

## Part 2: Australian Insight of Sensor Technology for more Efficient Livestock Production

**Dana Zook:** In general ag producers, maybe, you know, out in western Oklahoma or eastern Oklahoma [00:17:00] that just do their job every day. They think that, you know, foot and mouth disease is not gonna, not a big deal to them. However, I think in the recent detection of New World Screwworm and Southern Mexico, like, I think that people are really make paying more attention to some of those things.

And so this is just a, a great technology to try to help us in the future detect some of those things. are there some producers that are utilizing this just in real world on large operations?

And what is the scale? So in Oklahoma we have little, little producers. We have big producers, mostly, you know, as you get West, larger operations, but you know, how does that look in Australia and, and how to, how do some of these producers utilize that technology? Are they using, are they adopting it?

**Dr. Mark Trotter:** There's definitely a bunch of early adopters out there that you know, using and testing the technology, the, the sensor systems are still, really what I'd say is early days in their development, [00:18:00] you know, I sort of make the analogy that we're back at the, the brick phone phase, you know, we're, we've really just started out. So that idea that you, you know, your phone's the size of a, of a house brick as opposed to now, you know, my iPhone is, well, you know, it's a tiny little thing with all this functionality and so we've gotta go through this, you know, technology development process to get the smart tags working like.

You know, your iPhone. But nonetheless there are definitely some applications already that producers are getting value out of. And there are a whole bunch of there's probably about half a dozen or so, maybe more manufacturers of these smart tags out there selling these things out in the industry and there's a bunch of producers out there using them already for various applications.

And, and even really simply one of the most simple applications is just finding your cows because these things have a GPS in them. You can just dial into the system and look where your cows are and actually go out there and, and, and

locate them really easily. And that's a massive thing for us because the landscapes in which we operate are, are pretty extensive.

So [00:19:00] if we wanna find a given animal that's a, it makes that vastly more efficient even in small operations. So the research station on which we work would be about 3000 hectares. Oh, sorry, I should have converted that to acres. Oh.

**Dana Zook:** I don't know if I can do that conversion in my head. Yeah, call,

**Dr. Mark Trotter:** call it, call it, you know, 7,000 acres or whatever.

Oh

**Dana Zook:** man.

**Dr. Mark Trotter:** Okay. Yeah. But which is, you know, that's not a, a ma that's not a massive operation where we are. But our guys use it during carving to go and find carving cows because they'll sneak off and then you just can't find 'em. And having these, some of these sensors on means you can just drive straight to where that animal is and check that she's okay.

So that, that makes a big difference. In terms of the, I guess the scale broadly of, of beef. Operations in Australia. So our biggest beef producers Aaco a publicly listed company, they're, they're running about 450,000 cattle. So about 200,000 breeders or cows, cow calves, [00:20:00] pairs. So that's the, that's the top end.

And then like everyone, we go down to the, to the small hobby producer. But probably one of the biggest differences that I, I think you folks have a lot more. Smaller operators than we do. So I, I, I think your average cow calf herd size here is something like 30 or 40 cows. Right. And ours would be maybe four times that, maybe more, because we still have a lot of small hobby producers for sure.

But we have a lot a lot of our, I guess, core operations are, you know, family operation and there's no off on income and they're running that as their business. Mm-hmm. And certainly where I, where we come from through Central Queensland, you know, I, I'm gonna guess that the, the average, you know, family run operation is run about 800 cows or something like that as a viable business unit.

And so we, so that's a big difference in terms of the, that, so I guess that structure of the [00:21:00] beef industry between Australia and the US. And that certainly drives how technology's being adopted. The other part of it is that we. We are, we get very little subsidy and I know you guys have some challenges in the beef industry in that space too, but how that sort of plays through is, is very, or there's no subsidization of our cropping industry.

Like some of the supports that are there for your cropping guys. So we get no cheap corn or cheap, cheap feed. Which means that across the board, our producers are extremely efficiency driven agricultural producers, and so there's no, there's very little support from the government, and so they've gotta either make it or they don't make it, and they get outta the industry,

**Dana Zook:** right?

So the economies of scale are, are, have to be a little bit. You know, they have to pay, take advantage of those economies and scale a little bit more with less subsidies. And I would think if there was no [00:22:00] cheap grain that you would be, potentially, it would be very important to manage your grass.

