REPORT ON PROCEEDINGS BEFORE

LEGISLATIVE ASSEMBLY COMMITTEE ON INVESTMENT, INDUSTRY AND REGIONAL DEVELOPMENT

PREVENTION OF CRUELTY TO ANIMALS AMENDMENT (VIRTUAL STOCK FENCING) BILL 2024

At Macquarie Room, Parliament House, Sydney, on Friday 5 July 2024

The Committee met at 9:30.

PRESENT

Mr Roy Butler (Chair)

Mr Stephen Bali (Deputy Chair)
Ms Charisma Kaliyanda
Ms Maryanne Stuart
Mr Richie Williamson

PRESENT VIA VIDEOCONFERENCE

Mr Justin Clancy

* Please note:
[inaudible] is used when audio words cannot be deciphered.
[audio malfunction] is used when words are lost due to a technical malfunction.
[disorder] is used when members or witnesses speak over one another

The CHAIR: Good morning, everyone. Before we start, I'd like to acknowledge the Gadigal people of the Eora nation, who are the traditional custodians of the land on which we meet in Sydney. I also pay my respects to Elders, past and present, and extend that respect to other Aboriginal and Torres Strait Islander people who are either present here or viewing the proceedings online. Welcome to the public inquiry for the Committee on Investment, Industry and Regional Development. I am Roy Butler, Committee Chair. I thank the witnesses who are appearing before the Committee today and the many stakeholders who have made written submissions. We appreciate your input into this inquiry. I declare the hearing open.

Dr MEGAN VERDON, Research Fellow, Tasmanian Institute of Agriculture, University of Tasmania, before the Committee via videoconference, affirmed and examined

Dr ANDREA HARVEY, Associate Professor in Small Animal Medicine, Sydney School of Veterinary Science, University of Sydney, before the Committee via videoconference, affirmed and examined

The CHAIR: I welcome our first witnesses and thank them both for appearing before the Committee today to give their evidence. Please note that the Committee staff will be taking photos and videos during the hearing. The photos and videos will be used for social media purposes on the New South Wales Legislative Assembly social media pages. Please inform the Committee staff if you object to having photos and videos taken. Can both witnesses please confirm that you have been issued with the Committee terms of reference and information about the standing orders that relate to the examination of witnesses.

ANDREA HARVEY: Yes.

MEGAN VERDON: Yes, I confirm that.

The CHAIR: Do you have any questions about this information?

MEGAN VERDON: No.

ANDREA HARVEY: No.

The CHAIR: Would either of you like to make a short opening statement before we begin with questions?

MEGAN VERDON: I have a short statement I would like to make. Thank you to the Committee for this opportunity to speak to you today, particularly all the way from Tasmania. I hold a PhD in livestock welfare and behaviour. I currently work as a senior research fellow at the Tasmanian Institute of Agriculture where I lead our animal welfare science program. Animal welfare is my passion. I have been working in this field for 15 years. I have spent the past seven years researching virtual fencing technologies in dairy and in intensive beef systems. My papers on virtual fencing are seminal to the global literature on this topic. They have been independently peer reviewed and are published in reputable scientific journals.

My expert opinion, which is based on the scientific evidence, is that the welfare of cattle managed with virtual fencing can be at least comparable to those managed with electric fencing as long as the system is based on sound animal behaviour and learning theory; the training period is supervised, and animals are supported in this period; users are trained and the system is applied as instructed by the virtual fencing providers; the system incorporates safeguard mechanisms that protect against potential misuse or misapplication of the technology; and the design of the collar is proven to be compatible with the class of animal and the system in which it's used. I welcome the opportunity to further discuss my experiences and my understanding of virtual fencing with you today.

ANDREA HARVEY: I just have a brief statement. I am a veterinarian at the University of Sydney School of Veterinary Science, so I have expertise in veterinary science and animal welfare with a PhD and further postgraduate qualifications in animal welfare science. I'm speaking on behalf of the Sydney School of Veterinary Science, and we support the proposed bill amendment to permit the use of virtual stock fencing. Our support is based on review of the available literature in addition to some research that's been performed at the University of Sydney by other researchers, not by myself. From an animal welfare perspective, we feel that the positive effects outweigh any potential negatives. Those positive welfare impacts include more freedom of movement for livestock, reduced risk of injury from physical fences, improved grazing management and environmental impacts, improved management practices and also reduced risks to wildlife. That's all I have to say at this stage.

The CHAIR: Thank you very much, Professor Harvey. We will now move to questions from the Committee. Before we begin the questions, I wish to inform the witnesses that they may wish to take a question on notice and provide the Committee with an answer in writing. I've read both of your submissions—thank you. They're both very helpful. One of the cited benefits for virtual sock fencing is the ability to use advanced management techniques like strip grazing and remote herding. Are there particular animal management functions that should be restricted or regulated? And could you comment on the ability to use the technology to herd as well, and the efficacy of that?

MEGAN VERDON: Would you like me to go first?

The CHAIR: You're both welcome to provide a response.

MEGAN VERDON: I've used the technology in a research setting that does both virtual fencing and virtual herding. I think other technologies also do virtual fencing, but I'm not sure on their herding status. From

my experience and my understanding, the virtual fencing component of these technologies works very well in keeping animals restricted to a section of pasture. It has more than 99 per cent efficacy in keeping cattle consigned to their area. In terms of application, it makes it much easier for the people who are running fences to manage these systems and reduces the use of people being out in paddocks on quad bikes.

