## Calving Preparation

## Season 1, Episode 9

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**Robin Salverson:** Welcome to Cattle HQ, brought to you by South Dakota State University. I am Robin Salverson, Cow/Calf Field specialist based out of Lemmon and along with me, another familiar voice you will hear is my coworker, Adele Harty, Cow/Calf Field Specialist in Rapid City. We're going to be your hosts for this episode. We have Dr. Russ Daly, SDSU Extension Veterinarian joining us. Prior to joining SDSU, Dr. Daly practiced in southeastern South Dakota for several years. We are excited to have Dr. Daly on this episode to visit about the upcoming calving season. With that we're going to go ahead and get started. So Russ why don't you share a little bit about yourself with the audience.

**Russ Daly:** Yeah, thanks Robin. I am the SDSU Extension Veterinarian. I have my office in Brookings at the Vet Science department, in the diagnostic lab here. A lot of people wonder what that is, what do you do as an Extension Veterinarian? So what I really try to do is take the information that we glean from the lab, from veterinarians and producers and kind of distill that into useful information that livestock producers and veterinarians can use, so I get involved with putting on continuing education meetings for veterinarians. It's really a nice job because I get to work with producers and veterinarians and one, you know question from one person kind of feeds into questions that we want to look into research for or dig into deeper and sometimes that translates into good continuing education topics. Veterinarians will come up with some kind of question that they're wondering about and usually if one person has a question, a lot of other people do too, so a lot of outreach and education, a lot of writing articles, doing zoom calls, one on one consultations. Most of my job is beef, when it comes down to it, but I do serve as a resource for all kind of species. I also get involved with some public health issues. I serve as the state public health veterinarian. I do a little teaching here and get involved in a bunch of research projects, too, but I still consider myself mostly a veterinarian because that's where most of my real world training came, in a mixed animal practice for 15 years down in Montrose so that's a little bit about myself.

**Robin Salverson:** That's great Dr. Daly. We sure enjoy having you here, and I know we've really enjoyed you here with SDSU Extension. I know I have some fellow followers, I have told you this in the past, that follow you around to different meetings here in Western South Dakota, so we very much appreciate you.

**Russ Daly:** Yeah that's great to hear.

**Robin Salverson:** So calving is just a month or two away for most folks here, especially here in South Dakota, but right now, during gestation, is a critical time to set up your cow herd for a successful calving season, and that includes mineral supplementation so, can you or Adele share any thoughts on the importance of minerals to the calf in utero.

**Russ Daly:** Yeah I'll just get started with that. The minerals that the cow takes in and are in her system get to go through the placenta and into the fetus so we can really play a pretty good role in getting our calves off to a really good start, if our cows have the right kind of mineral supplementation program and you know the effects of mineral deficiencies in cows in late gestation, you know translate to their calves and in some of those effects can be pretty vague. You know we might not know exactly what's going on, but things like reduced vigor. You know calves that just aren’t getting off to a good start, problems with the immune system and, and so you know we're not going to see like a real, you know something that's going to hit us over the head, oh that's a copper deficiency or that's a manganese problem. These things really affect the whole calf and their ability to get off to a good start.

**Adele Harty:** Yeah I was going to say that's a great introduction and one of the challenges or biggest challenges that we have in South Dakota in regard to minerals is copper deficiencies and copper can play a huge role in immune function. One of the things that I've seen in working with producers with their mineral program over the last several years is that if we have cows that are deficient in copper in that last trimester of gestation, we may see the result of that in those calves, whether it's that immune function like Russ mentioned. That's going to be one of the first things we probably see, so having a good mineral program let's get adequate copper in it, and taking into account the entire nutrition of the herd. So a lot of times, we’re maybe grazing dormant winter forage, maybe we're grazing crop residues, maybe we're supplementing with a distillers grain or another type co-product. Those all offer mineral challenges of their own and so making sure you understand the whole feed, supplements, and water situation is going to be important to making sure that you've got the right mineral out there for the cattle and then beyond that is that they're consuming it. Because you can have the best mineral available, but if they're not consuming it, it's not going to do them any good. One of the things that we've seen, we have a lot of black hided cattle in South Dakota and it's just sometimes easier to see a copper deficiency in those animals than some of our reds or Charolais, but if you get those calves that are born from cows that were deficient in copper during late gestation, they can have a real rough hair coat, kind of have a goggle eyed book and it may not be a major sign like Russ was saying, not hit us on the head with a major problem, but they're not going to perform, as well as we want them to. And it's important to get those minerals into the cow, because those calves will not get any of those minerals, through the milk, such as copper, zinc, manganese. Those are not coming through the milk and the calves won’t actually be building their own stores until they start consuming mineral themselves or a large percent of their diet becomes forage or other feeds, so setting them up in utero is important for that issue.

