## Preparing for the Breeding Season

## Part 2

## Season 1, Episode 14

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**Olivia Amundson:** Welcome back to Cattle HQ brought to you by SDSU Extension. We will now continue the conversation with Dr. George Perry of Texas A&M and John Moes of Moes Feedlot LLC, on preparing for the breeding season. We ended the conversation last time discussing the importance of facilities on breeding and calving success. Today we’ll pick up the conversation discussion research being done on estrous synch protocols.

**Olivia Amundson:** I was just going switch the conversation just a little bit. You talked about doing this research project John up at your place this last summer and Perry you kind of talked about these protocols could work better in certain situations. From these two protocols that you were looking at, were there's certain situations in where one protocol works better than the other. Are you allowed to say I don't know.

**Dr. George Perry:** We don't have all the data, yet, and so we ran progesterone’s on about half of them, we still have a couple of hundred head to breed and so we really have not dug into it, that deep. Hopefully, over the next month or so we'll get into that far, but instead of trying to avoid any biases or that. We have not dug into it, that far but what's interesting is some protocols seem to have better responses one way or another, but we like I said we really haven't dug into it far enough to know where those situations, but what I can say is between the protocols we are doing, which is the PG-6d and the 7&7 we really haven't seen a difference in overall conception rates. Now, what will be interesting is are there places where they work better one versus the other.

**Olivia Amundson:** Yeah I think that's really interesting and so can you just tell us where that research was done or is being done currently.

**Dr. George Perry:** So we had herds in South Dakota, we had herd in Kansas, Texas, Arkansas, Mississippi, Georgia, and New Mexico.

**Olivia Amundson:** So really spread out over the entire United States really, lots of different scenarios I guess.

**Dr. George Perry:** We were trying to get as wide of a variety of environments and herds as possible.

**Kiernan Brandt**: I think I mean this is obviously one thing that super intrigues me about the capacity of Extension, the capacity of being a reproductive physiologist and the improvement of these protocols as they continue to progress in advance and get tweaked a little bit just to see how we can optimize these things circumstantially under different kind of management scenarios. So Dr. Perry what are some of those things that are that you think are going to be driving factors of those circumstantial effectiveness is it largely going to be postpartum interval and body condition score and those type of interactions.

**Dr. George Perry:** Yeah when you group up a lot of that together, body condition score, postpartum you really get down to cyclicity status, have the animal started cycling again. You can go all the way back when I was a grad student, one of the things we noticed, we were actually trying to induce persistent follicles, where at that time with MGA in anestrus cows and you can't do it, they respond differently, and so we do know there's those differences. Now the CIDR is different, the progesterone instead of a synthetic progestin and so that's what we have to learn. And so anytime there's tweaks, anytime there's new protocols or that they're based on the same principles of controlling follicular growth, controlling timing of luteal regression, trying to get the most cows to show estrous in a short period of time. And so those differences really have to be taken out into all these different scenarios, to say what works the best. Not only weather and time of the year so, John's place was breeding last year, we’ll be breeding cows down here through April and so we'll have cows that are almost bred year around in different parts of the country. And so, when you take those different environments, different types of cattle, now one of the things that all of the cattle in this study were Bos Taurus cattle that's not getting the Bos Indicus differences involved with it, and so it is comparing that way, but just the different environments, different management all of those things come into play on what might work better in one situation than another.

**Kiernan Brandt:** Man I'm having some flashbacks from graduate school now. I had to include an entire seasonality section in my Lit Review which going into it, I did not realize there was any kind of seasonal influence on development and puberty onset in cattle, but there sure is some varying opinions of and bodies of evidence out there, so. I guess that's an important consideration to take into effect, I mean I guess just from what I've, and I'm sure Olivia is kind of heard some of the some of the similar stuff that I have, I mean obviously a lot of excitement around the 7&7 protocol and based on some of the preliminary data. Most of the guys that I've heard talking about it are, the ones I'm specifically thinking I were really excited about it in recip cows which, in synchronizing recip cows, and I mean typically well fed, not necessarily representative of a true range situation or production animal.

**Dr. George Perry:** And not only that, but a recip animal is different because we're worried about different structures. In a recipient animal we really don't care if the oocyte or the egg gets aged, because that has nothing to do with the fertility, because we’re putting an embryo in, but when we're doing it and we're AI’ing the animal and that follicle goes past its normal life and that oocyte starts to get age, then we run into decreases in fertility that you'll see with AI that you won't see with embryo transfer. So they're very are really different scenarios and situations that all of these different things can come to play in.

