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Transcription of The hidden effects of BVDV part 2, episode 36

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BEGIN TRANSCRIPTION

00;00;17;14 - 00;00;47;03
Unknown
Welcome to the Pasture to Profit podcast. My name is Scott Stinnett, CSU extension specialist here in Kit Carson County, Colorado, and joined by my colleague Travis Taylor from the Yuma County Extension office. Today, we're going to finish our conversation with Doctor Terry Engle and Doctor Hana Van Campen from Colorado State University Animal Sciences Department on bv DV and those effects and the little short and long term that they've seen in their recent research.

00;00;47;08 - 00;01;26;19
Unknown
So we're going to come back with Doctor Hana Van Campen. So one thing is we want to identify them. And actually we think there should be a contest, right. We have this big idea on how to integrate internet online gambling with with research. And so we would invite a number of feeders or even ranchers to come out and look at a group of cattle and predict which ones would be poor, poor doers and which ones would gain, what, 3 pounds or more a day for close to four, 4 pounds a day.

00;01;26;21 - 00;01;57;18
Unknown
And and they would pay like $1,000 to pay to play. So we would put that 1,000 per person who wants to play into undergraduate research. So the plus thing is they get to play and there'll be a winner. And the winner will get like a a CSU hat or small cap and some of those meat sticks. And, and they get to give a lecture on how they pick out good doing cattle.

00;01;57;24 - 00;02;30;21
Unknown
They give a lecture to our animal science students on how to pick them out. Okay. So and the money goes to pay the undergraduates projects. And so the undergraduates do the work and we get the same. Yes. And that at the end we see which cattle do well. And we look for markers in these blood in the blood samples with some of the new, techniques, technologies

like proteomics and, and so forth, or metabolomics to look at what can predict how these animals are going to do.

00;02;30;22 - 00;02;53;28
Unknown
And so it has a broader impact. Doesn't have to be d t eyes. It's what's the difference between cattle that are going to be efficient and the ones that aren't. So can we predict that as they come through? So if you know of anybody wanting to play, we're trying to think of a way to make this work.

00;02;54;00 - 00;03;10;05
Unknown
They gamble, you know, there's a gambling, there's a gambling thing. They don't get any money back, but they, you know, get to give a lecture and get a hat and a half. The one thing I will say, too is, you know, we have all these samples. They were very valuable. I mean, so we collected about everything we could on these animals.

00;03;10;05 - 00;03;38;28
Unknown
And so we're looking at these biomarkers, but we also have another group of cattle coming in, about 400 steers that we are going to sample. We can't really determine if there t is. We can determine if they're PiS, but I don't think we'll have any PiS. And again, like Doctor Campbell is saying, we will have some of those samples to do some of the fancy ohmic type research to hopefully pick out some biomarkers that that look at efficiency.

00;03;39;01 - 00;04;11;28
Unknown
Lots of folks have been doing that over the years, but, we have maybe a little bit different perspective on maybe from an immunological standpoint, does that have an impact on production. So we're, we're we're trying to figure it out. Piece it together. Yeah. And if we find markers for the poor doors, it may be that we can find a mechanism, biochemical mechanism, or metabolism mechanism that might explain their inability to do well.

00;04;12;05 - 00;04;37;14
Unknown
And then maybe we can figure out what a fix would be. So that might be a feed additive, for example. Like if there's something wrong with their ability to to acquire copper, you know, maybe there's a way to enhance that in those animals, make it more cost effective to feed them. Yeah. The other thing I saw in your data was that carcass quality didn't change, though.

00;04;37;15 - 00;05;04;06
Unknown
They were pretty equivalent in their carcass quality. So my thought, you know, if as I'm a producer and I don't seem to like you said, you don't see cattle that appear sick. They're just slow growers, slow doers. It's a very sneaky thing to your to your bottom line, because everything in

the end looks okay. If you get your results back from your feeder, from the finished floor of what your cattle were like.

00;05;04;07 - 00;05;28;29
Unknown
You're like, oh, they're just port ears. And I'm thinking, more likely I'm going to go look at my bulls and say, well, which one of my bulls are not producing as good the calves as the others? Not even thinking in my mind that maybe there's a transient infection of BVD. That's the underlying problem. And it, you know, blaming it more on genetics and even it gets a little, I think, even deeper than that too.

00;05;29;00 - 00;05;47;10
Unknown
And this is our plan was to see if we see right, if we could see if this would go from one generation to the next, and if we could have read those heifers that were t eyes, did they transfer that? And so it would be that could propagate us. We don't know if it can. I'm guessing it could.

00;05;47;15 - 00;06;37;25
Unknown
I don't know. Yeah. People predict based on experiments done in mice. And I think there's some evidence in humans, for example, that actually the offspring will have some of the same methyl methyl changes that changed their ability to express some genes. And in fact, there's another example in cattle. I don't think they've done the the DNA methylation, but, Neosporin canine Em is an infection where, you know, the pregnant cow or heifer and just these protocol, cysts, I guess, and it passes to their fetus and they abort the fetus, but then their subsequent heifer calves also are at an increased risk of having infertility and abortions.

00;06;37;28 - 00;07;06;16
Unknown
So that might be an example where they're passing on these same changes to the mother's DNA, the those impacting fertility, and they pass that along to surviving daughters. Well, that may be thinking maybe the methylamine is causing some shifts. These the fact t infections causing some shifts that potentially could propagate into reduced growth, reduced immune function and overall efficiency.