**Robin Salverson:** Thank you Adele for mentioning the comment about, I was just going to ask that there's certain minerals that do not come through the colostrum and so, and you said that was zinc, manganese, and copper. So I appreciate you bringing that up because I do know that in utero they are able to uptake those minerals right?

**Adele Harty:** Yes.

**Robin Salverson:** Thank you for sharing that. I think that's really valuable for our producers to understand what they can absorb in utero as through gestation, and what they can and cannot absorb through their colostrum as they start sucking.

**Adele Harty:** And milk even too, so not just colostrum but they're going to get some of the macro minerals from milk.

**Robin Salverson:** And what are those macro minerals?

**Adele Harty:** So that's going to be your calcium, magnesium. And Russ I may have to ask you, what's the phosphorus level in milk? I guess I'm not 100% sure about that.

**Russ Daly:** Yeah that's an important macro mineral that comes through in the milk too, so it comes back to that whole nutrition for the cow. I think that has to do with even you know the mineral supplementation, but the macro minerals, of course, and just all the other stuff they're getting, like the protein and energy they're getting too, in late gestation.

**Robin Salverson:** So when it kind of comes back to minerals and calving to kind of just reiterate the importance of a good mineral during gestation, and after calving obviously as they move forward. And if there's any questions, obviously contact Adele, who is very involved with the mineral side of things or a nutritionist to help you really determine what your mineral package needs to be. So in respect to protein supplementation during gestation in the cow herd, folks get concerned about calves getting too big, so I just want to get your guys's thoughts on that issue. You hear that every year and I just want to know what the science says.

**Russ Daly:** Yeah you can't starve a cow into making a smaller calf. You know that's just the way it is and if we've tried to do that if we if we worry about that too much then we have too little protein going into the cow in late gestation, and then we're what we're going to have is weak cow at calving. We know there's so many factors that go into how vigorous a calf can be right after birth, but an easy calving is the first thing right? The cow has a tough time because she's muscularly weak or just doesn't have the oomph to kind of push that calf out when she needs to. That can be you know from protein deficiency and energy deficiency and getting that calf out without having a prolonged calving and influencing its oxygen transfer adversely. Getting a cow into good enough shape to have a good calf, and then we have the issues with good colostrum and her ability to produce the colostrum but then the calf's ability to get up and nurse and get good colostrum on its own, so it's pretty short sighted to kind of think about nutritionally kind of limiting cows in late gestation. Now we don't want to overdo it either you know fat cows are going to have their own problems, but hitting that sweet spot and definitely not worried about you know really decreasing the amount of protein or energy that those cows are getting. You want to find a good happy medium, definitely not on the low side.

**Adele Harty:** So one of the things that I've looked into and researched a little bit in regard to the bigger calves that a lot of producers are concerned about a lot of it can have to do with temperature, correct? Because I think what I've been able to find is that in colder temperatures, we have increased blood flow to the fetus so we're increasing the nutrients that go to that fetus so. Therefore, that can result in a bigger calf. It doesn't have to do necessarily with overfeeding or under feeding it has to do more with environmental factors and the way that that cow responds to keeping herself warm and blood flow to the fetus can result in a bigger calf.

**Russ Daly:** Yeah that's exactly right and so those external influences have a big role to play, too, and that just gets back to treating the cow in late gestation well enough so that she's able to handle you know, a calf that's you know a few pounds heavier than maybe she had last year, for example. And of course we can get into another podcast about genetics and all that, but that really has a role to play for calf size as well, but treating that cow nutritionally well so she's in really good shape to squirt that calf out and that calf jumps up and nurses the colostrum, that's what we really want to emphasize.

**Robin Salverson:** So Russ, during the conversation we just had on that question, you mentioned quality of colostrum. So during gestation, when does colostrum form, what influences the quality of colostrum during gestation?