**Kiernan Brandt:** Well, you brought up a really good point earlier about environment and the potential capacity that environment can play on a lot of these things and I told you, before we started that I was going to ask you for a hot take. And this just, I won't get into too many specifics about companies or product names, but I was reading a popular cattle magazine, and the article was centered on Defensins, and a test to detect Defensins, which from my understanding and their explanation is essentially an assessment of the animals capacity to perform or I guess representative of its adaptiveness if you heard anything about those?

**Dr. George Perry:** Just briefly it's not an area that I've done anything in or that and there's lots of test out there that have tested different little things and their impact. A lot of times they're tested early and dairy cattle. And what you'll see is overall health and well-being has a true impact on fertility. And so, if there's any measurement at all that shows these animals are healthier or better off, you're going to see an improvement in fertility. And so the way I look at a lot of those tests, because we also do a lot of research on the male side, is are those tests any better than what we already know. If I can go in and tell you cyclicity and I can do that by blood work, I can do that by ultrasound, or I can do that by watching the cows and seeing if they've cycle. To use one of these other tests actually tell me any more knowledge than knowing cyclicity status, because if that animal is in good body condition and she cycling, then I know she's well often she's ready to go breed. And so on the male side of things, we look at a breeding soundness exam and we do quality, and we do motility, and then, all of the lab tests. Which there's a lot of lab test out there to look at semen, do they tell us anything more than what we can learn by those two. I mean, I can show you all kinds of lab tests that you get really great pictures and really great numbers with. But they don't really tell you more than what we learn by doing motility and morphology. And so we need to weigh all of these things and figure out, okay what gets us new information versus those little things that okay can be something that can be measured but really relate to just the well-being and is that animal ready to go into the breeding season. And that's, the reason I think this time of the year for up there gets really important, because what is everybody worried about right now? Calving. Not sure when the next storm is going to come through anything else it's calving time. What happens at calving that impacts things further on? The follicles we go to breed off at the start of the breeding season are actually starting to grow now. If they're in poor condition at calving we delay that postpartum interval. And so, if we started thinking about reproduction now at calving we start setting up the entire herd to have better reproductive performance. And so the tough thing is a lot of people think of reproduction as when they go and turn out the bull, or when they go and buy the synch products or when they actually breed the cow. But in reality to have good management it's a year around process for that reproduction to be there. As John pointed out how we got started working together was looking at how animals learn to graze. And how would you think that is impacting your reproduction. But that whole thing ties back to nutrition and everything else, and so, when you start putting all the pieces together it's the overall herd management and John's a prime example of it, as you start doing this, it builds upon itself and, as you see the successes, you get excited about it and you keep looking further and further on what can I do better. And then you get to the point where it's kind of not, “how many cows are open?”, “how many do I need to keep?”, but “Oh, what can I select for?” you know and so it's that whole herd management that really impacts reproduction and it's a year around activity.

**Kiernan Brandt:** And I think you bring up a really good point that I mean, regardless of how things advance and change and how good the science gets I don't think there will ever be a silver bullet or a magic swab to simplify this industry and a lot of these super delicate, collectively intertwined efficiencies that make really advanced cattle production work so well. Really understanding that these are all just tools that we have access to and the capability to use in different capacities, in different ways depending on where we're at or what we're trying to accomplish through them. But the more information that we're aware of and willing to understand and utilize can really help make those rapid progressions and help move the needle.

**Dr. George Perry:** Yeah in reproduction, the silver bullets, are all long gone, because guess what, if it has that big of an impact it's already been selected for or against. I mean if there's something out there that's going to have a 50% impact on conception rates, guess what, the downside to it is those animals wouldn't have been bred and they’ve long since left the herd.

