

# BRD with Dr. Jared Taylor Mixdown

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**Dana Zook:** [00:00:00] Welcome back to the Extension Experience Podcast. I'm Dana Zook. This episode is part of the series we are partnering with the College of Veterinary Medicine at Oklahoma State University. In this series, it is my goal to highlight common issues we see in livestock health, some big picture topics, lots of things.

And one of the largest challenges of the beef industry that I want to focus on today is the occurrence of bovine respiratory disease. And I've invited Dr. Jared Taylor back to the podcast to talk about his work on this complex health issue.

I'll call it that Dr. Taylor, and we can talk more about that, but welcome.

**Dr. Jared Taylor:** Well, thank you for having me. Very glad to be here.

**Dana Zook:** Dr. Taylor is an associate professor and veterinarian , In the Oklahoma State College of Veterinary Medicine. Dr. Taylor, we've recorded before, but depending on when this comes out, why don't you give a little background about yourself?

You, you have cattle of your own here locally. And so tell us kind of how you came here because you've been around.

**Dr. Jared Taylor:** So [00:01:00] yes, I've, I've been in private practice for a, for a little bit after graduation, I've got a master's in public health. Which drew me in slightly different direction, but I never lost my love of cattle.

I've did a, did a PhD here before I joined faculty and a large animal internal medicine residency as well. And so I've been in Stillwater for quite some time. I've been on faculty here since 2009 and yes, my family and I have a, small cow calf operation, about 40 pairs in Morrison where we Have mama cows and, and runs a stocker and actually retain ownership and send those calves to feed lots.

So we deal with BRD ourselves. Yeah.

**Dana Zook:** Very good. So let's just jump in. Could you give us a background or a baseline about bovine respiratory disease, or we're going to shorten it BRD,

right? As we have termed in the industry just give us a little bit of a background. What it is and why would we be concerned

**Dr. Jared Taylor:** you bet?

So, BRD bovine respiratory disease the acronym BRD Actually goes by a lot of [00:02:00] names. So a lot of are perhaps more seasoned listeners may think of shipping fever That was a term that was around in the 70s and 80s For a while. It was called BRDc Because bovine respiratory disease complex because it is a complicated scenario.

The Canadians will sometimes refer to it as undifferentiated fever. Because honestly, most of the time, that's what we're treating. We kind of assume that it's respiratory disease. When you have a bovine that's not looking good, not eating maybe has a fever, then we're going to presume that it's respiratory disease, because that's quite common.

And then sometimes on the pathologist side, we'll call it fatal fibrinous pneumonia. So it goes by a whole bunch of names. But they're all referring to basically pneumonia infection in the lungs. that affect cattle. It's a very impactful disease. The most impactful disease of all classes of cattle outside of neonatal calves that struggle [00:03:00] with diarrhea.

We think of it most significantly in recently weaned calves, whether that's on the ranch of origin at the stocker background or, or even in the feedlot. That's where we think of it most commonly. But again, really all classes of cattle can get basically the same syndrome or basically the same condition.

**Dana Zook:** Yeah, so it, it sets back calves significantly who get it.

It's pretty impactful, negatively impactful, right? And you can correct me on this. I've, I've found some numbers yesterday, Dr. Taylor. I think it's important not to overlook the fact that like 70 percent of sickness and maybe even 60 percent of death in feedlots are from BRD. Do you think that's a good number?

**Dr. Jared Taylor:** Probably, probably a pretty reasonable number. It is, yeah, it is for sure going to be the majority of both sickness and death is going to be respiratory and everything else is everything else, right? There's all sorts [00:04:00] of other things that can go wrong, but it's everything else. Respiratory disease really is the big one.

And , the one that we struggle to control really the most as well.

**Dana Zook:** And so what conditions maybe bring this on? Because to me what I've heard about it is any stressor can bring it on in a calf that maybe has a lower, lowered immunity.

**Dr. Jared Taylor:** That, so yeah, so it's, it, it, pneumonia, it, when we see a clinical animal, we're certainly going to assume that there's a bacterial component involved.

But we, I'm not going to go into the details of that right now, but Well, there's all sorts of, of opportunities for that, particularly when we're co mingling cattle, bringing them from different sources, but other cattle just carry it as well. And then [00:05:00] that stress component is huge as well. We, we oftentimes think of that stress component is actually whether it is the reason that cattle develop the viral infection or whether it's what really gives that viral infection, the opportunity to knock the calf down, so to speak, is, it is.