**Dr. Mark Trotter:** Absolutely. For sure. And so it, it, it, I guess it just, it also impacts through on just that, I guess the opportunities for, for finishing animals as well. So the average, I think the average days on feed for us is like 60 or 70 days in the feedlot. I think it's 200 days for, for you folks over here? Yeah.

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**Dana Zook:** little higher than 60 to 70, I think.

**Dr. Mark Trotter:** Yeah. And so. The, I guess the big picture is, is that Australia is far more, I, I would say efficiency driven and any sort of adoption of technology has gotta work at a core business level as opposed to say for, say, a lot of your cow calf operators here who have an off-farm income, and they may actually be interested in adoption, adopting some of this technology because they're working you know, 40 hours, 50 hours a week, and then they're turning around to, to do, you know, 20 hours of [00:23:00] farming or more, probably. Yeah. In, in the, in the time off. And there's a real role there for that technology to help them be more efficient in that. And they can probably afford to pay a little bit more for the technology in Australia.

There's some, you know, it's got a, the return on investment is absolutely critical from a straight, straight business unit, sort of, I guess sort of calculation as

opposed to here where, you know the ability to save some time, personal time is, is, is a big driver for your, a lot of your operators.

**Dana Zook:** Yeah. So put a pin in that. I'm gonna ask you about that at the end. Sure. As far as. Smaller operators. So from my understanding, mark Queensland is the far northeast, state of Australia. And am I right in assuming that like 50% of beef production occurs in Queensland?

**Dr. Mark Trotter:** That is correct. Okay. We we're sorry. Without, without hopefully offending too many of your listeners, Queensland, [00:24:00] we think of ourselves as, we're a bit like Texas. We're the biggest and best at everything. Right? Right. That's okay. We

**Dana Zook:** get it.

We understand here.

**Dr. Mark Trotter:** So yes, Queensland certainly has the most cows of any state in Australia. And then actually where I come from, the Fitzroy Basin, which is that sort of our county, our region, if you will, we have the most cows of anywhere in Queensland. So we are known as the, where the, we're known as the beef capital of Australia is the claim to fame of Rockhampton.

Where I come from and I, I'm just gonna put a little shameless plug in here. Every, every three years we have what's called Beef Australia, which is the. It's a week long festival of, of nothing but beef. And if anybody's interested in doing a bit of international travel in 2027, the first week in May beef Week, beef Australia will be running in the first week of May, 2027.

And it is. It is a big deal. So out the town in which I, I'm based has about 50,000 people, but we have 120,000 people go through [00:25:00] the gates of Beef week. So it shuts down our town for a week. Okay,

**Dana Zook:** I bet. So,

**Dr. Mark Trotter:** and I've had a few people go there that have been to some of your events over here and, and I'll probably get all of these wrong, but like it's, they, they've said it's a, like if you put all of your big beef shows together, NCBA and I, I can't even remember the rest of them. Yeah. Uhhuh. Then you might, you might, you might be getting close to, to oh wow. To, to, to the Beef Week event. Take that with a grain of salt. Remember that I'm a Queenslander and I think I'm the best, biggest, and best at everything, right?

So there we go.

**Dana Zook:** Oh, I understand. I think that's great. So that's it. Hey, that's something to think about. Beef week. Yeah. No, 2027. Mark your calendars, everybody. That's really cool. Yeah. So

**Dr. Mark Trotter:** if you Google up Beef Australia, you'll, you'll get a Rockhampton, you'll see the website for that. And look, we've had but we have a whole bunch of, people come over from various roles over here in the US and have visited and they all go back saying it was worthwhile going to see what's happening down under, as you folks down under would say,

**Dana Zook:** well, I [00:26:00] think it's so valuable to get that perspective, and so that's why I'm asking you all these questions.

Yeah. Because it's hard to understand. You know, what. How our industry compares to yours. And it's so interesting. So in addition to beef cattle Australia has a pretty large sheep producing industry.

**Dr. Mark Trotter:** No, I think we're the largest sheep wool exporter and maybe one of the largest lamb meat exporters as well population. I can't remember our flock populations off the top of my head, but we That's fine. It's a, it's a, it's certainly a big deal in Australia.