**Kiernan Brandt:** So simple selection is still your answer, Dr. Perry.

**Bryan Moes:** Yeah, Kiernan, when you start looking at simple selection it's just like we started keeping just the AI bred heifers for a while and our young first and second calvers stayed in the herd that first or second year after having that first baby. When you start talking about simple selection, they were the ones that got AI’d first, they stay in the herd. It's just comical in now if we only keep AI’d heifers, I think that's why our reproduction has been staying so uniform is because we pick we AI and we keep the AI’d heifers back whether the decent one with the nicest once in a herd, and with the most genetic, genomics we can pick whatever we need. We take a bull and we'll run with him for one or two years until he's no longer available and then we'll start with another bull on AI which is nice we're on 300 head of cows you need 12,13,15 bulls, how many times can you get 15 brothers be in the herd. The uniformity is getting there, and we can see it in the carcass data coming back. There are 100% choice or better anymore, there's no select coming out of them when they go down the road. In 13.5 months they’re weighing 13 and a half to 14. The end of April there's a load go out, two loads in May, and a load in June and they're gone.

**Kiernan Brandt:** That's got to really simplify things for you as someone that’s hanging on to these cattle, all the way through the feed yard, in terms of feeding uniform pens.

**Bryan Moes:** That really helps, this year we had 160 head a steers and 120 head of heifers. And so, by time we sort four or five bulls off that and sort some the tail end, we've got two, three semi loads of steers that'll be and we’ll sort the heifers and steer as well, one load in April that'll go out of there at 14/14 and a half, biggest ones in their weight 15 at 14 months of age. It's just like clockwork anymore and that's helped a lot through what we've been doing for the last two decades.

**Kiernan Brandt:** And I think you bring up a really, really good point and there's a, I mean Dr. Perry's published quite a decent amount of it I'm sure they would agree that those heifers born early on in the breeding season those are going to be the ones that stick around and continue to be productive for longer portions of their life. And those are the ones that that truly end to end up making us profitable in this sector in the long run. John you brought up something earlier that I want to make sure that I didn't forget to point out. When you were talking about those ones after AI that didn't conceive and how they were still they still ended up being okay, because they were only set back that 21 days, they were still pregnant within that first 30 days that first round by the bull and how that really didn't set them that far back because they were still grouped up towards that front end. I just wanted to acknowledge how much more flexible that leaves us from that standpoint, of having those cattle, even if they didn't conceive to AI and even more beyond that, just to the testament of doing all of these things and understanding the impacts of this system as it kind of goes throughout the calendar year. As you've been doing this for over the past couple of decades having the flexibility and the opportunities to have cattle that didn't conceive to AI and got bull bred early and still have those cattle be okay, because they are the result of generations of selection pressure and environmental adaptation and are really a dialed in animal for where they're being asked to produce much more so than a set of bought cows, where you don't have any genetic information or environmental adaptability kind of assessment on those animals, where you're relying entirely on your AI genetics, to be the driving factor of your new genetic material coming into your herd.

**Bryan Moes:** And that's exactly true Kiernan and we've got the genetics, even in that one if she missed that first AI date, we get three weeks later, when we're done with all AI ones we never stopped calving. We got the next three weeks of the first go around and we'll have 85 probably 90% of our calves in that 23-24 days. It seems like 35 or 40 days, because we've got them split 100, 100, and 100. It's just kind of what works for our facility, we can bring in our calving barn is 60, two 60 by 60’s. We can bring in 120 head the first two weeks of AI we can bring them cows in and we know which ones are AI because they come up and ultrasound at 35-40 days. That's something nice we're working with them and then they come back in the fall and we check for which ones are open and we go through and make sure that we didn’t lose an AI calf to see, and then we just take all them AI’s and we go down and punch on them get a list of those and that's what comes off in in our calving barn the first go round. And then we sort off the next AI group two weeks later, they go in a group out in the pasture their selves and like I said we got enough paddocks that we can do that, and then the next ones by time they start calving, we can put them all in one group, and they can come in underneath. We can have every through everything through 160 by 120 foot barn with cameras it and it's our calf loss, is it work, yes, but we're different than out on the range, I wish we could be that way but I don't think with our facilities and in our nutrition, it makes a difference to it's all tools that we got an toolbox.

**Kiernan Brandt:** What bulls you breeding to this year you've been looking through any catalogs?

**Bryan Moes:** We bred to Ashland last year full bore. Out of our first calf heifers last two years, the biggest calf gained almost four pounds from the day he was born until he got killed. He was over 1500 pounds off a first calf heifer born in February. And those calves have not hurt us. Right now, the bull that we used he's not producing semen, for some reason or other. But no we're always looking we're playing to see what we can put on these Ashland ‘s. Just for an example we had oh, 10,15,20 Ashland daughters from out of the heifers two years ago, so now this last year, we tried a couple ABS bulls just to throw on them just to see what kind of carcass what we're going to get out of them this spring, so we got something go on in a year from now, we got something to start bringing these Ashland’s to because we're going to have a heck of a lot of them on the ground this spring.

