock producers, about a third to a half of that product ends up as what we call distiller's grain. That's what I have in my hand here. It's just a great source of protein supplement for cattle. A lot of it's used in the feed lot. Some in the dairy industry. But, especially when we think about the cow-calf industry, we can use this to supplement lower quality forages. I mentioned this morning, one thing I think is going to change the livestock stock industry is, we're going to use a lot more of what I call crop residue, whether that might be straw [or] whether it might be cornstalks. One piece of equipment that this particular operation plans to buy is this bale processor where you can dump two big round bales of cornstalks, straw, even lower quality hay; with that, you mix this distiller's grain. Now, what is the value of distiller grain? Well, it's a couple of things. One, it's a super protein source. It runs about twenty-eight to thirty percent protein, which is very high. Second of all, it's a good mineral source. It has very high level of phosphorus in it. And the third thing, it has a fairly high level of fat. It runs about eight to ten percent fat. So here we have protein. Here we have fat for energy. And here we have mineral, meaning phosphorus, which is one of our most expensive minerals to purchase and to use to supplement our cows. Now, the other thing when we use this, calcium is fairly low so we have to make sure we are supplementing calcium and some of the vitamins and minerals that we need as well. But what they have here is a source to supplement the round bales, which you will see next, and to really provide a balanced ration for this cow herd, either during gestation or during lactation. The product they got here, they got fairly reasonable with trucking and everything. That's a nice part about being in Illinois. We have plants throughout the state. I believe now we have eleven or twelve plants with a few more planned to be built. We are actually about number two or number three in ethanol production in the United States. Of course, that means that we're going to end up with a lot of this great feed for beef cattle.

Hull: Now, this product comes either dry or wet. I assume this is wet ...

Seibert: That's right. Really, I encourage operations, if they are going to use it, is to use what we call the wet product. Now the wet product can have some range of moisture. There is some plants, and it can be up to seventy percent moisture, thirty percent dry matter. This particular plant they are getting [product] out of

² Creep feeding is a means of providing supplemental nutrients to nursing calves

usually is about fifty-fifty—fifty percent moisture, fifty percent dry matter. Being that dry, they can pack it, as you notice here, and as far as storing it, that's critical to get it packed to get the oxygen out of it.

Also, when you think about a drier product like that—meaning fifty percent moisture, fifty percent dry matter—you don't have as much in trucking [weight] when you move it as compared to a higher moisture product. The other thing too, is the plant does not have to dry the product. There is a lot of this that's moved by rail. It's even moved by barges, by containers. It is sent all over the world. The competitive advantage we have here is the plant does not have to dry this product. That requires a fair amount of energy to dry it and, of course, we can buy the product a lot cheaper. The other thing is the product that's wet like this—fifty percent moisture, fifty percent dry matter—is actually a superior product as compared to the dry product. A lot of this being fed; I think this is what is going to help keep livestock industry in the Midwest and in Illinois.

Hull: What about the keeping qualities of it?

Seibert: Yeah. Whenever you buy it wet, you know, you have to figure out how you are going to store it so you don't lose it. There's the number one thing: if you're going to store it, you don't want a really wet product, meaning that seventy percent moisture. You just can't pack it, you can't get on top of it. So with the fifty percent dry matter, the number one thing about storage is getting the oxygen out of it. You notice how they drove up and down here that allowed them to pack it. Kind of like a regular silo that you put silage in, packing is extremely important. After you once get the oxygen out of it by packing it, then you probably need to think about some means of covering it. And covering it can be a combination. First of all they might treat it. They can treat it with salt; that's an option. You could also treat it with limestone, meaning put limestone on top of it. The third thing is actually using propionic acid³ and spraying that on it; that's what they are doing with this particular location here. Probably even with doing that, you'll still want to cover it with plastic in order to keep the water from leaching whatever you spray on top of it through it. With limestone, you may not have to cover it as much as, let's say, the other two—the salt and just strictly propionic acid. The nice part about the limestone is, it is a source of calcium so it can really be mixed in with the feed and, of course, it really helps supplement the calcium part of the finished diet.

Hull: Dave, tell us a little bit how the availability of this and just how the producer can get ahold of this product.

Seibert: Yeah. Actually, this past year I put together a list of all the plants in Illinois and within fifty miles of Illinois, and I think I came up with thirty-four plants. Now, these plants was not only distillers like we have here, which is an ethanol production. There was also dry-miller plants, we call them, and that's all the new

³ Propionic acid is often used as a fungicide.

plants. Another thing is wet miller plants, and they make our corn sweeteners. There is one of those in Pekin. There is different ones. There is one in Decatur. Out of those comes the gluten. And then a third product would be soybean hulls, and there is plants just all over Illinois—many of them in the central part of the state—that produce soybean hulls.

As far as acquiring this then: the bigger plants they have their own marketing people; you just call them up and tell them how much you want and determine a price. Sometimes they will post the price on their website. Other times you have to call them to get the price. Other ones—if they are not a real big plant, and they may only have a single plant—they will go through our commodity broker. That may handle product from six or eight different plants. The price fluctuates. It would be the most reasonable during the summer and it would be the most expensive during the middle of the winter. The reason for that is the number of animals that are being fed. You know, as we move into the fall, calves are weaned, feed lots tend to fill up with a lot of cattle and then you have to feed a lot of harvested feed and the price of this would go up really high, as compared to this time of the year, or even earlier than this, when feed lots are not full. A lot of animals are out in pasture so the price is not near as high. So, the ideal thing to do is to purchase this stuff some time during the summer or the late summer or early fall. Store it because you can buy it fairly reasonable. Then, of course, what you have to do is make sure you store it where you don't lose a lot of it. And that could be to the people's advantage. So, really, we're blessed here in Illinois with a lot of product and access to that product. I think we're very fortunate to have this type of product.

Hull: Dave, there seems to be some confusion between this product and gluten. Can you kind clear the water there?

Seibert: Yeah, there's two different types of processes. One, and the one that's been around for a long time, is what we call wet milling. Wet milling is really to produce the corn sweeteners. There is a plant in Decatur that is a wet miller plant. There is one in Pekin that is a wet miller plant. And out of those comes a product we call gluten. Gluten, as compared to this, would be a little darker in color. It wouldn't be near as fine as this. Actually with gluten, what they do is first they soak the corn and they separate the different parts of that corn—the germ from the hull from the rest of the corn. So it comes out a little more flaky as compared to this right here. And now this process here, which is our dry miller, the first thing they do is grind the whole grain and then they soak it. So those products are totally different. Stepping back now to the gluten product, it is not near as high a protein. Distiller's [grain] has about twenty-eight, thirty percent protein. Gluten has about eighteen to twenty percent protein. Second of all, fat. Fat on distiller's, which we have here, has about eight to ten percent fat whereas gluten has about two to three percent fat. Phosphorus is about the same in both those. So, gluten comes from wet milling, comes from producing corn sweetener. The distiller's which we have here is dry milling and it comes from ethanol production.

