## Systems Thinking

## Season 1, Episode 18

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**Olivia Amundson:** Welcome back to another episode of Cattle HQ today I am joined with my co-host Adele Harty and today we're going to be talking about some sale barn calf data that we collected here this last fall. So a little bit of background on this research project that we've done, this research project was actually developed, based on a past project and where they were looking at factors that influence the price received for spring born calves that were sold in the fall. So we kind of tried to recreate this research project and redo it this fall. This particular project was grant funded through the North Central Extension Risk Management Education Center with funding provided by USDA NIFA. So according to NAHMS about 60% of cattle are actually sold in sale barns. Adele, do you want to discuss with us why this is important for us to look at some of this data.

**Adele Harty:** Sure there's a lot of opportunity for producers in South Dakota to make additional money based on different management decisions that they make in regards to their calves throughout the year. One of the things that this project does is goes through, and kind of evaluate each of those management decisions individually, so that in the future, producers can determine what's going to work best for their operation and what may return more value to them when they market their calves in the future.

**Olivia Amundson:** Absolutely, and I think one of the big things that we were looking at here was really focusing on a uniform calf crop because we wanted to see how a uniform calf crop maybe influenced price received a the sale barn. So I think quickly for our listeners we’ll kind of just give them a rundown. On a research standpoint here the materials and methods that we use to collect this data so I'll go through some of it, Adele, and then I'll let you kind of go through some of it. So we ended up collecting data at five auction barns across the state of South Dakota for four weeks in the fall and then four weeks in the spring, but we're only going to be talking to you about the feeder calf run that we did here this fall, fall of 2021. So we did it for the four weeks of October 4, 11th, 18th, and then November 1 we were in the sale Barnes of Faith, Philip, Hub City, which was in Aberdeen, Mitchell and then Ft. Pierre. So we were there at those so barns collecting data and multiple different data points were taken. Adele do you want to discuss. Some of these data points and why we were looking at them.

**Adele Harty:** Definitely, so at each sale, we obviously were keeping track of which sale barn we were at because, due to the number of head that are going through some of these barns during that fall calf run, we feel that there could have been an influence there so obviously kept track of the location, the date. We gave each seller and individual ID which was just really the order that they came through so seller number one was the first a lot of calves that came through the gender of the calves, the number of head per lots what the average weight per head was. And then we kept track of hide color, what their vaccine protocols were, whether they had received a seven way clostridial vaccine, the four and five way respiratory vaccines, whether the calves had been implanted or not, whether they'd been creep fed, whether or not they'd been weaned which, that was a bit of an anomaly for our fall data, if they were part of a branded program, whether or not they had horns and then what their price per head received was. So we were collecting a lot of data in a pretty short period of time, because every lot of animals that was going through the sale ring we collected this data and just to give you a little bit of a reference those sale barns during those four weeks that Olivia talked about we were in 24 sales or participated in 24 sales in those five barns, which accounted for about 110,000 head of calves, so this is not a small data set. We've got a lot of neat information in here and we did have kind of some outliers we took those out of this so any calves that were below 265 pounds or above 800 pounds were removed, and we also removed lots of calves that were one or two head, because it seems that they were skewing the data, a little bit too much.

**Olivia Amundson:** Yeah thanks Adele I kind of forgot to comment on how many actual sales we sat through and the actual total number of head of calves. And that was kind of the exciting part, even here this last spring, when we were collecting data, I think we got a lot more head of cattle in our data set than we were anticipating. So we're excited to see what that data set pulls out for us too, but like I said we're going to focus on the feeder calf sale data, and I think what we'll do we'll kind of just start by going through each one of those data points that Adele has mentioned, so the first one was location, so we looked at how location actually affected the price of the calves and so I'm going to give it back to Adele this time because Adele has spent a lot of time looking at these data sets, and I think she's going to just do it a little more justice than I will, at this point so go take it over Adele.

**Adele Harty:** Alright, so I think the take home message from this is that in South Dakota our West river barns during the fall calf run receive a premium for calves in comparison to our Easter Barnes So when I say West river Barnes that's going to include Faith, Philip and Ft. Pierre and then the East river barns would be Hub City and Mitchell. And we do have more breakdown specifically between individual barns, but I think for the purpose of this podcast it's just important to understand you know we've got we've got some differences in types of cattle a little bit and also numbers, we had a lot more numbers that were running through those West river barns this last fall and I think more numbers helps to improve the price that is received, because they've got more buyers in the seats for some of those calves.