**Kiernan Brandt:** You're someone who's obviously pretty in touch with that side of things and reading those numbers, you mentioned kind of the realm of yearling weights that you like to look at. One thing I'm curious about your opinion on as someone who's looking for some above average growth, but then also has to foot the feed bill for those critters do you like when we're talking dry matter intake and stuff like that, do you try and search for genetics of cattle that eat more and consume more or do you like to try and moderate that a little bit.

**Bryan Moes:** We're I guess that part of it all comes that feed efficiency kind of comes with the carcass if you got a good carcass it seems like if they're gaining you're getting the feed efficiency. If they're marbling, if you're going to get the primes, some primes and a lot of choices of, I guess, where we don't feed them to 1600 pounds normally. If we can get 10-15% primes out of 200 head because we keep 80 head of heifers back, every year. So if we can get that many primes, 10% primes I'm pretty tickled on everybody says, “jeez just feed them for another 200 pounds”, well we'd have to slow them up a little bit so we didn't burn them out to start with, but we push them pretty hard they're on it on a finish ration since the first January, and then they go out of here in February. When you talk about looking at growth and it seems like, like I said beginning, our growth bulls has not heard as at all. When we started doing them growth bulls it just seems like carcass comes with them growth bulls for some reason is what I've been seeing. If it's true or not, but that's one thing that I can see, is our carcass just kind of come with the growth in yearly weights being up there. We are looking at marbling and ribeye size more now but I haven't been looking at that as much as the yearling weights.

**Olivia Amundson:** Yeah I remember you, or having that conversation with you John asking you how do you pick that perfect terminal and maternal bull and you said, however, you've been doing it just continues to work! I'm just going to switch gears here as we wrap up, Dr. Perry you've been doing some work on the bull side of things which I'm not going to say is new to you, you've been doing it for a while, but can you just give us a little bit I guess of an update of what you're working on before we end this episode.

**Dr. George Perry:** Yeah so actually what came up earlier on different synchronization protocols and stuff the side that is often forgot is the bull differences. And so we've done a lot of stuff for years, looking at the female side of things and trying to get better control of the follicle and ovulation and all of that, but what's often forgotten in herds is the impact the male can have. So the current method of looking at and I hesitate calling it fertility, but to see if a bull is good, is a breeding soundness exam. What's measured in a breeding sound this exam, physical characteristics, is he able to breed, scrotal circumference which relates to daily sperm production which correlates to age of puberty, and in his offspring, and then semen characteristics of motility and morphology. When we think about fertility, though, what all is involved with fertility? So that bull, whether we breed by natural service or AI that sperm has to swim to the side of fertilization, and there are several barriers in the way. It has to then bind to the egg or the oocyte, it has to fertilize it, and then there's a lot of work coming out and we've seen some in the stuff we're doing, there's actually different things that that sperm carries with it, that can impact that early embryo development. You know, for years, it was thought, Oh, the sperm just takes their half of the DNA to that calf, well no there's a lot more that goes into that. And so, one of the things we're trying to break apart, is from the noisy level of fertility data, because we all collect it, you know we use bulls and come back and say, “oh across all these herds this one's better than that one.” Okay, but we don't know where the breakdown is. Is the breakdown in sperm transport, is the breakdown in forming the sperm reservoir, and is the breakdown in early embryo development. And so we're looking at those different factors and are there possible things that can be transmitted generation to generation that can impact that? And so what's really interesting to me is some of the stuff we're getting into that some of the other stuff besides DNA that the sperm takes with it can be impacting that embryo up to blastocyst formation we're seeing differences in bulls and blastocyst formation rate based on different things. I think some of the big changes that will have in the future on the next step in fertility, we need to address them on the male side to be able to pick out those bulls that aren’t just okay, which ones are up here higher and which ones might be down here a little bit lower but they're all in the acceptable range.

**Olivia Amundson:** Yeah I find that to be really intriguing and I look forward to some of this stuff coming out, and in fact it just makes me think that maybe once you get a little bit closer to that point, maybe we need to do another podcast to go a little more in depth, because I definitely have more questions. Now Dr. Perry, you are on the Reproductive Task Force or the Beef Reproductive Task Force you just want to briefly talk about that, for our listeners to get an idea of what or how they can use that.