**Russ Daly:** Yeah you can think of the nutritional quality of colostrum. I kind of think as a veterinarian of the antibody you know quality of colostrum and what's in there to protect the calf. Definitely the nutrients the colostrum has are just so important to baby calves, especially when we have cold weather or instances where they need to start, making their own body heat. But from an antibody side you know, we rely on colostrum to provide that protection against you know, the scours germs, especially, but even things like the respiratory pathogens, they might encounter. Even keeping them protected from things like navel infections, you know those kind of things. You know those antibodies are all in the colostrum for that calf, and they don't cross the placenta, so that colostrum is just so important. So back to your original question, five weeks before calving is really when the cow’s body starts to selectively pump those antibodies into the milk formation system there in the udder. So I'm thinking about where that cow is at that five weeks pre calving, so we're talking about a month, you know month or month and a half before calving. If you're a month and a half away from calving, look out at your cows right now and look at them and say “Hey they're making colostrum now, so what's going on in their body so that's where we get into the nutrition of the cow, you know, protein and energy for sure, but also what are we doing to maybe boost the level of antibodies in that cow system so she can start pumping that into the milk and so where she's at with her immune system is going to determine what kind of antibodies are going to be present in that colostrum for that calf so that kind of gets back to you know, if we want to give vaccines in late gestation. Now what's the timing and so, knowing that vaccines, probably take a couple weeks to kick in and have their biggest effect, if it's heifers that we’re vaccinating for the first time, especially you know, we want to back that up from when they start to form colostrum. So in that, you know, six to seven weeks prior to calving is kind of the best time to give those scour shots if that's what we're going to do.

**Robin Salverson:** I'm glad you mentioned scour shots, because that was actually a little bit of a conversation I wanted to have anyway, so I'm glad we brought that up so so they are going to be looking at a scours vaccination to help. With colostrum quality and antibodies so that six to seven weeks prior is what you said?.

**Russ Daly:** Yep, and vaccines are different. They have different carriers that might allow them to kind of hang around in the cow’s system, a little longer, so I generally think you know. Producers and veterinarian should look at the labels on the on the bottle as far as timing goes. You know a lot of people are going to want to avoid a trip an extra trip through the chute so they might choose a vaccine that has a little longer window, so they can give it at preg check time, for example, but even then that's kind of a trade off, you know. Animal health is just a series of trade offs, you know the best time to give a vaccine is not necessarily a time when we're going to be able to run them through the chute, so we really want to think about that. Vaccines are different and we also have to realize with these scour shots is, look at the bottle of scours vaccine and there's only you know four or five things on the label. You know there's a lot of other things that can cause problems in calves. I mentioned respiratory issues and other scours pathogens and we can't vaccinate against and so that's where just having a cow that's in good nutritional shape to pump whatever antibodies that have been formed for the stuff she's been exposed to so we can get those into the colostrum and help that calf out, but the vaccines are going to be really important for the specific things like rotavirus, coronavirus, E coli and clostridium because that's specifically what they have in them to get those antibodies into the colostrum. Interestingly enough, you know when we give a cow vaccine in late gestation, we're not raising the level of antibodies in her colostrum but we're changing the picture of those antibodies to more of the antibodies against the scours germs that are in the vaccine.

**Robin Salverson:** Thank you for sharing that. Vaccines are a great tool, but they're not our only tool. I guess that the take home message is that management, overall management, whether it's nutrition, health are all important for calving to be successful.

**Russ Daly:** Yeah, it's a combination of everything and the people who have really good luck are really good at doing an adequate or great job in multiple settings rather than just depending on our vaccine, for example.

**Robin Salverson:** Absolutely, I mean if you had high exposure where you’re calving, it really doesn't matter what vaccines you give them that high exposure is just going to overwhelm.

**Russ Daly:** Yeah and that's the same with any vaccine too, right, I mean it's any kind of huge exposure is just going to overtake that calf’s ability to deal with it, so paying attention to the environment that the calves are in, that's going to be really important to keep those calves healthy beyond just relying on scour shots.

**Robin Salverson:** Absolutely, that is a big take home message right there is how you handle them through calving and whether you use a system like the sand hills cabin system which some of you maybe familiar with. That in the Sandhills calving system they're actually grouping age of calf together and then they're moving out the heavies to another pasture, so that way those younger animals are not being exposed to what the older animals are shedding.