**Olivia Amundson:** Yeah and I think we could also probably point out for listeners who maybe aren't familiar so much with how South Dakota can be so different from the East to West is so on our West side, we have a lot of guys that do sell feeder calves and large lots. And then on the East side of the state, we have a lot of those guys, who made by those feeder calves to them background. So we had greater numbers of background and calves on the East side of the state. So that data set will probably recognize that, whereas like Adele said, we saw our premium on the West side of the state for these feeder calves again because they were coming in larger lots. Okay so speaking of larger lots can we jump to that one you think I know and kind of talk about how the larger lots actually influence price received for those calves and then we'll probably jump back and go to how color affected price.

**Adele Harty:** Yeah definitely. So lot sizes hugely important, and I think this one leaves an opportunity for producers to think about different ways that they could maybe work together to capitalize on some of the premiums associated with lot size. So one of the things that we saw, just to give you a little bit of a breakdown on how we broke these down, lot size was 101 head or more, 50 to 100 head, 21-50 head or one to 20 head. So we had those different lot sizes and when we compared our largest lot size, which was 100 plus to our smallest last lot size, which was that one to 20 head, there was a $15.85 cents per hundred weight premium for those large lot sizes compared to small lot sizes. And if we think about that it makes a lot of sense because those buyers they've got a pot load or multiple pot loads and they can just load all of those animals on a truck they don't have to try to co-mingle calves or group calves have similar types and sizes to make a full load it's already made for them, and this just really shows that they are willing to pay for that. And even when we get to some of our smaller lots when we compare our hundred plus head lots to our 20-100 head lots there's about a just under a $10 premium for the still for those hundred plus head lots. And then, as we get to the smaller lots the 100 and 21 to 50 vs one to 20 head lots there's a $6 premium, even for those smaller, less than 100 head lots versus the less than 20 head lots. So if you've got an opportunity you've got some neighbors that have similar calves, as you do if you're calving near the same time and you've got smaller herds, there may be an opportunity to try and sell together and capitalize on some of that premium for lot size.

**Olivia Amundson:** I was just going to ask you Adele, so let's talk let's talk opportunities here if we can or cannot and I think you probably answered that a little bit, but some of those co-mingling opportunities but I'm not sure if I’m right here or not, but I feel like I've heard in maybe other sale barns and other states that they've started co-mingling groups of cattle. Now I don't know if that's producer preferred or how they how they decide to do that if they just they just mingle the cattle once they’re in the sale barn and try and sell them together I'm not sure I don't know if that's a thing.

**Adele Harty:** My personal opinion is if there are producers who can get together before they ever go to the sale barn they're going to be further ahead because it's going to be important that those calves are as uniform as possible, we talked about uniformity, earlier. We haven't analyze this data, yet to put a value on that uniformity, but we think there is value there, so we need uniform calves. So that's going to go clear back to the breeding program we need those calves, to have the same, be on the same vaccination program and they need to be born about the same time, so that you've got that uniformity, they can be market at the same time, they look like they were raised together, maybe they weren't raised together, but you had similar type goals in mind and then you can help each other out. I understand our producers are very independent, so this may be a challenge for some people, but I think it's also good to be able to evaluate the opportunities that are out there and don't be afraid to think outside the box, a little bit.

**Olivia Amundson:** Yeah because I might have been speaking way out in left field here, thinking that maybe some sale barns are just doing this, you know, regardless, but I think you, you make a lot of really good points, the vaccine schedule has to be similar, the calving date has to be similar, you can't just throw hodge podge groups of calves together and expect them to get a decent price.