**Dr. George Perry:** Yeah, so the Beef Reproductive Task Force is the task force part of it is actually the academic people who are part of it from around the country that have reproductive backgrounds that are elected to it. What we do is we go through data each year recommending, okay, what are the best protocols, what is working consistent across the country. We also host the Applied Reproductive Strategies in Beef Cattle Conference. So things like that we do a monthly webinar this time of year on different topics. Then part of that is also the leadership team, which includes the AI industries, the pharmaceutical industries, all of the other industries that are focused on reproduction and we get together and kind of gives a directed focus on what is impacting reproduction in the beef industry. Everything from the pharmaceutical side to the AI companies to academics, and so it is really there as a resource. We have a website the beefrepro.info website, we have we help with the estrous sych planner that Iowa state puts up each year, and so that's a free download to help you make sure you have that barn calendar printed off right, so you know what drugs to give on the correct day. Lots of things like that, and so it is a national group of us that are elected to it that serve to help go through and make recommendations to the beef industry.

**Olivia Amundson:** Yeah and we'll make sure that we link to the Beef Repro Task Force and the beefrepro.info link in the resource notes with this podcast. Okay, I just want to end with the million dollar question. Can you use a CIDR twice?

**Dr. George Perry:** Oh if you use it twice it's only half million dollar right?

**Olivia Amundson:** Everybody wants to know it, so.

**Dr. George Perry:** Okay, so the question is, can you use a CIDR twice, I get asked that a lot of times. There isn't a direct answer to it. Is there progesterone left in the CIDR or when you're done using it, yes. What situation are you putting it into? So if you've got a closed heard that you're not worried about disease transmission. So there's one of the things you worry about so when you take the CIDR out it comes from a bacteria rich environment, how are you going to clean it to keep that bacteria from then infecting another animal. And so that's one way to look at it, the next way is what does that decrease the level of progesterone do and there's very little research who looking at it there's an older study that was done at Virginia tech several years ago, looking at multiple uses of a CIDR and timing of estrus. And so I like to point to that study, as some of the information we don't know so if you're going out and your heat detecting animals or if you're going out and you're putting the CIDR in and letting bulls breed by natural service, do you care if they show heat at two in the afternoon or two in the morning, no. All of the protocols, if you're doing a fixed time AI, though, and I want to go breed them at eight o'clock Saturday morning, I do care when they come into estrus. And we don't know based upon this one study that was done that showed differences in interval to estrus reusing a CIDR in a fixed time situation could have detrimental effects by changing that interval to estrus. Like I said, if you're heat detecting or you're going out with natural service and you don't care when they show heat. Now I get asked, even beyond that, what about more times. Now what happens is as progesterone drops more and more, you actually then get more irritation of the vaginal wall. In fact, to the point of if you if there is no progesterone you can risk rupturing the vaginal wall, and so I would tell people definitely not more than a second time, and it really depends on biosecurity how well you're cleaning them what you're doing with them and then the use of them on if you should do it. As John pointed out, while ago what's one calf, that 40 pounds, what's that worth compared to the price of a CIDR and so that's the reason very little research has been done on it, because if reusing it cost you 5% of your AI conceptions you more than paid for using a new one, so you have to look at the given takes for all of those decisions.

**Olivia Amundson:** I think that was a very well put answer and for a hot second I was going to maybe throw out the idea to John about doing I used CIDR study, but I think you might have put the kibosh to that.

**Bryan Moes:** You know what, I like my conception rates. You know I, like my conception rates and we've been in this long enough that we honor with what SDSU is doing and what Extensions is doing for us. And if we don't help you guys out who's going to do it, I guess that's what I want to leave this at and it's been a good partnership between Extension between SDSU, Texas A&M now, yeah everybody so it's been a good relationship and it's fun, it's neat to just to see what we do yeah and what we can get accomplished.

**Olivia Amundson:** Well you guys, I appreciate this conversation so much John, thank you for being with us, Dr. Perry, thank you for being with us.

With that we wrap up our conversation of “Preparing for the Breeding Season”. Again, big thanks to Dr. George Perry and John Moes for their discussion during today’s podcast. Thank you for listening to Cattle HQ brought to you by SDSU Extension, headquarters for all things beef.

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