**Russ Daly:** Yeah exactly it is kind of confusing because it's different than the way probably all of us were brought up calving cows out right? You have your calving pasture when mother and baby you're doing good and they're paired up well we're going to take them off to the bigger pasture. I'm going to leave everybody else, so all the pregnant cattle in to calve into the environment that increasingly is becoming more laden with germs and those scour germs that affect these calves they live in the environment for a long time. But yeah, it is a different paradigm. So in that case you know what you described is exactly right, you're leaving behind the pairs and then moving the cows yet to calve, the heavies, to new fresher ground that hasn't seen any cattle. What that does is that the cows calve on clean ground but then also, like you mentioned, you end up with these little age cohorts you know that are all kind of the same immune system they're exposed to bugs but they kind of all get over it on their own and there's not these older calves, to provide more exposure to the younger calves. So that's a lot of work, you know, because when you think about the Sandhills system to the letter what you have to do is have different calving pastures for like every week or every 10 days, however, you want to kind of you know stretch it. But the typical one would be calve in a week in an area then move everybody that hasn't calved to the next pasture for a week and so on, so forth. Well, how many fences am I gonna have to have, how many water tanks am I gonna have to have? So it gets kind of tricky and I understand that and my clients that I had in practice, you know weren’t always able to implement the Sandhills system to the TEE, but they can implement the principles, you know, so if they're going through calving season and it's a tough time and we're getting calves that have scours and having trouble, there are going to be a lot more calves to come. What we can do is move those pregnant animals to another spot you know, maybe it's a patch of bean ground or something out behind the shed that’s just getting the new calves away from where the contamination is so we can use the principles, if we can't have you know, five calving pastures or four calving pastures, however long your calving season is. Don't throw up your hands and say, well, these principles aren’t anything I can use, you know we can we can we can have different permutations of that as long as we understand that, where that calf is born that first 24 to 48 hours, where he's born really has a big role in how much exposure and how much potential illness he's going to have so calving on the clean ground is really important.

**Robin Salverson:** So, within that 24 to 48 hours is their critical time zone or timeframe.

**Russ Daly:** Yeah and even to the point where, if it's you know this is kind of a contrived example, but if you had like one germ that was causing all your problems it's, to the point where we know the incubation period of say rotavirus and the incubation is the same as the age of the calf, so we can tell kind of what pathogens are affecting the calf by the age of the calf, and what that means is if the age of the calf and the incubation period are the same, that calf’s getting exposed right away. So as those calves get older, you know even get a few days on them, few days to a week on them, there are certain pathogens that just don't affect them anymore, because their immune system and just their development of their gut has changed enough that they're not affected by some of those so the more age we can get on those calves, the better before they get exposed to germs like that.

**Adele Harty:** So Russ you had mentioned that scours stays viable in the environment, for a long time. What is a long time?

**Russ Daly:** It's to the point where definitely, if you are calving on ground where your cows winter, those pathogens are still there, even if it's a really frozen, you know winter, you know those pathogens are still going to be there, so we're talking weeks for sure, months probably, you know so any place those cows have been in the months leading up to calving, we shouldn't use that for calving you know. We should start on a clean patch of ground. And these are the germs we're talking about like cryptosporidium, coccidiosis, you know even rotavirus, coronavirus. They're pretty hardy, especially in the weather situations we usually have here during calving season, you know when it's kind of cooler and damper. It's definitely weeks and that's part of the trouble. Those germs have evolved, to the point where they don't have to just pass from calf to calf, they can pass out of the calf, hang around the environment for a long time and then another calf can come by and pick them up. So those germs have figured that out.

**Adele Harty:** And I think that's really important as far as just general management. If we can winter those cows in a different location than calving pastures, and it kind of goes back to some of your clients when you were in the clinic. It doesn't work for everybody, but just to be aware of it, and you know I even think about my own situation. I don't have a lot of ground right around my house where we calve, but if I could even dry lot those cows for a short period of time and then have the rest of the area for calving once we get to that point, rather than having them in the entire area prior to calving would be beneficial.