Stress is a big part of it. And so weaning is typically the most dramatic stress that we think of, but it really can be a wide array of stresses that can contribute to it.

**Dana Zook:** Okay. So a situation I see I call them put together calves or commingled calves. , producer is, buying calves to put on wheat pasture.

He gets them from the sale barn or, , a buyer, a broker. And a pot load of calves comes from 20 different sources, which is reality in the beef industry. And. They're all bring all the viruses, bacteria, and all that, and so would you agree that that's a ripe situation for BRD?

**Dr. Jared Taylor:** It absolutely is, and, and there's actually a [00:06:00] lot of dynamics there, so you, you touched on a lot, you know, that they're bringing novel pathogens, novel viruses, novel bacteria that the other calves haven't seen, right? It's also sort of the, sometimes quote referred to as a first grade scenario, right, you just from different places, put them together they don't practice good hygiene, right?

And and we're stressing them. They've, they've left mom, they've left everything they're familiar with. We're asking them to eat something new that maybe they've never seen before and so on and so forth. And so absolutely a very common scenario and, and a situation that we would really expect BRD to be an issue.

Now, one thing that I would point out is a struggle is that BRD is very, very. Very, very reluctant to say unpredictable, but that's really the best word, okay? That we can predict certain groups of cattle are at higher risk and other groups are at lower risk. But sometimes producers think, well, these [00:07:00] should be zero risk calves.

We've done everything right. There's no such thing as a zero risk calf.

**Dana Zook:** Wean, 45 days,

**Dr. Jared Taylor:** vaccines, free nutrition, all those things. And, and, and sometimes. We, we think that those calves ought to be zero risk. And they're not. And the other thing is why that scenario you described, I mean, it's very easy to go, well, why would anybody operate that way?

Why would anybody buy a pot load of calves like that? Well, it's because they will have health issues on a large percentage of those groups, but some of those groups won't. And we really don't understand why we really don't. That unpredictability is some of the hardest. It's the first aspect to grapple with and come to terms with, with BRD.

**Dana Zook:** So it's, it's just very complicated.

**Dr. Jared Taylor:** It is very complicated.

**Dana Zook:** And we have seen just continued struggle with this, even with some new drugs on the market and that sort of thing. And we don't necessarily have to get into that, but

**Dr. Jared Taylor:** Well, [00:08:00] that, no, that's exactly right. I mean, this is a, a syndrome that's been described for well over 70 years and, and, you know, dates back even farther than that.

And yeah, we've, we've greatly improved our vaccines. We've greatly improved our pharmaceuticals, our, our antimicrobials and other drugs. There's even hormone type products now and immunostimulants and things like that, that seem to have, potentially have some value. And yet, it continues to be really at least as big of a problem as it ever has been.

And many indicators would suggest it's becoming more of a problem than it ever has been.

**Dana Zook:** So Dr. Taylor, , how do we get a handle on this? I mean, do we, do we, is it a grassroots thing? I mean, it's hard because, The beef industry is unique. It's very different sectors, lots of different ownership.

What's your idea of maybe, some first steps on, just as a big picture, and then maybe like for a producer, like [00:09:00] what's the first steps in controlling this? Because it's, it's, it's a big problem, right? It is

**Dr. Jared Taylor:** a big problem, and again, it's so complicated. So, what we do know, what has been shown, really for multiple decades now, is that weaning those calves prior to shipment, prior to the co mingling, prior to all the other stresses that are going to take place.

Weaning reduces the risk of disease. Doesn't drive it to zero, but it greatly reduces the risk of disease. And, and when we say weaning, right, all calves are weaned. The question is whether they were weaned onto a trailer as they were heading into the sale barn, right? That's not the ideal way to wean those calves.

When we talk about weaning, we really need to have those calves weaned at least 28 days. And that's, that can be a challenge for some producers, but it really is important to understand. Those calves are dealing with that stress of weaning over time. It's not an instantaneous thing and it takes longer than we might think.

And so if you've weaned a calves for [00:10:00] 14 days, they may be eating. You may think you've gotten them straightened out and over it. You have not. You really need to retain those calves through at least 28 days. 45 days is notably better. There's. Many folks who advocate even longer than that, basically, as long as you can hold on to those calves as possible, , the, the better you can do.

Now that's for your cow calf operator, right? Right. That the stocker or background order buyer that you described. That becomes a much harder thing to do. All we can really tell those folks is reduce the stress make sure that they have fresh, high quality feed that they've got high quality, fresh water.

many calves aren't used to drinking out of anything other than a stock tank or a creek or wherever they're, from. Asking them to drink out of a tank or something different than what they're used to can be a challenge. So water is important. Vaccines have value. But for years, we've really overemphasized the importance of vaccines.