**Adele Harty:** Well, and I think that's one thing I need to clarify when we are looking at lot size on this data set its number of calves that are coming through at one time, so the sale barns already sorted them they’re uniform the sale burns do a good job of making sure that group of calves that goes through his uniform they may have to pull one or two out, for whatever reason, that the buyer sees, but if said producer brings in 100 head of calves and they've got steers and heifers you're likely going to have four sorts on that group because you're going to have a heavy steer, light steer, a heavy heifer and a light heifer. And so right there if you just do simple math and we know this doesn't work in the sale barn but you would have 25 head lots, which would then put us in our second lowest category, which was still a $6 premium compared to our lowest lot size or smallest lot size, but If we could co-op with somebody else to make that you know, maybe that heavy steer load is going to be 70 head, then we can have a…

**Olivia Amundson:** Almost the pot load really.

**Adele Harty:** yeah almost a pot load, then that would be beneficial to us in the long run.

**Olivia Amundson:** yeah I mean it always alludes back to the uniformity of the group, the number of sorts, which we haven't really talked about the number of sorts but you kind of alluded to that already Adele because you know 100 calves you're breaking them into four different sorts you're breaking those numbers down, so the least amount of sorts that we can have when we're bringing calves in and just the greater number of calves in a group, that uniformity of that group we're going to see an increase in price received for those calves and ultimately that's what we have seen. So that was really the simple the how do I want to say that that was the big picture, take away. Bigger lots of calves are going to receive a bigger price. But the fun part about this project was we obviously dug a little deeper and we tried to see what other factors may be attributing to the price received for these calves. So let's move on and talk about hide color and how hide color influenced price of these calves. And I mean, I think we can all guess what color was king in this situation, but Adele I don't mean to keep throwing this at you, but do you want to talk about color

**Adele Harty:** Sure. So many of you probably have already answered this and said black is king, and that is correct, our data supported that. But just so you have an understanding of how we broke this data down or what we were collecting. So we had black, black-white face, red, red-white face, white, which would have included all of our creams, gray's Char cross type animals. Others, which would have been kind of your roan’s, spotted cattle just ones that weren't easily, didn't easily fit into those other categories and then we had a mix category, which would have included three colors or more, because we felt that that was important for our uniformity value, because we feel that if we have more hide colors that means we have more genetics, which means we may not have his uniform of a calf crop as we would maybe like and be able to benefit from. So one of the first things that we did was compared differences between black and black white face and red and red white face and there were no differences there, so we combined that data, so we just have black, red, white, other, and mix so still a lot to look at. When we look at black versus all of our other colors and other combinations of colors we were anywhere from a $9.75 cent premium to a $34 premiums, unfortunately, those cattle that fit into that other category, which were kind of some of like I said the roans, the brindles, the spots they actually were challenged for price throughout in comparison to any of our other colored cattle, so if that's something that our producers are looking at maybe it's an opportunity for you to consider your genetics and maybe look at something that you can maybe change or tweak a little bit and capitalize on a little more income or maybe even looking at a different marketing opportunity for them, because the sale barn is not friendly to those other type hide color cattle.

**Olivia Amundson:** I'd agree with that, we would have some really uniform groups of cattle come in but they didn't you know they weren't black they weren't read they weren't white they had some sort of you know, different color to them and they just got knocked, which is unfortunate, but we, I definitely saw that quite a bit of times, as I was sitting in the sale barn.

**Adele Harty:** Well, and the other thing that was really interesting and still trying to figure out is how much red was discounted in comparison to black that one was the $9.73 cent per hundred weights discount for reds compared to blacks. We've got a lot of really good red cattle in the country and my thought process and in talking to some of the buyers in different sale barns is that those red cattle cannot qualify for Certified Angus beef. And so there's premium on the backend for cattle that black cattle that marble well, but if there's red cattle that marble the same they are not eligible for that branded program, and so I think that may be a part of it. But that's something that we need to investigate further and see if we can figure out what else is going on, so if anybody's got any thoughts on that we'd love to hear it.

**Olivia Amundson:** Well, in Adele now because I agree there was kind of a discount for those red hided cattle and I know that some of the packers are not even taking red hided cattle. But things have kind of switched around a little bit here, even in the last few months, so it would be really interesting to see you know if we would run this data set or you know collect this data again this fall what kind of a price difference we may receive between those black and red hided cattle.

**Adele Harty:** And I think that's a really good point Olivia because, even with our spring data I don't think we saw the same discounts for red cattle, as we saw last fall, and so it will be really interesting to see once we get our spring data analyzed and those background calves to see how that compares to some of the fall data.