**Russ Daly:** Right it's not very often an all or none kind of proposition, you know you gotta kind of work with your own operation and your own facilities and figure out what works. That kind of brings up, when I mentioned facilities is, calving barns too you know. We should just mention that and people who are going to be calving here in January, February definitely use those facilities but the same kind of principles apply. You know if we set up our Sandhills system so all the cows are calving in separate areas but we're running everybody through the same calving barn, well we kind of defeated the purpose. We have to use them in a lot of cases, you know we can't just be out there in the elements if you’re calving in January, February, a lot of times but paying attention to the cleanliness and how you're able to kind of keep those areas clean and rotated out. It’s the same principles as what we've been talking about calving and into calving lots, you know that calving barn. So if there's something, you know that people can do in preparation for calving getting those calving barns kind of setup so we're able to get. Clean bedding in and dirty bedding out, get those things set up for a successful calving season.

**Adele Harty:** Is there any way to sanitize those calving barns?

**Russ Daly:** I get that question a lot. You guys probably do too. When we have dirt floors you know it's just tough and even some of the concrete floors we have is just pretty tough. There's so much organic matter in dirt and soil that you can't spray any disinfectant on it. The disinfectants just get inactivated by all that organic matter. So it's pretty tough, but taking out manure and bedding and the contamination, that's really 95 maybe even more, 97% of it. Just being able to get that stuff out of there. If we have nice concrete floors we can wash and disinfect and a lot of times that's pretty tough to accomplish too. I get the question about lime you know. You put lime down on the dirt and yeah it's not a sterilizing thing, it's not a disinfectant, but it makes it a little tougher for some of the bugs to kind of hang around, so I don't I don't discount it but it's probably about the only thing we can do, besides just keeping the bedding, what the calves are in contact with, keeping that clean.

**Robin Salverson:** I'm just going to ask about lime because that's what we used at home was lime. Once we cleaned out the bedding and whatnot it was on dirt floors. We didn’t have the luxury of cement.

**Russ Daly:** Kind of changes the pH and makes things a little less hospitable but it's definitely not like going in there with bleach or something. Some of these animal disease issues kind of have this tipping point, and if we can just knock things down even a little bit sometimes we can keep that disease below the tipping point where we're really seeing a lot of issues, so I don't have any problem with people using lime at all.

**Robin Salverson:** Well, I think another issue, I'm just going to go back to facilities, is the moisture level in facilities and the cause of pneumonia and wet straw, wet hay and not only is that a reservoir for bugs and bad things to grow, but just the moisture alone and the cause of pneumonia.

**Russ Daly:** Right that's a really good point. You know a lot of our calving barns are shut up pretty tight. It’s because we want to protect them from the wind and the cold but ventilation, getting airflow through is just so important. I'd much rather have a colder drier environment than a warmer humid one, that's for sure.

**Robin Salverson:** Well, I am going to go back to nutrition guys, if that's all right. With drought affecting forages this past year, we have a lot of drought affected harvested forages coming in to the whole state of South Dakota, actually it's just not one area of the state. What concerns or issues should individuals be watching for prior to calving, even during calving and after calving?

**Russ Daly:** Yeah, and I'll let Adele speak to this too. When you see forages affected by drought, we're worried about protein levels and vitamin levels. And as we kind of talked about, even if we think we're feeding a good amount to our cows, we could kind of be shorting them if we're not paying attention to what we've got there. So it's back to the weaker cows in really severe winter situations. We'll see situations where cows are just getting weaker and weaker. They put all their energy and nutrients into the fetus and they just get weaker and weaker and to the point I've seen really harsh winters where cows are just going down in late gestation. That really depends on the environmental conditions. Protein and vitamins would be the things to look at, and those would be the things to look at the weaker cows, harder calving, poorer colostrum all those kinds of things.

**Adele Harty:** I was just gonna add a little bit more on the vitamin side of things, in regard to colostrum quality because this is one of the areas where they're not getting that vitamin transfer through the placenta. And so they've got to get vitamin A and E, especially through that colostrum, and we have to ensure that the cows have an adequate amount to develop good quality colostrum that's then passed on to the calf. The challenges in those drought stressed forages, especially when we've had shorter growing seasons, we can be deficient in vitamin A. A lot of times we think we look at our hay and maybe we have some alfalfa hay that's bright green, we can get some vitamin A from that, but the challenge is that that vitamin A is only viable for so long in those stored hays and it's only about six months. If for some reason you had to start feeding stored hays earlier or they're just stored and you're not feeding them until say March, but they were put up in say July, you're beyond that six month time period where that vitamin A is going to be well utilized by those animals. That's where providing a good mineral and vitamin supplement is going to be important to helping that cow have a good quality classroom but the other thing to think about on the vitamin side of things, is she does store vitamins, vitamin A specifically in her liver for about four months so she can have some store there, but in a drought year a lot of times were to dry dormant grass and end up being slightly vitamin A deficient. I know in 2017 we dealt with some weak calves and then kind of attributed a lot of those to a vitamin A deficiency because of the drought conditions and those cows just not getting the nutrition that they needed to support those calves in utero.