And so we've traditionally run a lot of Marino, so fine wool or wool sheep. Across parts of Australia. And it certainly remains a, a really big industry for us. And then off the back of that, there's crossing of those sheep with terminals to produce lamb and but what's actually happening is you're seeing a Feb and I think we're seeing that here as well, from what I understand, shift into the.

The non wool sheep and more specifically for, for meat. And so we, we actually eat a lot of lamb in, in [00:27:00] Australia. You guys just don't eat much lamb at all, and I understand why that is. I've talked to a lot of older folks around here that grew up having to eat canned mutton. After World War ii. Yeah.

And that, that's doesn't, that, that hasn't sat well with him, and so they won't eat it ever since. Yeah.

**Dana Zook:** I think our cooking skills in lamb is not real great.

**Dr. Mark Trotter:** I'm actually looking for the, I said to my wife the other day, I'm going back to Australia like next week.

I said, the first thing I'm gonna do, I'm just gonna go and buy a lot of lamb. We're gonna eat nothing but lamb for the first week that we're back. I kind of, I kind of miss it. So, yeah. And you can certainly can buy it over here. But it's not, it's certainly not, not very, not, not nearly as common as it is in Australia.

Mm-hmm. Yeah, very good. So sheep industry's big for sure. Our but, but sort of changing a little bit and certainly where we are in Queensland, central Queensland, our sheep industry in Western Queensland was massive. But that. It got really impacted by predation. So wild dogs dingoes attacking a [00:28:00] lot of sheep, but we've actually seen a lot of what we call cluster fencing.

So predator exclusion, fencing going in around these operations, which means they can go back into sheep and or goats, managed goats. But is actually starting to be less, probably less merinos or the, the, the growth industry is the meat sheep, the. The, the non sheary meat sheep, so, yeah. Mm-hmm.

**Dana Zook:** Yeah. Very interesting. Some of the technology you're working on is they're, they're using some of that in sheep industry to identify predation?

**Dr. Mark Trotter:** Yeah, actually, so it's short or quick story is that the development of the sensors, the, these smart tags that we're looking at they, they're quite heavy.

So they're around about 35 grams. That's just a little over an ounce. And that. Really limits their use in sheep because of the, the ears just can't hold that weight. Okay. However, I actually have producer partners that have attached them to the, to by other means, like to the horns of animals and all sorts of weird and wonderful ways.

Okay. And I outta using them to track sheep [00:29:00] and look for predation events in some of these sheep flocks. And so yeah, so we've done a little, a little bit of research over the years in in detecting or looking at the, how sheep changed their behavior when they've got a predator present. And then yeah, people are out there starting to use it for that, that sort of application now.

Yeah,

**Dana Zook:** It's in all types of industries and so I think, I think as we go along, it's it's gonna become more available, so, in Oklahoma, we have just kind of emerged from another. Short term drought as you were coming back into the state mark. So as we wrap up and have a last few questions, so tell us a little bit about the weather and what kind of Australia is experiencing right now.

Because we always, I feel like we hear, when we talk about liquidation in the United States, we always compare like, oh, Australia is liquidating too, so our cow, you know, cow beef that we import is impacted by that. So, I mean. I bet everybody's interested. So what's the weather like [00:30:00] right now, the conditions and that sort of thing in Australia?

**Dr. Mark Trotter:** Yeah, sure. So we're doing pretty well. There's been some little regional droughts, but generally we're, we've had some absolutely cracking seasons, actually, a little bit too cracking. When I flew over back in March, we had massive floods, just go through some of our Western Queensland areas and actually killed a lot, drowned a lot of livestock, which was

pretty unfortunate for a lot of the producers that I worked with in my region. It's pretty devastating on the back end of that though. MUD makes money and they're growing a lot of grass in various areas. And I'm not quite sure where we're up to in terms of our herd populations, but we are, we're not in the same space that you guys are at in terms of low numbers and rebuilding. But our beef price is really being supported. It's, it's pretty good and it's being supported by the fact that you guys are, you know, are pretty desperate for for beef cattle over here and try to turn around to rebuild.

Mm-hmm. It's been interesting driving around, talking to producers over here, just understanding. [00:31:00] Some of the challenges that these guys are facing. So, you know, talking to producers that have, they are just pulling anything that's underperforming. Any cow that doesn't, you know, get pregnant, she's gone. Because she's just worth so much money.