**Olivia Amundson:** Right, right. So these are kind of every evolving situations, unfortunately, but just some things that guys need to throw just we as cattle producers need to think about as we're continuing to raise, grow, and sell these cattle so yeah so here's one that I think we were all just we couldn't I mean we knew there was a difference, but the gap of difference between this one, I think we are all extremely shocked, but talking about the influence of gender on price and how big of a difference there was there.

**Adele Harty:** It's huge.

**Olivia Amundson:** It's huge! So Adele I'm just looking here at our data set, obviously we have this pulled up but it just says, steer versus heifer there's a $19.77 cents difference per hundred wait just from steer to, heifer. I mean that's almost $20 difference in gender.

**Adele Harty:** And I think this is another opportunity for producers to look at how their marketing those heifers. Is there more potential value in keeping those heifers backgrounding them, breeding them and selling them as bred females. Because, especially where we're at right now with the drought situation and a lot of states in the Midwest and you know central part of the country, there may be an opportunity if you've got feed resources and can get those heifers developed and they're good quality heifers to actually get more bang, for your buck out of them by an alternative marketing versus taking them to the sale barn in the fall. It's very discouraging to see that much of a price spread and I realized that when they go to the feedlot they have to be managed a little bit differently, because they are cycling there, and they’re in heat. A lot of times they've got to be fed MGA so that they're not riding, that can that influences their average daily gain and things like that they're not quite as efficient, but I think I think there's some opportunity and I think it would be good for producers to think about what some of that opportunity might be for their operation.

**Olivia Amundson:** Absolutely, I mean I know we all know that there's a difference in price between staring heifer but actually seeing that physical number on the screen you're like wow that's a good chunk of change the other one that we did steer versus bulls and the importance of castrating our steer calves, but there is a $23 spread between those two and there was a few times when we would see a ball calf get snuck in with a group of stairs and so. You know, obviously they got they got pulled off and resold but that's quite a price difference there as well.

**Adele Harty:** Well, I could. I can cast rate, a lot of calves for $23 a hundred weight. And I real and I realized that there are some that just get missed, and we can always help that but I think there were some lots that came through as solid bull calves, and I think it's important that that's an easy management decision it doesn't take a lot but it's important and when those animals go to the feedlot they're going to have to cut them which, from an animal welfare standpoint castrating older animals is a lot harder on them and doing them when their baby calves is going to be a much better opportunity and much easier on the animals than waiting.

**Olivia Amundson:** Absolutely yeah and like you said Adele it's just some of these management decisions that we can make just small changes here and there, and how it affects our overall price for our calves received at the end of the year. All right, let's talk about the big one vaccines, because let's be honest, this is the million dollar question do they matter, which ones matter. You know, we looked at a lot of different we looked at different types of vaccines and also the timing and how that affected the price received for these calves so I went to kind of explain what we all did there.

**Adele Harty:** That sounds good vaccines was a challenge we were keeping track of when they received each of the vaccines, the 7-way, as well as the respiratory vaccine which is typically what we call our 4-way or 5-way, so the 7-ways were either given at birth, in the spring or in the fall. So they were given at branding time we considered that spring and then, if they were given in the fall or pre conditioning that's how we noted that. Animals that received two doses of a 7-way versus a single dose had a premium over that single dose and there was actually a premium for those calves that were given that 7-way clostridial vaccine at birth and in the fall compared to those that just received one shot, either in the spring, or the fall and that was about a $17 premium per hundred weight for giving that shot at birth. When comparing that to spring and fall versus spring or fall, so two shots again versus one shot, but not at birth, a little bit later there was still about a $7 premium. I haven't been able to really break down why there was an additional $10 premium for that vaccine being given at birth, as the first dose but that's something that we need to look into some more and I plan to have some interviews or conversations with some of the buyers to see if they can help me get to the bottom of some of this as far as, what they're really looking for, why things some things are more important than others, and why they're willing to pay more for it, but the real take home on the 7-way vaccine is, if you compared not giving that vaccine at all, because we did have some cattle that came through with no vaccines, or we had unknown vaccination history because that wasn't shared from the auction block, there was an 18 to $25 premium for just giving the shots compared to not or us not knowing. That shot is less than $2 in most cases per head and, if you look at 18 to $25 per hundred weights that's a lot of money that, huge return on investment for one vaccination and I realized that it's not just the shot it's your time to get them in and work them but there's value in doing that.