Hull: Thank you, Dave, for clearing that up for us. Today, we're standing in front of another feed source, that of hay. We saw how it was baled and processed and the machinery was done. Can you enlighten us on what this is about here.

Seibert: Yeah, this particular operation has a pretty good size number of cows. They are both spring and fall calving cows and, of course, that round baler down there that we saw, this is what really the bales look like once they come out of that. There is different sources of hay they use here. One, of course, is in the spring of the year. There is probably a lot more pasture production than is needed, for just the cows on pasture. So they go out and they harvest this excess pasture production, in the spring of the year and that would be part of this hay that they produced here. The second thing is, they have a lot of grass waterways⁴ around. Of course, they mow and harvest those grass waterways as a feed source. Then the last thing is just actually out of their hay fields that they make multiple cuttings out of. The important thing on these round bales is trying to reduce the loss from spoilage. One loss can be from the water from the top. Really, by the net wrapping—you see it on the bales here—this is wrapped probably about two or three times around it and it is kind of a stretch type wrapping and that really helps shed the water. The other thing is, of course, to have it on some location where you don't get all that moisture coming up from the bottom. I guess the thing I see quite often is people taking round bales, putting them on the north side of a tree line and having the trees shade it. And, that's probably the absolute worst thing to do because you got to keep the location real dry and everything.

So what they will do with this hay right here, of course, they will either use their processor which they have used. They also want to purchase a hay baler or hay bale processor that will actually drop two of those bales in it. They will supplement that with the coal products that we have down here, meaning the distiller's, and provide some minerals and vitamins and that will really provide just a great feed source for this winter. Again, in our feeding of cattle – especially a cow herd – during the winter, meaning late December, January, February, even in to March, we have got to have some type of harvested feed and that is what this is right here. It's your source of harvested feed for the cow herd during the winter time. And, again, you harvest it during, starting in the spring through the summer, and store it and then, of course, feed it to them during the winter. You notice there is quite a bit of concrete here. This particular location was really a confinement feeding barn. They actually took the building off of it. They put some rock where the pits were and everything, and it really has made a pretty nice dry location to store these round bales of hay.

Hull: And that was a cattle feeding floor?

Seibert: That's right. There was actually two buildings here. They finished cattle here on this particular location. It was a pole building with a roof. Actually they had a feed trough down here with an alley running down the center between the

⁴ Areas of natural drainage on sloped ground, planted with grass to control erosion.

...(inaudible) ... is try to utilize what you have available and, with this concrete floor and the rock they put in the pit and everything, filled it up. It really is an excellent place to store hay and reduce the spoilage.

Hull: I see they don't have the bales butted up against one another. Is there a reason for that?

Seibert: I'm not sure. Ideally, I like to see the bales face north and south. Now, in this particular situation the way the building is, they had to run east and west. I also like to see them butted up tight against one another. What that would do would reduce the exposure to rain and things. I guess I would prefer to see them butted up tight.

Hull: I see. Okay. Good. Dave, we see quite a stack of (unintelligible) feeders here. What is the purpose of those and just how are they going to utilize those?

Seibert: One thing the operation does here, they don't tend to bring their cows up and confine them in a barn or something during the winter. They tend to keep the cattle outside in a kind of a pasture setting and for winter feeding they will actually use these as their feed trough. It's a portable kind of feed trough where they can move them from one year to the next. We talked about earlier, you know, their desire to get their feed mixer and their bale processor that can weigh and mix in their distillers with their hay and everything. And what to do with these feed troughs is ... they are actually going to set up pads out in the pasture. They will have limestone or rock down. Some of them they will have geotextile material that they will put down first and then the limestone or rock over the top. They will line these up and then they will use these for winter feeding for the cow herd. This particular operation, as we mentioned, some of them are spring calvers and, of course, the level of nutrition for those spring calvers after they calve will be a lot higher, different types of ration than their fall calvers. We'll see those in a little bit with some of their young calves. These will be put in ... kind of butted up end to end in a row. Multiple locations to feed their cows whether it is their spring calvers, their fall calvers, their heifers that they are developing in different locations. So, this is kind of where they put the feed—once it has been processed, weighed, the rations mixed up—out to feed the cattle.

Okay, the next thing we are going to be doing is actually moving to the pastures. We are going to talk about the pastures. As far as what is ideal in a pasture setting is to have some type of fencing system to subdivide that pasture. We think about pasture and we think going all the way back to the buffalo when they were here in Illinois. Actually buffalo would graze in a location and then they would move down maybe ten or fifteen miles to another location and graze and then they would move to another one. They moved around six, eight or ten times before they come back to that initial location where we started (inaudible). That's really the concept of management intensive grazing or even rotational grazing. The buffalo started that. And that's the way a lot of the range cattle did. Whenever we started to build fences, we started to confine animals and we actually went then

to continuous grazing. We put cattle in a pasture and let them graze forever. That's really not desirable because big cattle and all grazing species, they are selective grazers. They will eat what they want and kind of leave the rest of it.

So, what we are doing is moving back to what the buffalo taught us many years ago, to what we call rotational or management intensive grazing. With management intensive grazing we tend to divide that pasture up into maybe six or eight different paddocks. Maybe ten or twelve different paddocks. So we had the cows maybe consume this paddock for, let's say three days, and then we move them to the next paddock and it may take twenty or twenty-five or thirty days for them to rotate around. Well, , one of the downsides of that is you got to build a lot of fence. And, of course, historically we tend to have woven wire fence. We have barbed wire fence that's pretty expensive to build and everything. So in order to subdivide those pastures we are using a lot of what we call high tensile single, maybe double-wired fence. That means that we got to get electricity out to those locations. One of the things that we can do is use, again, technology, and that would mean a solar fence charger. That's what we are seeing here is a solar fence charger that probably generates electricity for this particular line of fence, maybe one or two other lines of fence and that way you don't have to worry about running electricity out there. You can build these single wired, doubled wired high tensile fences fairly quickly and fairly reasonable. So, it's a way to really better manage the pastures that we have out there and it is a resource that we want to make sure we get as much production out of that pasture as possible. Management intensive grazing will really allow us to do that and technology, as we see here, which was really developed in Australia. They, of course, have been doing this a lot longer than we have and we have adapted that here to the Midwest and really throughout the United States.