Mm-hmm. But then you've got guys also that are looking at replacement heifers thinking, well, geez. They're just worth so much money. Mm-hmm. You know, do I sell them now and just make money while I can? But that's obviously parasitizing, the long-term growth rebuild of your cow herd. And so, mm-hmm. There's some real challenges for producers to make some of those decisions, I guess.

And, and what that, the implications of that for you folks over here. Entirely selfishly, if the longer you guys take the rebuild, the better it is for us.

**Dana Zook:** Right, right. I understand. We got it. It's a, it's a world market, right? Yeah. We, we, it really is. Whether we wanna just hide out in our operations here in Oklahoma or not, it is a world market and it's an important part for both of us.



Both, both countries. So

**Dr. Mark Trotter:** the other, I guess the other thing that [00:32:00] we've got very jumpy about is. Tariffs.

**Dana Zook:** Oh

**Dr. Mark Trotter:** gosh. Well, yes. Here

**Dana Zook:** too.

**Dr. Mark Trotter:** Yeah. So we're obviously, we're a little bit concerned about where that might end up and it's obviously settled down a little bit, but, you know, when I first turned up here three months ago, that was, there was a lot of concern around where that might, might go.

I think it. I mean, there's just, there's, there's a lot of opportunities. I guess, I mean, outside all of these sort of industry competitive issues that we have. You know, if, if some of your producers sat down with some of our Australian producers who pretty quickly find out where there's not much difference between ranches and and you know know cowboys and ringers, we call 'em.

The equivalent of our cowboy is called a ringer. And so we're all, we're all pretty much the same, all pretty much facing the same sort of challenges between here and Australia and the us. And so I guess long term, [00:33:00] some of the, I guess this is why I'm here now is, you know, trying to develop research relationships and collaborations because in this context of say, foreign animal disease detection will.

Both got the same problems. And there's some real opportunities to work together to, you know, to hopefully keep some of these diseases outta both countries. Because the impacts of FMD getting into either one of us would be pretty, pretty devastating for that country. So, yeah.

**Dana Zook:** Yeah, I think that, I think that's a great place to leave it mark. Thank you so much. The relationship between Australia and the United States. I, I agree. I feel like coming from a different state, producers are a little bit different, but for the most part we're very similar and coming. You know, between countries, we're all kind of doing our best to make it in the ag industry, which is full of ups and downs, naturally we're impacted by the environment and the weather and all that kind of thing.



And so it makes it kind of hard and, and it's the same across the world. So I hope that you've enjoyed your time here [00:34:00] in Oklahoma, mark, and and you're headed back next week, right?

**Dr. Mark Trotter:** Yeah, absolutely. Yeah, we've had a fantastic time. So my wife has been working in agronomy. She's doing sabbatical herself.

She works in sort of the development of new crops in Australia, so things like sesame, which you guys have a bit of an industry in. And then we've had two boys over here. They went through school and Stillwater thoroughly enjoyed that. They're actually not, not that excited about going home, not that excited about going home.

They've both got a, a bunch of friends over here now. But I am, I'm definitely looking forward to, to getting back and starting starting up again back in Australia. But I suspect I'll be back. And we've got, we've got a bunch of young researchers that I work with who'll be heading over here actually shortly to continue.

Sort of visiting and we'll hopefully be hosting some of the folks from OSU back in Australia to develop that relationship even further. So, yeah.

**Dana Zook:** That's great. Well, I'm sure that we would invite your sons to come back and work in animal science . I can't imagine what relationships they would've made and how that will take them down the [00:35:00] road. And so I'm so glad that you were able to come here and, and thanks so much for joining me, mark, and taking the time on the podcast. It's been really cool.

**Dr. Mark Trotter:** No worries.

**Dana Zook:** So Mark, thanks so much for joining us today.

If you have any questions about Dr. Trotter's research reach, reach out to me and I'll direct him to Dr. Reuter, or we'll, we'll get some more information for you. But I think he's got a strong line of connection between Oklahoma State and, and back in Queensland, so I'm sure we can get some questions or answered if you have those.

So thank you so much listeners for joining us today. Enjoy those summer temperatures and have a wonderful week.