The vaccines have value if they're used in [00:11:00] the right situation. I think many folks have, felt like vaccines was the thing that they could do. I

**Dana Zook:** mean, and,

**Dr. Jared Taylor:** and it really it's, it's an added tool. Kind of a little ways down my list, honestly, I see as being most important.

**Dana Zook:** Okay. So Weaning, reducing stress overall.

That's your number one.

**Dr. Jared Taylor:** That is absolutely the number one. Okay.

**Dana Zook:** So since we're, since vaccines were the next thing I was going to talk to you about, what's in between there? What's a couple other things before we get to vaccines and we'll talk a little bit. Nutritional

**Dr. Jared Taylor:** management is, is really important.

It is critical to recognize that when a, calf is dealing with stress, Their body basically needs to, to mobilize their energy stores in order to mount that immune response. And if that calf isn't eating, then the only way that that calf can mount an effective immune response is that we call it, pull it off their back, right?

They're going to lose condition. They're, they're basically breaking down their body. [00:12:00] And we can all do that for a short period of time. But if those cattle Long haul cattle gone through a sale barn, order buyer, three or four days kind of in that process from where they were last comfortable at home with mom until they're now at a new destination.

They've been in a negative energy balance for a longer time, I think, than a lot of producers really recognize. And you, you can't turn that around. , nearly as quick as we like. So your nutrition becomes very important. Water becomes very important. Cow comfort, cattle comfort you know, if keep them out of mud bed them well.

If it's cold, if the environment is like that, provide them shade. If it's hot really just try to, baby them, right. Reduce that stress and all the ways that you can and this goes right back to the way I said, the vaccines, okay, well, no, what we want to do is take that calf after they've had their life disrupted for three days,

run them through a shoot, stress them a little more, give them [00:13:00] something that is actually replicating and imitating an infection.

Give their immune system something else to go, Oh, great, here's

another challenge for me to deal with. Yeah. That's. That's not ideal.

**Dana Zook:** It may not even work. Exactly. If the calf is really stressed, it may not even. It may not even

**Dr. Jared Taylor:** work. And or the calf may already have that infection in real life, basically.

The vaccine's not going to get ahead of it. The whole point of a vaccine is, can I get that product into them before they encounter the infection? Well, if they encountered infection, the infection three days ago at the sale barn, it's not

It's not going to have any benefit.

**Dana Zook:** OK, so that being said, let's let's break this down. Cow calf operator. You kind of talked about the things that you can do from a vaccine standpoint. What, what is our recommendations? Because we do want to vaccinate cows, right? Yes. And calves. Yes. And that's an

**Dr. Jared Taylor:** important point. [00:14:00] There actually is work that calves born to cows that were vaccinated actually have lower risk of BRD over the course of their life, right?

So whether or not that vaccine is the sole thing that's driving that, or whether that just reflects, hey, this is a client who really puts in the effort to do things right. Some of that's a little hard to, separate out, but yes, we do want to vaccinate the cows appropriately. We do want to vaccinate the calves appropriately.

Of course, we're not going to make generic across the board recommendations. Visit with your veterinarian for specifics for your herd, but we're generally going to advise that you use a modified live viral vaccine for those calves. And ideally you use it notably before weaning. The ideal, and I get it, it's a challenge, but the ideal would be that you give them their first dose of vaccine six to eight weeks prior to weaning, give them another dose of that vaccine three to four weeks after that three to four weeks prior to weaning.

And then at that point, when you wean them, their immune system, their immune [00:15:00] response to that vaccine is basically as high as it's ever going to be. And those calves are, are well positioned. If you can't do that, then try to vaccinate them prior to weaning and then booster them at weaning. That's not as good as the first option, but better than other options.

The final option would be if you can handle them low stress and vaccinate them at weaning and protect them from all those other stressors, there may be some value there. If, if you're going to have to rope and throw those calves down to vaccinate them, and then you're going to wean them, I'd say don't.

**Dana Zook:** Okay. That's a good recommendation. Probably a little different than what we would think, but that, well, what we have pushed for a long time, right? Right. So, let's talk stocker producer. I've gotten calves. Maybe they're not all, but they've gone through some stressful situations. Sale barn, haven't eaten in three days.

What's your recommendation? I guess generic, you know, What would you, would say, how do, how do we control that?