Hull: Good. Okay. Well, let's take a look at some of the pastures and the water sources and the corrals and carry on there. Dave, you mentioned a while ago that they were going to set those bunks on some type of surface. Do you want to illustrate what their intent is here?

Seibert: Yeah, I guess, feeding areas can become pretty wet and cause some ... at least tear up the pasture and things ... and this particular feeding pad here is set up to, I think, be as environmentally friendly as beef cattle people are. I really think cow-calf people, there is probably no part of agriculture that is more environment friendly than they are, simply because they got all this grass out in the pasture. We are recycling these nutrients back out to the pasture here. Actually this is a feeding area; it's twenty feet wide, two hundred plus feet long. They will put about twenty plus of those red feeders that we just saw recently on this and, of course, they will come down this lane during the winter, drive off, just to put that finish, the complete ration, out here for the cows and, hopefully, that will keep them out of the mud. It will really allow a place that they won't tear up the pasture or anything like that during the winter feeding period. The other thing too is, it's limestone, so really even if it does get a little messy they can blade it off and put it in a manure spreader

and spread it out here and all we'll do is improve the ph⁵ of the pasture out here. So, it's really a feeding area for this winter to keep those cows up and dry so they don't tear up the sod that we have out here.

Hull: Now, will there be a fence run along this roadway as well?

Seibert: No, there will just be feeders just strung down the middle of that and they will be able to come from both sides then and eat on both sides of it. So I would think there will probably be two hundred, three hundred cows that will be feeding in this particular location.

Hull: Very good. Dave, the pastures are broken up into how many acres generally in each one of these pastures, roughly?

Seibert: Yeah, these have about seventy acres in it. And really the concept of management intensive grazing, I think the important thing is how many paddocks you have. And even if you have twenty acres, you might want to divide those up in to six or seven paddocks but maybe only three acres each. Of course, if you only had a few cows that would be what you would do. Of course, here we got a lot more cows so our paddocks are much larger. So again, what they do in management intensive grazing is to rotate through these different paddocks with, hopefully, three to five to six days in a paddock and then move them to the next paddock. Then, of course, rotate around every twenty-five, thirty, maybe thirty-two days or so.

Pasture is an area that is really ... it's most interesting when you start talking about pastures. It used to be that we just had continuous grazing. We just kind of grazed what was out there, the natural forages that we had out there. But now, I would say grazing pastures is more of a science. First of all, you have to make sure that your fertility level is what it should be out there because especially our more improved legumes and stuff like alfalfa and some of those, require a much higher level of fertility than, let's say traditional kind of bluegrass or that type of thing. So, fertility is number one. Make sure we got proper fertility out there. The second thing is to make sure we are using the right kind of forages and the right combination of forages, depending on where you are in Illinois. In the southern part of Illinois it's much different environment down there, meaning it's much drier. It's much hotter. So the forages that you grow down there would be probably a lot different than the ones you would grow in the very northern part of Illinois. Thinking about southern Illinois, fescue is a predominant species of forage down there. But as you go north, on our grasses, probably orchard grass and broom grass is a preferred species up in that area. But in most pastures what is ideal is to have a combination of grasses and legumes. Grasses, of course, are like your bluegrass that you might have in your yard that you might mow. Fescue down south. Orchard grass, broom grass, those are really are the predominant, what we call cool season grasses here in Illinois.

⁵ Acid – base chemical balance.

Then legumes are those which, of course, provide really a higher level of protein. It really also provides nitrogen to our grasses and those would be like alfalfa, many of your clovers. That can be red clover, white clover. There is lespediza. There is numerous different types of forages. So what you really want is a combination of grass and forage in your pasture. It's really the best nutrition for the animal. By having legumes, it really provides protein to your grass.

Now the second thing, is managing those pastures after you have them set up. And the last thing you want to do is just let the grass go to maturity. I always use the concept of why we mow our grass in our yard and the reason we do is to keep it vegetating. I think you can probably look at your yard or anybody's else's yard and they don't see bluegrass going to seed head. They keep it mowed. By doing that it is much more nutritious. It's much more palpable, you know, for the cows. So by going through and rotating through those pastures, those paddocks, about every twenty-eight or thirty days, it's just like mowing hay. So that is where management comes in. You have a system set up to rotate through those pastures. Pastures can be very productive. It can start really early in the spring, go through in to the fall, with proper management. So, again, what we see out here—if you look across here you can see that the pastures still have some forages there. It's got six or eight inches of residue out there but you don't see seed heads that's gone up to maturity. These particular pastures here are used for grazing but they are especially used for calving in the spring of the year. If you notice on this grass, you see it looks kind of shiny. That particular grass is mostly a fescue out there and you might say, Well, what does fescue do? Well, it's good grass in the spring and the fall. It's not very good during the summer. But, if you're going to use that pasture during the winter, whenever it's wet, there is probably nothing better than fescue to keep really some vegetation out there so it doesn't get torn up. So, these here are used for calving during the spring of the year as well as during the summer for some grazing.

Hull: Now, do they clip these pastures?

Seibert: Yes they would. Right. Maybe not every time they cycle through but maybe every other time they would cycle through, they would go in and clip them. And that's really important because, again, those animals are selective grazers. They are going to go eat what they want and not eat, you know, what they want to leave. And, of course, you may have some weeds grow up. You may have some of the grasses go to seed, uh, you know, to maturity. So, by going out and mowing it, that really lets that plant be vegetative then, stay green.

Hull: Now we saw barb wire earlier. Can you kind of illustrate this wire. This is the electric fence hot wire, so to speak.

Seibert: That's right. These are the high tensile fences here. Actually, of course, these are electrified. There are two strands here. If you notice here, down at the bottom, that there is insulator around that post. Again, these wires gets crimped together here. These wires, of course, are stretched tight and everything. They are electrified. This line right here is what carries electric over to the other side. And

there is two different kinds of fence. One is a physical fence. Meaning a physical barrier and that's really what the barb wire or the woven wire is. You know, the animal physically can't go through that or, hopefully, doesn't try to go through it. The other type of fence is a psychological fence. I mean when you just look at this, you say, well, there's not much fence there. But there is electric on this fence and by that animal is experienced by going up and maybe touching that once or twice, it knows if it tries to go through that fence it's going to get a shock. Now, you might say, well, it's electric but it's only short impedance. It's not continually on. It's just electrified, just, you know, maybe every second or so, every other second. So these are psychological barriers, works really great, especially as we try to subdivide these pastures because we can build a fence very rapidly. It's not as costly as the other type of fence and, again, it keeps the animals in the pasture where we want it.