00;07;06;16 - 00;07;44;05
Unknown
And that's I think that's a pretty common thread for a lot of these these that are theoretically transgenerational. Well, myself being a former livestock evaluator that likes to look at good quality livestock, I think some of the things that you have indicated, where we're talking about them not being able to metabolize things like copper or phosphorus or calcium, or we may be able to some of these things based on how the bone growth and like you said, they were lowriders.

00;07;44;07 - 00;08;20;27
Unknown
They kind of had a different look into the skeletal development. So it's not affecting maybe some of those things that go into carcass quality.

But we're looking at some of those things on a macronutrient level that are changing the skeletal structure and reducing the efficiency of these cattle for what we see down the road. Yes. So the the in fact, BBD and fetal infections and bone growth has been pretty well established in the persistently infected fetuses.

00;08;21;00 - 00;08;54;16
Unknown
Because the virus basically infects the osteoblasts and osteoblasts that form the bone. So there are definitely bony changes in those animals. And we didn't look in the T animals for that. But you could see it in those animals. Well, I think that that makes sense. If we're not metabolizing those nutrients in the right form, or somehow we're changing that metabolism in those micronutrients or macronutrients.

00;08;54;18 - 00;09;18;11
Unknown
Yeah. I think that the interesting thing is that that seems to be hardwired from day one. When they're born there, there's we're a little bit lighter it to be any birth weights, I think. And then it just keeps growing apart. And so a lot lots of factors start to influence, you know, that that big 200, roughly 200 pound difference at the end of the feeding period, which is amazing to me.

00;09;18;13 - 00;09;35;20
Unknown
Yeah, that's a that's a major difference. But I think kind of the the silver lining on it, you know, if I'm a producer and let's say in the future we're able to identify t calves, I can still feed them out. They're still going to give us a quality carcass. We're not going to lose that. It's just going to be lighter.

00;09;35;22 - 00;10;02;07
Unknown
So a silver lining is, you know, a lot of sick animals, you don't even want to send a harvest. But these if we could identify them, they still can can produce a quality meat product in the end. Yep. Absolutely. It's just it's a much more expensive, inefficient way to do it. Yeah. Right. But yeah, that's being expensive is not good, but at any cost.

00;10;02;07 - 00;10;20;14
Unknown
But, you know, at least we have the silver lining of the end result will be okay. Yeah absolutely. And so and they're not going to spread the virus or anything like that. Right. Right. And I think, you know, the other thing, if we can identify it like we can pi then on heifers especially, you can say nope. She goes straight to the feedlot.

00;10;20;15 - 00;10;39;06
Unknown
We're not even going to try to breeder because we're afraid that it will go generationally. And we want to get that out of our out of our herd, and especially for running a closed herd. You know, we can keep it out,

you know, if we're very careful about what few things we actually do bring into the herd. Yep.

00;10;39;09 - 00;11;05;17
Unknown
Travis. Other questions? Comments? Well, I don't have any, but I. I just get excited when I see this practical type research coming back to us is extension and you sharing it with us out here, to help us wonder as cattlemen why we have that 1 or 2 off that maybe are behind everything and we're thinking it's genetics, or maybe things didn't just match up.

00;11;05;19 - 00;11;27;15
Unknown
There's other things out there that are doing that. And one other thing from your study that really kind of hit home with me is that these cattle have an increased risk of morbidity. And you challenge those. So I guess my last question is you did challenge those animals with a DVD, try to reproduce some of the things that they see in the feedlot.

00;11;27;21 - 00;12;02;12
Unknown
Were you able to accomplish that? I didn't quite get to that point. Yes, we did, but we got, sort of surprising results, but not really when you think about that. So these camps were born with antibodies and the immune system geared up against BVD versus the control cattle who had never been infected with D. So the tea kettle in this experiment with the bird actually were able to defend themselves against the D much better than the controls.

00;12;02;18 - 00;12;27;08
Unknown
So they didn't. None of the cattle got very sick at all, but they did a little bit better than the controls. They didn't did not have any decrease in their white blood cells, which is kind of typical for a BB d infection. And just didn't really miss a lick. Yeah, they get moving and gain the same amount of weight during that period test period.

00;12;27;14 - 00;12;51;28
Unknown
So they actually were protected. And then the other it's a kind of a complex question, but we followed up with a man, Jaime, that was taken from a feedlot respiratory case. But almost all of these calves, before they ever got to this challenge were tested for Mannheim. Yeah. And it's just a commensal that's present in their nasal pharynx normally.

00;12;52;01 - 00;13;27;11
Unknown
So they were already adjusted to it and even dumping, I think, ten to the ninth bacteria right down into the base of their trachea really didn't do much. That was surprising. So yeah. Yeah. And but, you know, these are university feedlot. They're not stressed. They weren't moved. Transported to far. No. Right. You know, and the when we looked at the the organs too, they looked relatively normal lungs, looked somewhat normal.

00;13;27;13 - 00;13;50;26
Unknown
Yeah. They had a few tags and that was it. Yeah. And, you know, we're still we still have a lot of information to go through on all those tissues and things like that, but it, they looked normal, but they just didn't grow very well. Well, thank you, Doctor Engle and Doctor Van Campen for being with us here on the Pasture to Profit podcast today.

00;13;50;28 - 00;14;22;25
Unknown
Again, if you have any questions or comments for Travis or I, you can reach out to us at our county offices. So this is Scott. I'm in the Kit Carson County office. You can reach me at (719)346-5571. And Travis, yes, you can reach me at the Yuma County office in Wray, Colorado at (970)332-4151. So if you have any questions or comments would like to hear more about this topic, reach out to us and we'll bring these two experts back.

00;14;22;25 - 00;14;29;04
Unknown
Thank you Doctor Engle and Doctor Van Campen and see you next time on Pasture to Profit. We'll see you.

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