**Olivia Amundson:** It's almost like receiving that price difference, for you know steer versus heifer just simply because you didn't vaccinate those calves.

**Adele Harty:** Exactly. And then, as we look at the respiratory vaccination, which is your 4-way/ 5-way, we also kept track of whether this was a Modified live or killed vaccine, because that was something that I had been advised to keep track of we did not find any differences and Modified live versus killed in this data set so we didn't report that. But essentially it goes back to if you vaccinate there is a premium versus not vaccinating or not knowing if you vaccinated and that can range anywhere from $10 to 18 and a half dollars per hundred wait for that 4-way/5-way vaccination for respiratory diseases, so once again it's important to vaccinate and there is some breakdown and you know, two shots versus none and what's better, but I think the biggest takeaway here is, it is important to vaccinate, the buyers are willing to pay more for vaccinated animals than they are for non-vaccinated or unknown. So that's the other big thing that I want to just jump in here and say when you're marketing your cattle at the sale barn, share with them what how you've managed those animals what you've done, because that's really your story on those animals and the buyers want to know that. And if you vaccinated them make sure you're writing that down so that they know that you're vaccinating them, because I think one of the assumptions that's made is that if there is no information shared they're assuming they have not been vaccinated, you're shooting yourself in the foot with that.

**Olivia Amundson:** Yeah I would agree there was a lot of times I was sitting in the sale barn and they would you know up at the block make the comment all vaccinated up that all their vaccines and I'd like to know what an order buyers thought processes on that, like, okay, do I trust that they have been all vaccinated or am I just going into this assuming like, Yes, this is what they said but I can't trust it so I'm bidding on these cattle, based on the fact that I'm not sure if they've been vaccinated so you know they would be that would be a really cool question to ask our order buyers to Adele.

**Adele Harty:** I think you're exactly right because we heard that a lot, especially I heard that a lot this spring, because they've had all their shots, yeah what does that mean and how, how do those order buyers interpret that. Because, after sitting in the sale barns for the few sales that we did I would really question it. Because if there's producers who are really taking the time to put together that shot sheet and provide all that information on their animals everybody should be doing that and if, if you are doing that and the sale barn is not sharing that information that could be something you should look into as well, because those sale barn owners should be working for you, and if you're providing the information they should be relating that as well, I realized that those shots sheets are probably available for those buyers to look at in the office but you know it's just making sure that all of those things are working to your benefit.

**Olivia Amundson:** Adele I'm going to ask you for a little bit more for your unsolicited advice here, so we just got done talking about vaccines, a little bit. Now, we know that everyone has different situations we know producers resources, facilities things like that are all different, if you had to give one shot for one vaccine and when what would you recommend, and I know I'm really putting you on the spot here but it's a question I have what would get what would give a producer, the most bang for their buck in terms of a vaccine and when.

**Adele Harty:** That's a tough question, because the challenges there's two main classes of vaccinations that protect against different types of diseases.

**Olivia Amundson:** Well, and I, and maybe I should restate my question so assuming that we're going to give a 7-way, and maybe going to give a 5-way, I guess maybe when would be our best bet if we're only maybe going to be able to give it once, potentially.

**Adele Harty:** So, based on the data and looking at the differences in price received we don't have any that show a single shot 7-way. So looking at this, I would say because of the premium with those shots given at birth and then in the fall I would almost say do it at birth and then they would get their booster likely when they go to a background in yard or a feed yard for that. Then, when it comes to your respiratory vaccinations there's more of a little bit more of a premium in the fall to give that shot and not give it in the spring, so if you just do one in the fall, it would be that one, but then again as you as you think about managing those animals if you're getting them in in the fall to do the respiratory give them the seven way too. If you if you are taking your calves and handling your calves at birth, give them a seven way at birth and again in the fall and then you should be in good shape, for your 7-way and then give me your respiratory in the fall. But honestly my advice is to work with your veterinarian put together that herd health plan and figure out what's going to work best for your operation because everybody's situation is different, everybody has different risks and if you've had challenges with some of the diseases that are included in these vaccinations, then you probably need to be given them if you haven’t, that's a conversation, you need to have with your veterinarian on what they think would be the best route to or way to administer it, what they think the best timing would be for administering those vaccines