Hull: The creep feeder that was in front of us here. When do they start creep feeding these calves and what's that feed stuff consist of?

Seibert: Okay. Again, they creep feed here in this particular operation. Usually a creep feed is feed to supplement the cows' milk. In this particular operation, they start at two months. The feed that they put out there is usually very high protein feed. It's very palatable kind of feed and it's just to supplement that calf. Anymore, calves have the genetic ability to really put on some weight and gain real fast. It even has more genetic ability to gain than that cow does with just strictly supplying milk to that calf. We look to the milk curve; it reaches its peak in about six weeks or so and then after that it tends to drop off. So, of course, if pastures are short, by creep feeding you can continue to have that calf come along and put on weight. The other thing important too is in this particular operation, they early wean, meaning four to five months of age. So by that calf being able to know what dry feed is, when it goes through the weaning process it just handles that so much easier. It knows what dry feed is. It knows what a feed trough is and it will tend to just be weaned without basically any stress at all.

Hull: We see another, looks like a feeder there. Is that?

Seibert: Yeah, that is a mineral feeder. There's numerous different kinds of mineral feeders. What you want to do is put mineral out there because the cows on pasture, as well as during the winter, need some additional sources of mineral. Especially in the spring of the year, we run into a grass tetany, which is a magnesium shortage, so we can put magnesium type mineral out here. During the summer, we put some salt and some other minerals out here. Nice part about that particular mineral feeder, many times the old mineral feeders used to kind of stand up and the bulls would use it as just a punching bag. Meaning they would roll it across the pasture. This is a very low profile feeder where they can't get it and move it around. The top of it has a weather protector over it so actually they can just go in with their heads, raise that up and go right to the mineral. So, again, just another source of providing nutrients, you know, for the animal.

Hull: We talked about feed quite a little bit here this afternoon. Now, let's talk about the water and the water source. We'll see the water source shortly, but can you kind of illustrate the feeder here, or the water here, and how it works, and that is weather proof. Is that right?

Seibert: That's right. It's a non-electrified water. It's a fully insulated water. It can be used during the winter and does not need any source of energy to it. This particular water ... what the design on it is, down in the middle of it, it has about a foot round tube that goes down in the ground probably six feet, or maybe eight feet. The water line comes in to that and by that; it's a tube down there that utilizes the heat from the earth to keep that pipe thawed out and everything. Also by the animals drinking out of it, that water that is coming to it is a temperature of four feet or so, or five feet underground. So it's warm. And it prevents it from freezing as it comes in to the water. Now, the water bowls here is actually ... they push it down and they have access to the water. Now, it serves to prevent that water from freezing inside of there, that water bowl. Now what happens is, if you don't have a lot of cattle on the waters, you might have to come out here in the winter and maybe just take your fist and hit it. If it's even maybe a little more frozen than that, just a little hot water poured over it, and that will thaw that ball out. It won't stick and, of course, they can use it. So, really unique, because we're out here, there is no source of electricity here whatsoever but yet we can keep cattle out here all winter because we have a source of water. The important thing too, is having water so cattle can get access to water. There has been a lot of research done in how far animals should walk in order to consume water—what is the maximum distance they should walk. We know many times out in the western range they may have to go two or three mile to get to a source of water. What happens in that situation ... first of all, their grazing distribution won't be uniform. They will tend to graze most closest to the water and the further we get out, the less grazing. What we want them to do is be able to utilize all this pasture out here. We know through research that eight hundred feet, should probably be the maximum distance that an animal has to use in order to get access to water. So that's why these waters aren't placed at the corner of the pasture. They are placed right in the center of this pasture so we have a close proximity to the whole pasture of the water. The second thing is, whenever an animal has to walk let's say three miles to water, it's burning up energy. And the reason we have animals is to utilize the forage to put on gain to produce milk for the calf and things. So, really, this allows less energy to be used on that. The other thing is, animals are herders. In a group of cows we'll have the lead cow. When they go out to pasture and that lead cow says, it's time to go back to the barn to get water. What happens? All of them go back. But with having water out in-- to the pasture, they tend to go as individuals, as one or two, or small groups of cows to water and that means that whenever those few that need water at that time, the rest of them are still grazing. So, placement of water, distance to water, fresh water, is critically important. Matter of fact, water is the most important nutrient we have. That's another reason in the Midwest, in Illinois, livestock production is really good, because we have good access to water in most of the places as compared to places out west—New Mexico, Arizona and those locations.

Hull: And you said this was the breeding and calving lots?

Seibert: This is the calving lots, right, right. they will breed in here as well. One thing they use here, they want to make as much genetic improvement on this operation as possible. So they use as much technology. We talked early this morning about the use of artificial insemination. They use the very best sires that can be used in the Angus breed and then they use technology in order to make sure that they get as many of those cows bred AI as possible.

Hull: And, how do they do that?

Seibert: Okay. Uh, let me get something over here. Just one second. I'm going to grab something here that ... some technologies they use here.

Hull: Okay, Dave, we've talking about new technology here on detecting heats when a cow cycles. Can you explain those for us?

Seibert: Yeah, what I would say the more progressive cow calf operation is doing is tending to use as much AI – artificial insemination – as possible. The semen for most of these bulls are out of AI studs. There are about four of five of those that supply probably ninety percent of all the semen in the United States. They have purchased and then distributed, to very elite sires in the breed. These elite sires might be for growth or they might be for carcass and they might be efficiency or whatever, so if you want produce a superior product, you want to get as many cows bred AI, artificial inseminate, as possible.

Now, of course with AI, you have to identify when that cow should be bred. Historically that's taken a lot of labor. Meaning that you usually twice a day went out and observed your cows that you're trying to get bred, just visually observe them. You know, and wrote down which cows were showing signs of estrus, meaning they were being rode by other cows. So the visual is one way to do it. This here is actually a rump tag that you put on and this silver on here, as another cow rides it, it will tend to wear that off and it will be a bright green then. I scratched a little off here with my thumb, but my fingernail ... Then when you go out there, it's another technique to go out and assist you to notice which cows have these rump tags rubbed off and everything. Of course The Cadillac of the system is what we call—I hate to use the name, but it's really the only one that I know that use this technology—is heat watch. Now heat watch—the transponder right here—each of the transponders have an individual signal it sends off. You have then a cow and it has an individual number. So what you do is record which one of these you are using with a particular cow. There is a button on that right there and when that cow is mounted, it pushes that button. What's happening is every time that button is being pushed it sends a signal to a transmitter—that's a transmitter up there—and that transmitter relays it back to a computer somewhere. That computer records every cow and every time that she was rode; each day you can print out and say, cow 4195 was mounted starting at a certain time of the day or night and she had twenty-seven mounts and they were so close together.