**Dr. Jared Taylor:** So so again, visit with your veterinarian [00:16:00] for specifics, right? But nutrition, reduce stress, control the environment. Vaccination wise, there's been some interesting work that basically says you're just as well off and maybe a little bit of an advantage to not vaccinate 28 days.

And, that just allows them to get over all those stresses and get over the infections that they've encountered in real life and then be ready to respond to the vaccine appropriately like we would want them to and expect them to. That's not practical for a lot of producers. I get it. You know, at 28 days there may be wanting to turn those calves out on wheat and never catch them again until they're ready to put them on a truck.

And so that's, a challenge. And that's kind of the nuance of where we work out the specific details. But I would certainly encourage producers to visit with their veterinarian and give consideration to the idea of not adding to those calves stresses by vaccinating them at arrival, [00:17:00] but rather to, to consider delaying that vaccine.

Again, I think that vaccine probably has some value, particularly the longer you're going to own those calves. It probably is worthwhile going ahead and putting a vaccine into them, but do it at a time where it's going to be able to do the job we want it to do.

**Dana Zook:** Yeah. So vaccines aren't the, aren't the answer like you said, but they are in my mind a risk management tool in our toolbox is what I like to say.

That is

**Dr. Jared Taylor:** a great, yeah. That's a great phrasing, risk management, right? Risk reduction is the aspiration. It's, it's not going to eliminate the risk. Yeah.

**Dana Zook:** Right. I think. stocker, producers are, they're pretty prone to risk, right? Anyway, but there's, but there's things that we can do.

So what are just a few other things that, stocker producers might do with calves to help that, , you said risk reduction vaccines. Is there other things that they should be looking out for?

**Dr. Jared Taylor:** So, so metaphylaxis is the use of antimicrobials in calves that are high risk for BRD

**Dana Zook:** antibiotics.

Yeah.

**Dr. Jared Taylor:** [00:18:00] Use of antibiotics. And there's, quite a number of, drugs that are labeled for that. You know, Draxxin and Zactran NuFlor Exceed not endorsing any of those, right? Any in particular? It's just, there's, there's a lot of drugs that are labeled for that. Those have value in the right situation.

And again, the right application, they really do reduce the occurrence of disease, reduce the severity of disease, reduce the risk of death. They do sometimes actually shift what we call the epidemic curve, which can kind of complicate things too, right? Those producers are used to those calves getting sick seven to starting to get six, seven to 10 days after arrival.

These, these antimicrobials have a relatively long duration of action. And so we may shift those first cases from seven to 10 days out to 10 to 14 days, something like that. And so you've got to be aware of that and make sure that that's going to fit within your management program. But, but those products do [00:19:00] bring value in, the right high risk situation.

There are again, other products out there available as well. Immunostimulants Hormone analogs, what we would call hormone analogs. There's some

suggestion that those products have value. , but we're pretty early in researching those. Some, some producers anecdotally speak glowingly of those products.

I think they have a potential value. But again, the science is not, Fully caught up to, to know all of their utility and limitations.

**Dana Zook:** Yeah. I've heard some names thrown around about that type of thing and I don't know much about it. Of course, a lot of times the first time you use it.

It's exciting because it's something new and you have high hopes and

**Dr. Jared Taylor:** right. Well, and again, the unpredictability of BRD, right. That becomes a part of it. it doesn't matter what you do, you do X, Y, or Z, and you've got great success. And now we want to be just certain that whatever it is that we did for the first [00:20:00] time is why we had such great success there.

Right. And we never want to change it until we have a train wreck. And then we want to change everything. Right. And we think we found a new magic potion. And the reality is. Because that just happens. It's, a lot of times it does not matter what you've done. There's going to be variability in what you encounter.

**Dana Zook:** Maybe we should be studying producer psychology or something like that.

**Dr. Jared Taylor:** I'm not qualified for that. know if I am either, but

**Dana Zook:** we've all had experience with it. I've been a producer, so just saying that it's, it's hard to not be like that. It really is. The world's coming to an end.

This has got to be the problem. It really is.

**Dr. Jared Taylor:** It's when you look at the, the, the economic value of cattle right now, it's huge. And then of course we want to be stewards of those animals. It's we feel bad when those animals are sick and when they're dying and we want to do things and, yeah, it's, it's, it can be a very emotionally driven process.

And so I strongly advocate use of data and the challenge with data is.

**Dana Zook:** Yeah, absolutely. [00:21:00] So work with your veterinarian because they understand that. So Dr. Taylor, this has just been awesome discussion. Can you give just some. Top of mind things, low hanging fruit, as Dr. Gilliam mentioned earlier, that can be done to prevent BRD in our beef herds .