**Robin Salverson:** So Adele you made a good point that vitamin A is only stored in the hay for?

**Adele Harty:** About six months. The cows store it in their liver. They'll have about a four month store and their liver.

**Robin Salverson:** But also, I guess, thinking back on to the hay that we're getting in this year, it's not just drought stressed hay, but two or three year old hay that's coming in from other areas so that is obviously well past the point of six months for vitamin A storage. So again another consideration is not only drought stressed forages being deficient in vitamin A, but also the hay that's being brought in that's two plus years old will be a concern too.

**Adele Harty:** Exactly.

**Robin Salverson:** So as Adele said in 2017 in Western South Dakota we did have a drought, I know it wasn't across the state, and I know Russ I called you I know a few times in regards to those calves being born, people concerned about weak calves. Some used the word “dumb”. I don't know if that's really the right word or obviously not the most science based word, but obviously that's what they were. Can you share if they weren't able to manage this poor quality hay on during gestation and they're seeing these types of calves born. What is a treatment option or to maybe try to bring them out of that state?

**Russ Daly:** Yeah, like we've been talking about feed supplementation, that's always the best. If a producer sees some of this going on early in the calving season and has a chance, is the calving season long enough, start with the cows that haven't calved yet, but we do run into those situations where it's just really tough and we have to address the calf that’s on the ground and I've seen these they call them yeah kind of dummy calves, they just don't have the vigor or kind of the brainpower to figure out how to nurse and that kind of thing and that can be the indication of some of these deficiencies we've talked about. So the calf injections once they hit the ground can be useful in a pinch. We want to make sure we're using the right product. Most of the ones that are out now have high enough concentrations of vitamin E in them and A to make a difference. Early on in my practice career we'd have vitamin A, D and E that we'd get in and they just had very minimal amounts of vitamin E so not all of these products are the same, so before you do that, check with a veterinarian and make sure you're getting the one with the high levels of vitamin E, especially. But those are things that we can do right off the bat, right as they hit the ground. Maybe the first day of life as we're tagging them, giving them an injection of Vitamin E plus A and D. Sometimes things like vitamin B 12 can kind of boost the calves ability to get hungry and nurse. There are all sorts of other kinds of nutritional supplements. The calf tubes that you see marketed and some of those can be useful in a pinch. Those tubes a lot of times are just more like fat and oil just to kind of give them some calories to kind of get going. So there are some options, but specifically with the vitamins, there are some good injections that we can use and I have seen them work and be useful, but I don't want people to think that, well I don't have to pay any attention to the cows, because I can give the calves a shot, it's much better to go through the natural way of doing things and get that into the cow in late gestation.

**Robin Salverson:** So, prevention is the key there.

**Russ Daly:** Yeah.

**Robin Salverson:** Those calves being born and that is a lot through nutrition, in this situation

**Russ Daly:** Absolutely.

**Robin Salverson:** So one other question and I think will be kind of winding down this podcast. At calving and or spring turnout Russ is there anything that we should be doing to those calves extra this year, or maybe producers can consider doing such as a Naselgen or something like that, knowing that some of these calves have been stressed in utero. And maybe even through the cabin season, a little bit, is there something that produces should be considering?