What the computer program says, you need to breed that cow twelve hours from now, which might be that evening or maybe the next morning. And what you do with this is, actually you put this in the pocket here, that actually comes around—well, the pocket is in the center right here—and you Velcro in it. You will actually then glue to the rump of that cow. This is even a tie that you would tie to around the tail or around the skin next to the tail. Every cow you got to put one of those on, and it tells exactly when to breed that cow by the number of time that she has been rode.

Now with technology quite often it's not free. That little transponder in there costs forty dollars each. You hope not to lose any of those but that can happen. That's why you put it in this pocket here. But it really provides the very best means of knowing when to breed cows. What happens so often in visual evaluation, you might be out there and you see a cow and she might be rode twice, you know, when you are observing her, and it might be a false heat where she really is not in heat. That might be the only two times that she was rode that whole day is when you were observing her. And you might have to mess around getting her in. You might try AI. You might be successful or not. And, of course, you lose time, which is labor which is an expense. You may even lose the semen that you use. So this really replaces labor. It improves the accuracy of which cows to use.

What this particular operation here is trying to do is breed as many cows AI as possible to improve the genetics in the herd, not only for replacement heifers, but also for steers going in to the feed lot. There is a segment of purebred breeding stock here. They want to move that along as rapidly as possible and hopefully use those genetics in the herd as well.

Hull: And as we spoke this morning, those genetic weaknesses you try to fill in with good, strong genetics, right?

Seibert: That's right. The breeding of cattle is a very, very scientific process. As we mentioned earlier this morning, it used to be the eye of the master told you what animals to select, what bulls to use—the Chicago International and different shows—so it was kind of the place that they determined what genetics to use. That is kind of history now. We know through the breed associations with their breeding and performance program, with their sire analysis, with computer programs, we know the merits of every bull and what the good points are, what may be some of the bad points. What you have to do when you set up the mating is to complement those. You may have a cow out there that might be one of your very best cows, but she might not have quite enough milk and she might really produce too heavy a calf at birth. So you want to mate her to a bull that complements those. That overcomes those particular traits. And that's really the science now of making sure that you make the right matings in livestock production.

Hull: And you're working with this producer right now to index those cows and bulls, right?

Seibert: Right. We know when we look at number traits, we look at about fifteen or seventeen traits on every purebred cow in the herd. We look at those equal number traits on the sires that were selected. Really in the Angus breed, there is probably two thousand sires we got access to. And from that we identified about eight or nine sires that we think really have the merit. Some of those may only be mated to a very few cows. Others might be mated more aggressively to additional cows because of their genetic merit.

Hull: Okay. Well, why don't we move on. If we find a cow that's in the optimum to breed, we move her to a corral. So why don't we take a look and just see how that operates.

(End of Seibert_Dav_02.1.mp3)

(Begin Seibert_Dav_02.2.mp3)

Hull: Dave, we're at the corral now. Can you tell us how they use this corral and what they use it for?

Seibert: Yeah, one thing that was set up, and a lot of thought put into, is having multiple pastures. These are the pastures where we just came from with the water and feed into one central location. In this particular set-up there is different pastures, about seventy acres each, that feed into this facility, so with that you can work those different groups of cows. You can use it for multiple reasons. Let's say, number one reason would be to calve. Of course, there's cows that always need calving assistance. This is spring calving cows over here, so you would be calving a few in January, many in February and March, when the weather is not the most ideal out. So you want to have a place where you can bring them into. So first of all when you think of the calving development, this would be where you would tend to bring those cows in, to process calves. Not only to help with the calving, let's say you want to tag, vaccinate, catch some weights and some of those things. You can bring it into this location. If you had a cow that may have some difficulty, or maybe it doesn't attach to that calf right away. You have a facility here that you can take them into. It has three different pens. Actually the last pen down there has a gate on it where you can put that cow behind, get that calf to nurse. So this gives a little closer attention in here, maybe leave them in there for a day or maybe two days. That's the number one thing, is get them in here, and solve any calving problems you might have. If you want to process some calves at birth, you can do it in here. Of course, once they are calved and they are mated up and everything, you can kick them back out to the pasture or even move them to another pasture. Then another important thing is, sometimes during the summer we want to do some calf processing and that might mean some booster shots or some different things like that. We can use this for that as well.

Probably the next thing is when it comes around to breeding season. We talked a lot about their heat watch system that they have and there is a transponder here in this particular location. You got to have somewhere to bring those cows in

once you identify them as being in heat. You can feed all three pastures into this location. We got some pens out here that we can use. But any time you got a corral setting, you have to have different elements of that corral. Usually a corral has some pens off of it, and that's what we have here is some pens off of that particular location. Down at the end here we have what we call a tub, and that's where we can start crowding them around. And there we have some runways where we can start ... if we're doing cows let's say in that runway, we can put three or four cows pre-getting in-to the chute. That's why we have a longer runway there. This particular area right here is where we would actually go in to AI the cow. This is a cattle working chute. It has different parts to it. It's got its head gate down there; that animal comes in and you would close those side walls against the neck of that cow. It has these pins on the side where we can open up in case we want to maybe treat the animal, maybe its feed or do something close with that. It's got sides that break away—those different panels break away with that. Down here at the end, this is our AI chute. We can use for pregnancy checking and AI. If you noticed, we can open either those gates, and we can do our AI in that particular location. The other thing, if we want a pregnancy check, we can do it in that location. So really in one location here we have a facility that we can use for multiple uses. Calving is one use. Processing of those calves, as well as cows. AI-ing the cows and then, of course, coming in and pregnancy checking the cows. So I guess when we think about—we talked this morning about the number of cattle producers in Illinois, how it's decreased [while the acreage has increased]—and probably one of the reasons that we see that decrease is lack of facilities. Just handling cattle is tough work, if you don't have facilities to do it. One lariat or halter and a tree and one post out there to try to slap it around, isn't a way to try to handle cattle, because usually you can get injured or the animal can get injured. One thing about this type of facility is, you are working calmly with the animal. You got the facility that that animal will not get hurt. You can restrain it and you can do all those things that is required. That might be breeding or calving or health management practices, for the cow herd.

Hull: Is it a practice to work these cattle on horse?