**Olivia Amundson:** Yeah and I think that's probably the biggest takeaway is you need to work with your bet on some of these decisions, these are just data points that Adele and I are bringing up here and just the importance of making sure you do schedule something with your veterinarian I definitely threw Adele on the spot there, just out of curiosity what I was curious to see what she would come up with, and I would probably well, I do agree with her fully on everything that she just stated there. Alright so then one of the last things that we got have a data point on here is the influence of various management practices on price, and so, when I say that I'm talking about some of those branded programs, so drug free versus you know not drug free or antibiotic free and then un-weaned versus weaned. So Adele go ahead and just give us a little bit of a synopsis here on what we found, and then we can maybe have a little bit of a discussion on why we think some of these things happen.

**Adele Harty:** So, within the branded programs there was only one branded program which was drug free that we saw a premium for in comparison to all the rest of the calves. So the majority of those drug free cattle actually went through one barn so Ft. Pierre was really the one that we heard a lot of drug free cattle they had affidavits to go with it and, seeing that there were maybe more buyers that were looking for cattle that would fit into that category, and there was a $12.30 cent premium for per hundred weight for those animals compared to animals that were not in any other branded programs, so there is there is a desire for some of those feed yards to purchase drug free animals. We did not see any other branded program premiums through the sale barns and I think that's something to think about when you're marketing your animals if you are part of a branded program, maybe evaluate marketing options or ways to reach out to buyers to make sure that they know you're part of that branded program otherwise you may not get your return out of those branded programs that you're expecting.

**Olivia Amundson:** Now I think that's a really a really good point Adele the other one that we keep kind of scratching our head about and we've had a lot of conversation with other colleagues and other individuals is our un-wean versus weaned data report just go ahead and give us that synopsis quick Adele and maybe we can just have a conversation about it.

**Adele Harty:** Yeah so when we think about the fall calf run and South Dakota historically, these are going to be balling calves they're un-weaned calves they're coming straight off the cow and that's just the way it is. I think a lot of our buyers know that they're going to go straight into a feedlot they're going to have to be managed a little bit differently they're a little bit higher risk calves just because they're not started on feed. But what we found is that there was a, what we'll consider a premium of $14 per hundred weight for those un-weaned calves compared to weaned calves. And one of the things that we frequently hear is that the feed yards want those weaned calves that they've been waiting for 45 days they're on feed their bunk broke they've gotten through the worst of any sickness they've had that next round of vaccinations. This is something that we don't quite know what's going on, except for the fact that maybe those feed yards are set up and ready to take those on un-weaned calves that's what they're prepared for. Maybe weren't ready for the weaned calves and maybe there was something else, with some of those animals to that wasn't as appealing but yeah with the drought conditions last year that it seemed like there were a few more weaned calves that came through in the fall, but it didn't seem like it was advantageous to those producers to have those animals weaned.

**Olivia Amundson:** Yeah and so like I said we really scratched our head on that quite a bit and unless it was a human error and somehow us inputting that data in our in our data set incorrectly. But again it's probably a situation you know when we do have a conversation with some of our order buyers, asking them, you know it is this truly what we're seeing and why are we seeing this because, you know I've even had conversations with just a few producers talking about the data that we saw and. A lot of times they're like now I don't believe that and I'm like well, this is what we came up with and they're like, but why would that be and I give a lot of the reasons that Adele just you know briefly spoke about, and so. I think, even for some of our listeners if they might have some thought or idea on to why this is happening that would be extremely beneficial for us in terms of moving forward with some of this some of this information.