**Russ Daly:** Well, it's going to be really operations specific thing, I think. And I go back to not to beat a dead horse or a cow, I guess, but any vaccine that we give to calves is not going to work if they're deficient in vitamin E, vitamin A or mineral deficient so there's that. But if things are going good that way and we've got the calf set up to respond to a vaccine, it really depends on the operation. Some operations need to give clostridial vaccines right away at birth, because of overeating kind of issues. They tend to be pretty herd specific things. Nasalgen or Enforce, those kind of respiratory vaccines. I'd look at your herd history. It might seem like a good thing to do, but do you really have problems with pneumonia in calves early on, you know those first four or five weeks of life. When you get up to turn out that's a whole different issue, you know what have you seen out on pasture? You know a lot of places do increasingly see things like summer pneumonia out on pastures and that's when we want to really focus in on vaccinating those calves at branding or turn out time. But the baby calves, you also have to realize that some of those calves and some of those vaccines really don't work too well together and it's not a fault of the vaccine it’s the fault of the calf because his immune system to just not geared to respond. A calf that’s less than a month old, responding to a modified live vaccine like a BovaShield or something like that, it just doesn't work all that great until they get a little age on them. There are exceptions with things like the clostridial vaccines and the Nasalgen, the younger calves can respond to them a little better. So every year kind of evaluate. Has it been several years since we've seen a problem? And I know it's hard to want to drop things out of your program, but have a conversation with a veterinarian and there are new vaccines that come out. Definitely anytime you're thinking about making a change, to adding a vaccine or changing a vaccine to different brand or different type get some veterinary input, because they all know the ins and outs, the modified live versus the killed and the timing and what's in the vaccines and be able to advise you better on those questions.

**Robin Salverson:** One more question kind of related to injectables when injecting the calf, Multi-Min. Actually Adele and I were having this conversation, the other day, to tell you the truth, and so we were just curious on both of your thoughts Adele and Russ on giving a Multi-Min injection whether it's at calving or spring turnout, branding time. Especially during the type of conditions that we experienced last year and drought. Is there any thoughts on that?

**Russ Daly:** I think it would have a place in some operations. Definitely if we're having struggles with mineral consumption or didn't get the mineral out for some reason that can probably help some of those baby calves. It's hard for me to pinpoint which operations would benefit from them. But yeah they can be helpful in a pinch, I think, but nothing like the good old thing we've been talking about the whole time here, the nutritional supplementation. Look at those as a tool that you can kind of break the glass on and pull out of, the fire extinguisher thing and use if you need to, but not something that I necessarily think every operation should use every year.

**Adele Harty:** And I would agree with you on that one Russ. Because if producers have an established mineral supplementation program, consumption’s where it needs to be, they're not going to see a lot of benefit from the Multi-Min shot. There's a lot of research to support that but if it's a situation where they don't have the consumption or haven't gotten the mineral out, it may be a little bit of a boost to those calves, but Multi-Min does contain selenium and we've got some areas in our state that have very high levels of selenium so you have to be careful with that in that respect. But the other thing to consider if you choose to do a Multi-Min shot during your spring branding, that calf’s neck, isn’t very big and so thinking about where you're putting those injections and making sure that they're spaced enough, that makes it a little bit challenging and so those are just some of the things that producers need to think about as they're considering potentially implementing another injection.

**Robin Salverson:** Well guys I think we're gonna wrap it up here. I very much appreciate both Russ and Adele sharing their thoughts here during our calving episode of Cattle HQ. For everyone listening I do encourage you, if you have any questions for Russ to reach out to him, but also to your local veterinarian. Having that vet-client relationship is really important, so that you are successful, whether it's through calving, or through the production year. And if you have any questions on the nutrition side, minerals side, please reach out to Adele Harty or a nutritionist to again so that you can set yourself up for a successful calving season. Is there anything that I missed or something you guys want to really have people take home from this? Russ, do you have any final thoughts?

**Russ Daly:** I think we’ve really stressed the importance of nutrition for all of this and I think like I mentioned also especially when you're thinking about making any changes, get some advice and just run that by a vet or a nutritionist. It's never going to be a bad idea.

**Robin Salverson:** Adele any final thoughts?

**Adele Harty:** No, I think Russ summed it up very well. Nutrition and health go hand in hand and you can't have one without the other. Making sure that you're paying attention to those factors and reaching out for advice if there's something new or you've had different challenges seek those experts to help you work through those challenges if you're not sure.

**Robin Salverson:** Excellent. Thank you guys. Thank you Russ for joining us on this podcast, Adele and I really appreciate it. Once again, this has been cattle HQ brought to you by SDSU Extension, headquarters for all things beef cattle. Visit extension.sdstate.edu for the latest beef information. Until our next episode, remember the cheapest way to improve your looks, is to wear a smile.

**[Music]**