Seibert: Excuse me?

Hull: On horse?

Seibert: Actually, this particular location they do work them on horse and they do have a number of horses here. You know, I would say the trend nationwide is probably three wheelers or four wheelers; you probably see more of that. But they do use horses here and I think once the cattle are used to horses and they can work them very easily, that might even be a calmer way of working cattle than let's say a bunch of three wheelers, four wheelers running around out there.

Hull: Right. Now we said that these were approximately sixty-, seventy-acre pastures. This corral will utilize how many of those pastures?

Seibert: Well, it probably utilizes one of them. I would think there is probably around three hundred and fifty cows over here on this spring calving herd and they divide it in to three groups, so there is probably around a hundred cows per group here in the pastures. One of those would be brought in at a time and process those cows through.

I think they even mentioned earlier too that they wean calves out of this particular location. I might mention that in this location that we're at, they just introduced a new management practice this year on weaning calves. That's their fence line weaning calves. I would say the natural thing is either take the calves away from the cows; that's usually what happens mostly. The only thing would maybe to take the cows and take them off in another location. Well, what they did in this particular site this year with those spring calving cows, is just put a woven wire fence down between the cows and the calves. They were actually exposed to each other during the weaning process and the gentlemen in charge here said that those calves starting eating the next day, that probably the calves didn't even know they were weaned as much as even a cow. The cows kind of bellowed for three or four days. The calves just seemed to go on because they were used to being pre-fed. They were in a pasture with plenty of feed, so they weaned out with very little stress at all. There's been a number of research trials conducted on that and actually the weight gain was much greater on what we call fence line weaning as compared to taking them off somewhere and putting them in a lot. I think a couple of things there, they are in their normal environment; they're used to that kind of the forage and everything. Second of all, it's probably not near as much dust and everything out in that pasture. So, it's a management tool and they try to use as many of what I'd call technology and management tools here as possible to hopefully make this operation as environmentally and as welfare friendly as possible.

Hull: Well, good. Now we've seen how they handle the cattle and the pastures. Let's go take a look at some cattle.

Seibert: [..... "four weeks old" ... "yellow tag" – inaudible conversation in background – to 9:03]

Hull: Okay, Dave, we're in one of these improved pastures and we're looking at some cows and some young calves. Just when did they start calving here?

Seibert: These are our fall calving cows. They started about two weeks ago or just shortly after the first week of September. There is probably about a hundred and fifty cows out there that were calved—cows and heifers. I might mention as we look at these, you notice, of course, one ID method is their ear tags. All the calves have ear tags and they are numbered numerically as they calve. How the operation does it here, is they all would have a four digit number. The first number would be eight thousand. They start with their spring calves and they usually run up to about one to three fifty or so and then I think they started these with eight thousand four hundred and went up from there. The other thing, too, to notice here is, there is a

cow, well, a calf that you are pointing to down there, a little calf has a yellow tag in its ear. That particular calf is an ET calf – an embryo transfer. They flush their very best cows here and they put it into what we can call the surrogate mother, and that's probably that cow standing right in front over there. It's facing us with her head and the little calf there. That's probably its dam. It's a surrogate mother. And that, of course, would be a purebred ET calf. All the rest of them are white tagged. There will be some commercial calves in here, and there will also be some purebred calves. There's a few cows out here that have orange tags in it—you might have caught the one cow earlier—and that's a purebred cow. So they code all their cows, ear tagged according to whether it's a commercial cow, whether it's a purebred cow. And then as a calf, it's assigned a number as it's calved and the color coding tells if it's a embryo, an ET calf or not.

Hull: Uh, you said they flush. You want to just briefly describe how they flush a cow?

Seibert: Okay. Actually what they do is first of all, you have to identify your very best cows you have. They do that on its genetic merit. What they do is take it to a firm that actually does most of that. They give their preliminary shots here and what you do is give shots to what we call to super-ovulate that cow; instead of dropping one, or in a few situations two eggs, it might drop on the average six or seven eggs all the way up to maybe a dozen or fifteen eggs. What that person does—he's an embryologist—he goes in and—I should know, about day eleven I think it is—and he will actually go into the reproductive tract of that cow and flush those eggs out of the reproductive tract—I think in the fallopian tubes are where they are at that point—and catch them in a Petri dish. They will actually examine those eggs under a microscope. They will grade those eggs into, I think, three different groups as far as quality. They have the option of implanting those eggs at that time, or what most people do anymore is actually freeze those embryos so that they can implant them at another time.

Hull: Now is that egg fertilized at the time they harvest it?

Seibert: Yes, it is, right, right. It would be, I think, it's so many cells and, I think, it's day eleven or something of that nature.

Hull: Now when do they start keeping records on these calves?

Seibert: Well, the records really go back to when the pregnancy made. First of all they would AI all these cows, so at that point the record starts. What it's mated it to. What day it's made it to. Because after you AI for a certain length of time, then you turn bulls in. Usually what they do is leave a space of time when they stop AI-ing until they turn in the bulls naturally so we know which is the AI calves and which are the natural calves. You got to know which bull they are out of; that's number one.

Then the second thing, you start at the time of calving. You keep a calving record and that would be what cow it is. What number you assigned to that calf.

What the calf weighed. Its calving ease score; you provide a calving ease score to that cow. So all that's done at that time. As far as processing those calves, you might give a scour vaccination at that time. You might give some other shots at that time as well. So it starts back when conception occurs. The next time is really when you pregnancy-check those cows to see how far they are along. Actually the person who pregnancy checks will tell you how many days they've been pregnant. So that will give you the first lead whether they are AI calves or whether they are natural calves and, of course, it comes to this point here when they hit the ground. You assign a number of them. Catch a birth weight. Catch a calving ease [score] and have a list of the cow, the calf number and what sire it should be out of.

Hull: Great. Over the hill there we see a lake. Is that one of the water sources?

Seibert: Yes it is. These are, like I mentioned, the fall calving cows. The acreage actually goes back here. There is about three hundred acres in this particular setup. There is probably ten or twelve different paddocks back here that can be rotated through. There is two lakes that they have here. Each of them have a powered water source off that. That well, which is off the lake, pumps water to these pastures. It's set up the same way as the pasture we looked at before. I think we notice up over the end of those cows there, where they are standing up along the fence, there is a water source up there. There is another one down here in this pasture behind us. So they're all set up with the MiraFount⁶, or similar type watering system that are frost free type watering system. As mentioned earlier, you got to have a good source of water. It can get dry and I know people who have to haul water to the cows or any livestock, it becomes a tough job. So having lakes built up ... and the nice part about here, we got great vegetation out here. We have superb pasture. You see in the pasture we have excellent grasses here. We have legumes here as well. This would be our clovers in here; the rest of it would be our grasses here. So we got great pastures. The nice part about this thing is, the lake is down at the bottom of the pasture so we don't have any erosion. It provides a clean source of runoff water going into that lake. So having good pastures, excellent water with a source of shade. Hey, it's the best you can do.