**Adele Harty:** Yeah, I'm really excited about what we found with this data, but some of it is still very puzzling and not a complete answer to what we really saw. The other thing that's important to think about, as I was sharing those numbers and this data, those are not additive, we did not include any interactions here, that's a piece, that we still need to evaluate with this data set is looking at interactions and how those play into the big picture, so that's going to be something that's coming down the line, but just as a preliminary here's the data we have as you're looking at you're getting those cows bred for the next year and branding time and how you're going to manage those calves at branding time in regard to castration and things like that that's going to be really important. The other thing that I mentioned earlier, was implants and creep feeding. We did not see any statistical difference between implanted calves versus non implanted calves and so as you're evaluating your program is there value in implanting that calf and having more pounds to sell because pounds pay that's what your marketing at the sale barn or same thing with creep feed, there was no difference in creep fed animals versus non preferred animals so.

**Olivia Amundson:** I will be interested to see what the background calf data comes back out though, because I had a lot more calves that were implanted, or you know they from the block they were saying you know these cows were implanted you know once or twice or whatever so I'll be really interested to see how that affects our background and calf run. I agree with you on this on the feeder calf run it wasn't very significant.

**Adele Harty:** Yep and it will be interested, interesting to see on the background and calf run because on the eastern side of the state we've got a lot more of the farmer feeders so they are implanting those calves to get more pounds because, then when they do sell them again as background with animals they're selling pounds and, as I mentioned earlier pounds pay and so it's one of those things to think about are we leaving opportunity on the table by not implanting something to think about, everybody's situation is different, but we just wanted to be able to provide some of the data that we saw this last fall coming through sale barns and like I said this is 110,000 heads so it's not a small data set. We represented a lot of cattle, a lot of types of cattle and I think we've got some really interesting data here.

**Olivia Amundson:** I think we do too, and like you said Adele we haven't completely hashed out all the all the details in terms of this data, you know we haven't looked at interactions and things like that, and so, and we are working with statisticians to get these things you know fine tuned and things like that, whether or not, how those interactions are going to affect this will be interesting to see but I'm really excited for us to finish analyzing the data and then hopefully put together a publication, that we can get out to our producers and have conversations and really be able to have conversations with our producers in terms of management decisions and how that's really affecting that price received for our calves, at the end of the year, so I think this is going to be a very beneficial data set for us to use as we move forward talking with producers and hopefully getting guys to really focus in on how important uniformity of their herd is.

**Adele Harty:** Totally agree with that.

**Olivia Amundson:** So with that Adele is there anything that you want to add before we wrap this conversation up.

**Adele Harty:** You know I think I just want to really highlight a few of the things that we talked about, because we shared a lot of data, a lot of numbers, but just really think about you know, the important thing is and where you're going find an increase the value in your calves that are marketed in the fall through a sale barn and that's going to be administering that clostridial and respiratory vaccine and providing those vaccination details when you're marketing those animals, so that the buyers know what you're doing. We know hide color makes a difference, last fall black cattle received the highest price. But I think those other hide colors are the ones that are heavily discounted, so if you have some in that category, see if you can do some breeding in genetics, to try and get them to a more maybe we'll say solid color that is going to get you a better price and then lot size is huge so larger lots bring more dollars, look at opportunities to increase that lot size and then there's added value in castrating calves so make sure that you're castrating.

**Olivia Amundson:** And I just want to throw in while we're just kind of doing our little recap here, a lot of this can be overwhelming. And it's not like you have to do every single one of these things correctly, I would say start small and one of the ways we can really start influencing the price that we're going to receive for these calves is literally pulling the bull early or pulling the bull in general, we want to have a calving distribution, where we know that our cows are going to calve within a certain period of time, which is going to give us calves that are calved within a certain period of time similar age similar size that's going to be the number one place to start in terms of seeing some of this return on investment. I guess in regard if people have questions if they're interested in this data and they're like well where, can I start, how can I start making some of these, you know management decisions to maybe start seeing some of these price, you know premiums for these for these certain things that I’m going to start adding, definitely feel free to reach out to us to have a conversation in regards to the data and maybe even some of those management decisions that you'd like to start making in order to improve that price you're receiving for these calves. Other than that Adele, what do you think anything else.

**Adele Harty:** Today, this has been a great conversation.

**Olivia Amundson:** This has been a good conversation, thank you to our listeners for tuning in and listening and we hope that you have gotten something out of today's podcast. We look forward to seeing you on the next episode of Cattle HQ.

**[Music]**