**Dr. Jared Taylor:** So sure. Again, stress management. And it is important to recognize, as I said at the outset, that BRD can affect any class of cattle. And so you can see respiratory disease in pre weaned calves. And, and those calves can be harder to detect. They really can be, because We're not calling them up to a feed bunk and we expect them to lay around in the pasture a little bit more and so you've got to be vigilant looking for those animals and know that once an animal has had an episode of BRD or again an undifferentiated fever, perhaps we don't know why that animal was sick.

We've got to be cognizant and thinking about that. That calf may be susceptible to future reoccurrences of that. So we, really just have to be watching our cattle [00:22:00] closely. Great nutrition program is important from prebreeding all the way through finishing mineral and vitamin supplementation.

We, we want to talk about that a lot. Make sure you're using a high quality mineral supplement that the cattle have access to at all times. That's really critical for sustaining immune function and maximizing performance. Overall nutritional management coming through a tough winter, but a a winter that followed drought.

Hay wasn't necessarily the highest quality, right? We can have some impacts on cows ability to produce milk quality of colostrum and those kind of things. All those things matter. It really does. If we get very tunnel vision on what BRD is and where it occurs, we're going to miss a lot of opportunities that we would really say is just in order to minimize it throughout that calves lifetime things that don't work.

There are some things out there that don't work. And, this again is kind of [00:23:00] goes to producer psychology. A lot of producers like to put chlor tetracycline in the feed at arrival of, stressed calves and that sort of thing. It gets used a whole bunch. The evidence would suggest that that is not of, of notable value.

And if we think about that, Chlorotetracycline is very closely related to oxytetracycline. Okay, oxytetracycline is the active drug in LA 200. It's a classic drug, right? But now you've got biomycin 200, tetrader. There's all sorts

of different products that have oxytetracycline. Almost no producer is going to rely on oxytetracycline as their first line of treatment for BRD.

**Dana Zook:** Mm hmm.

**Dr. Jared Taylor:** And yet, they think that putting CTC in the feed, that then has to go into the rumen, and never, ever, ever achieves drug concentrations nearly close to what Oxytet would be if you gave it in to, as an injection they think [00:24:00] that CTC in the feed is gonna have benefit. And again, the evidence strongly suggests it wouldn't. We can look at the concentrations that's going to be achieved in a bloodstream, and it will.

That would say it shouldn't be effective. If you're not using oxytetracycline and your treatment protocol, and you probably shouldn't be, then there's really no reason to think that inclusion of that in a feed is going to have any value. So that's one that producers do that's not of, of particular value castration.

The earlier we can do that again, that's just another stress. If you're a stock or background or operator, If you get bulls, you've got to castrate them, right? Right. That's just a challenge. So again, that's something we like the cow calf producer to be helping the industry out. If, they can get those calves castrated and healed, completely resolved prior to weaning and sale we're going to have some benefits to the calf in terms of BRD, but certainly animal welfare as a [00:25:00] whole.

Yeah, so a lot. Those are good. I'm

**Dana Zook:** glad you mentioned castration because that, you know, is definitely a stressor.

Absolutely. So if you're probably not going to suggest vaccination the day you castrate, right?

**Dr. Jared Taylor:** You're right.

**Dana Zook:** I mean, that would be, that would be a huge fail

**Dr. Jared Taylor:** It really is. Again, it just But we're so used to doing that, right?

And if you think about what that looks like, if you're running those calves through the chute, it's not a quiet environment, right? It's fast, the cowboys have

a lot of stuff they want to get done, they're trying to move these cattle through really quickly. We're inflicting a lot of stress, a lot of pain, and then finally giving them something at the end and saying, here, you know, go deal with this for the next week to 10 days.

**Dana Zook:** It'll make you feel crappy. Yeah.

**Dr. Jared Taylor:** Yeah, when you look at it that way, I think it becomes evident how vaccines can actually be a negative.

**Dana Zook:** Right. Well, thank you so much for joining us today, Dr. Taylor. Listeners, if you would like more information on these topics, definitely go to your local veterinarian for health related information.

Our county [00:26:00] extension offices are really good from nutrition standpoint, but your local veterinarian should be your health resource. We have a great team. At Oklahoma state that can really deal with nutrition and, and of course with health here at the College of Veterinary Medicine. So thank you for joining us in this series, Dr.

Taylor again, I guess. Yes. Appreciate it. Thanks to the vet school for hosting us and listeners. Thanks for joining in and have a wonderful week.