Hull: Cattle heaven here, right?

Seibert: Almost, yes. Well, the other thing too when we was talking about the quality of the cows, when you think first of all about the condition of the cows. We actually go in and we can body-condition score our cows. It's really a scoring system from one to nine. I'd say if we look at most of these cows they are probably in the six range—strong five or six range. That's really great because that cow is going in-to lactation carrying some condition. She can go right on through and milk her colostrum—her initial milk has colostrum and that's where all the antibodies is—so she'll have a good source of colostrum for that calf. She'll probably milk real well.

⁶ A Gallagher Animal Management Systems product that provides ground water at a relatively constant temperature.

She'll probably recycle, and that's really important because you got to get her bred in seventy, eighty, ninety days from the time of calving—get her rebred—so that she calves once a year. The window of calving here in this particular operation is probably sixty to seventy-five days. You want them pretty close together. And that's really important because, you can process those calves together, you can wean them all together. When you go into your pregnancy evaluation and your winter feeding program, the cows are all kind of close together. So, that's good management and that's what keeps you in the cattle business.

Hull: And waterways and the ponds are all fenced? The cattle can't get into them.

Seibert: That's right. Actually, the lakes here is fenced out. There is some streams that flow through the farm, and they are all fenced out as well. We want to do things right environmentally, you know, and as I mentioned, when you think about soil eroding away, there is nothing better than grass on that. And of course, when you think about clean water entering an operation and running out the other end of the operation, that's what you try to have here. By fencing them out, by really having good waterways, that allows clean water to enter and leave a premise.

Hull: Okay. I think we got another stop here to take a look at the bulls and replacement heifers?

Seibert: That's right.

Hull: I'm ready for you now any time.

(unintelligible until 16:19)

Seibert: These are the spring heifers.

(long pause)

Hull: Dave, what have we got here? It looks like we got a group of heifers of some sort here.

Seibert: Yeah, these are the spring calving heifers. Actually there is seventy-four of them here in this group. They will tend to start calving in February and March of this coming year. These are, I'd say, the very top end of the heifers that were calved last year. This is, as I mentioned, seventy-four out of probably a hundred sixty or -seventy females. They have passed basically all the different criteria, meaning that they were probably not too heavy at birth. They were probably calved easy. They probably had a good weaning weight and in a two hundred and five day wait they probably grew good to three hundred and sixty-five days. They also have all scanned, ultrasonics, as far as the rib eye area, the amount of external fat they have. The amount of marbling, especially this herd, does really put a lot of emphasis on that intramuscular fat, or marbling, which really dictates quality grade. These heifers were framed, meaning measured how tall they were hip

height, and that's so that we end up with a bunch of uniform heifers. They also had pelvic measurements taken on them and that would indicate any really small pelvic heifers that may have difficulty calving. They were all AI-d and then, of course, clean up bulls used, you know, on the females so they are really select. And then, of course, hopefully they are bred to a really top AI bull. You notice there is some yellow tagged females in here; those would be a purebred females. The white tags would be commercial heifers. They are all double ear-tagged. If you get up real close and look at their tag, the dam number is one there as well as the sire number. As a matter of fact, this 71 52 kind of standing right in the middle here, you notice she is out of fifty three and that would be the herd sire over here. His number is fifty three so we have offsprings of his in here, as well as offsprings of other purebred bulls in the herd and most of them will hopefully be out of AI bred to AI. And that's what we refer to as stacking pedigrees. Stacking genetics. Meaning that the bulls they are out of are very select, for growth and performance and milk and carcass; they are bred to a bull that has those same traits and, of course, their offsprings will be bred to a similar kind of bull. So the predictability in what you're going to end up with really increases. I might mention the weight of these heifers; they are all in great condition. That's good. You want them to, at the time of calving, be in what I would say moderate- plus condition. They are just a great set of females. Real uniform in kind and have the genetics behind them.

Hull: So they were born a year ago this past spring?

Seibert: That's right. They would be born in ... a few of them probably in January, most of them in February. If you notice their tags start with seven thousand. So that tells you they were born in a year seven thousand. Here's a seven thousand forty walking right up to me. She is the fortieth calf born last spring and there is the o-five. That was the fifth calf. Seven zero zero five is the fifth calf. So when you go out here and look at these, you know a lot of things about them. You know about when they were born. You know they are dam, fifty eighty-three. You know their sire, fifty-three. So you got a lot of history by just looking at the tag. Of course all that is tied, if they are purebred, back to the pedigree where we have EPDs⁷ on it. We know exactly what those EPDs are. We know what bulls they were mated to to complement any weak links that they have. There is no perfect animal. There is no perfect creature. So we always have to compensate and complement the traits in them with a sire that will add to those traits that they have.

Hull: In our discussion this morning or either this afternoon, we never talked anything about cloning. You talked about the perfect animal. Will we ever get the perfect animal with cloning?

Seibert: I doubt it. Clone did you say?

Hull: Yes.

⁷ Expected Progeny Differences: variables to evaluate cattle for breeding

Seibert: Even with cloning, if we look at genetic improvement in animals, the next generation should probably be on the average superior to the previous generation. If we look at the purebred breeds, they show genetic trends, and all those traits that we look at continually go up because we're always identifying those superior sires and concentrating those genetics. What happens is, if we got an animal and it's a good animal and we clone it, well, all of a sudden we got a lot of offsprings down the road that are superior to that animal. So cloning has merit, but probably not as much merit as just going out and really making the right matings. That's where we can make genetic improvement, is complementing the weak parts of one animal with another animal.

Hull: You want to make any comment? We did get a picture of the bull coming up here but he didn't come all the way up.

Seibert: Yeah, the bull out here is their senior herd sire. He came from Wyoming. He is a very elite sire as far as his EPDs. He is actually a sire that's kind of a moderate birth rate sire. He's tremendous in weaning weight on his EPDs, we call percentile rank, tremendous on yearling weight. He has excellent carcass traits. So they bought him to kind of lead off their natural service as well as AI. They use him in the herd AI as well. A couple of reasons for that, they want to compare him with these various elite AI sires they are using to see exactly what his genetic merit is. When we catch all those weights and everything, we have our EPDs. But those are somewhat estimates. When we start using that animal, either a cow that has one or two calves or a bull that we use in multiple herds, that really increases our accuracy and really gives us predictability.

Hull: I see. Uh, refresh us on what EPD ...

Seibert: Okay. EPD is expected progeny difference. When we catch weights on an animal that's that one animal and how it did. But an EPD takes in not only the individual animal's performance but it takes in his sire, his dam, his half sib[ling]s, his full sibs, his maternal grand sire, his paternal grand sire. So it really backs up the expected performance of the animal with his whole pedigree and how all the animals previous to him in his pedigree did in a particular trait. So its strength, its power, its predictability is improved by having a lot of information coming up with that one number for that particular trait.

Hull: Okay. We have a canister over here. You want to talk about that a little bit?

Seibert: Okay, yeah. This 21 10 here, you notice it's got the tag and then it has a little yellow button up there in that left ear. That's the EID tag, the electronic ID tag. It's this heifer right along the fence here. She's looking right at the camera. Seven one one zero is her number and just to the right of her number is a yellow round button tag and that's her electronic ID tag. What we can do with that is ... let's say she would lose her means of identification and she already is triple or quadruple identified. She has a tag in each ear. She also has a tattoo in each ear. But by running her through the chute along with a lot of other animals, we have

readers that will actually read that tag just as those animals move through there, and it's a twelve digit tag. I think it's a twelve digit tag. The first digits is United States digits, and then starting somewhere with one, each animal in the beef cattle industry has a unique tag that pertains to that individual animal. It will allow that animal with an EID tag, wherever it would go, it should be read electronically with that same number. If she went to market that could be transferred on the rail and followed all the way through the packing industry as well.

Hull: So no other animal in the United States would have a number like that?

Seibert: That's correct, right, right. Electronic EID. Actually both of those that are right here now and this one a heifer over here, all three of those heifers right up here, another ... that other heifer, all of them ... okay, all of them has got EID tags. You notice it's in the left ear, and I think that is the approved location to do that because if they set up readers they kind of set them up on the left side so when they go through they can read them. It's again another technology that's used in agriculture and used in beef cattle production.

Hull: And that's called individual identification.

Seibert: That's right. And it moves along with premise.⁸ Premise is this particular form of identification. Then we have on that form individual animal identification—that's the EID—electronic identification number for that animal.

Hull: Okay. Would you like to illustrate what a straw looks like?

Seibert: Yeah. Let me go down here to jump over it so I don't tear down that gate.

Hull: Dave, this is a canister and a straw. They call that a straw that contains semen that has been collected out of a herd bull here, right?

Seibert: That's right. Something that has probably impacted the purebred industry as much as anything is AI – artificial insemination. And we don't have to go back that many years. Actually probably thirty, thirty-five years ago, the use of AI, artificial insemination, was not accepted in the beef cattle purebred industry. Once AI was allowed, it really opened up the genetic improvement of beef cattle and especially in the purebred industry. This particular straw as you mentioned is actually [from] the sire that we saw back here. He's fifty-three, his number. He was collected, I think, they have a bank here of semen on this bull of three hundred plus straws and with that, it is an insurance policy as well. Once you go out you buy these genetics and pay big money for them, that bull is liable to die, might get struck by lightning or something might happen to it, so you got to have protection on it. Collecting semen allows you that protection on that particular bull. Whenever they collect this, they process it and dilute it and everything so they can get multiple straws out of a bull.

⁸ Premise identification numbers record livestock production units in connection with a National Livestock Identification System.

Hull: Now that's kept in liquid nitrogen?

Seibert: That's right. This is actually a canister that's used to transport semen. In a canister like that, you can put several hundred straws in there, maybe even up to a thousand straws or something. It is kept in liquid nitrogen that has to be re-filled every so often. That's the way most of our genetics is transported now from the AI studs to the different herds. They transfer out of that in-to their bigger canisters then. And this is what they use to breed the cows. It would have—I should know, but I can't remember the number—probably a couple million sperm in this. What you mainly want is that one sperm to fertilize that egg in that cow, unless you were super ovulating then, of course, you have to fertilize multiple eggs. This is what makes the thing work right here.

Hull: And the shelf life for that in the canister?

Seibert: Oh, it's almost endless, really. I know there is bulls that have been around twenty or thirty years ago that are still being used. I'm sure with opening the canister and pulling straws out and that type of thing you could maybe have deterioration simply occurring because of exposure. The important thing is you got to thaw this to a certain temperature at a certain speed. And light—you don't want sunshine shining on it. So you got to make sure you handle this properly, and there is a technique to that. There is a gun that goes along with this. You'd break the straw up here. You'd use the gun and you would fertilize the female with this. That's what happens with the heat watch program or even visual appraisal, to know exactly when the ideal time is to fertilize that egg. You just can't do it any time. You got to do it at the proper time.

Hull: Yes. Yes. Well, is there anything else that we need to discuss at this visit?

Seibert: Well, I think the important thing here is, the beef cattle industry in Illinois and throughout the United States has changed dramatically. We talked about many of those things that's happened twenty or thirty or forty years ago as compared to what they are today. When it used to be the eye of the master, just going to the show and picking out what they thought was the top genetics, that is really history anymore. The beef cattle industry all the way from selection and nutrition to management to health to housing is a very scientific business. It's a business that takes a lot of capital when you think of the pasture and what the cost is per pasture. When you think about the harvesting of the winter feed supply, again, the thing of it is, most the time you get one calf out of that cow each year. So you got to make sure that you make the proper decisions so that calf really has some genetic merit to it. I think the other thing is all of agriculture, and beef cattle producers especially, do things in what I would call in a very environmental friendly way in which they handle their animals, and very good welfare as far as how they treat their animals. [That] is how they protect their animals. They are out day and night. If they think that cow is going to calve, hey, they will go out there to check that cow herd that is calving maybe two or three times each night. So they know that they have to take care of that animal nutritionally, health, environment, everything,

because by taking good care of that animal you tend to get a response back in performance. Whether that is conception rate. Whether it's weaning weight. Whether it's the end product when you go to the retail show.

Hull: Well, Dave, on behalf of the Abraham Lincoln Library and Museum, I want to thank you for taking your time and sharing your knowledge with us with the cattle industry in Illinois and the historical count where we've come from, from the time we have had auction and so on and so forth. So, I think you have given us a nice journey here today. Thank you very much.

Seibert: Appreciate it. It's been exciting working with the industry for the past forty plus years.

Hull: I'm sure.

End of tape