The virtual herding is a lesser known component of these technologies. In our system, we used it on dairy cows, and the technology works by giving them a third prompt, which is a vibration stimulus that keeps them moving along and tells them when it's time to come to the dairy. In that setting, that sort of herding—we call it an active herding—is suitable because the animals are already very aware of where the gates are in the paddock and they're already on a routine. They already know to walk up a laneway. So, it's merely replacing the stimulus of a person turning up in the paddock with a bike, with a vibration from the collar. We found in our system that the animals learn this very quickly. Within about four days, they were moving by themselves. The biggest questions that we still have around that is whether it can be used to subgroup cattle, either within a herd or to move a portion of the herd and not the rest. Cattle are very social animals, and I would want to see that application verified before it's used that way. There is the herding of individuals as well. I don't know if those two applications of the herding function have been verified.

ANDREA HARVEY: My response is largely based on the literature rather than personal experience, such as Megan's and that of colleagues who have been involved in research. I support what Megan has said. That supports literature that Megan and others have produced on that topic. Certainly, the researchers at the University of Sydney, in a large cross-institutional research program over a number of years, found that animals responded to the technology usually within about three interactions with a fence line. So, they were learning how to negotiate the technology very quickly. Otherwise, I don't have direct experience, but my comments support the comments made by Megan.

Mr RICHIE WILLIAMSON: Dr Verdon, in your opening statement—and I'm paraphrasing because I didn't write it down word for word, so my apologies—you said that you were broadly supportive, and one of the conditions was as long as the animals were supported during a training period. I hope I'm representing what you said correctly. What would that support look like, or what would it entail, and for how long?

MEGAN VERDON: Good question. The support mostly is increased monitoring, I would say, first and foremost, of the animals—keeping an eye on them to make sure they actually are learning to respond to the audio cue and not pushing through. But I think there are other practical things that we can do like not create a motivation for them to excessively challenge the virtual fence line during the training period. That means make sure there's enough space, make sure that there's plenty of food and water in their inclusion area and that you don't have high stocking densities and you don't have a preferred social grouping on the other side, in addition to that monitoring. For virtual herding as well, what we did in our training regime was actually there to physically shift animals and just observe them as they were shifting. Then we gradually reduced the pressure put on them by us to move, and they increased their reliance slowly over time to the technology. They do learn very quickly, so they will learn to respond within a day to the cues in virtual fencing and within a week to virtual herding. I think it's wise to expect an increase in monitoring of the animals for a week to 10 days.

Mr STEPHEN BALI: Can I build on that question? Obviously, legislation is very broadly written, as you just indicated. Whether through regulations or through legislation, how do we monitor the implementation? If you're saying, largely, it's up to 10 days or so of training, I'm just thinking about the financial resources of smaller farms or smaller cattle size where you might not have the money and resources. I have two questions. Once you invest in this technology, how do we monitor that people are implementing the system appropriately? The other thing you mentioned in your introduction was to have the system with safeguards. Do you have some examples of misuse of the technology or the application?

MEGAN VERDON: Great questions. With the monitoring—I accept your point; I take your point—it's probably more useful in the case of legislation to base it on outcome measures rather than having a hard deadline of an animal learns within this period, because it will be somewhat dependant on the circumstances that the animal is in and who the animal is. So, it may be better to base it on when we see—make sure that animals are responding to the audio cue. We assess this by looking at the ratio of pulses or shocks that they get compared to how many audios they get. The lower that ratio is, the more that animal is responding to an audio and avoiding a pulse. It could be just making sure that that is declining for the animal over a couple of days. I suspect that it may be less of an impetus on the producer and maybe more on the tech provider to be able to provide that information or maybe even just flag when it's not occurring in the way that it's meant to occur. They would have visibility of the data that the farmer would not have or that the user would not have.

With the safeguards, an example that I have is from my experience of virtual herding. We had a couple of instances where someone would drop a fence and then another person would come and move a group of cattle,

put a fence up and not redrop it, so their animals were obscured from moving down a laneway. In that case, when they reached the barrier that was preventing their access, the collars now have a safeguard that identifies when the animals at the front of the herd are being cued to move and no-one's moving. There are clever things built into the technology to say that the animals are meant to be moving but they're not moving. That pauses all collars from delivering any pulses at that point and sends a warning to the farmers. The refinement of that safeguard has come out of our research and our experience. That's the sort of thing. It's often not a deliberate misuse but, in case something goes wrong—a tree can fall down and block a laneway—it's just making sure that there are things in place that can identify that and send an alert to the farmer to then check the situation.

Mr RICHIE WILLIAMSON: I have a follow-up question with regard to those safeguards. Is that built into the software? Is that how this works?

MEGAN VERDON: Yes, I think it is, but that question is probably better for the developers or the providers. But my understanding is, yes, it is, and it means that when they do make changes or updates, it depends on the specific technology, but they can update in the field. So, once they've built that in and it uses machine learning and all these other clever algorithms and things that are beyond me, it sends that update to every animal that has a collar, without needing to bring those collars back in.

Ms MARYANNE STUART: First of all, to both of you, thank you so much for your submissions and for being here today. Dr Verdon, the third sentence on page 6 of your submission reads:

> It found no change in cow behaviour or physiological stress in the 3-days following implementation of the technology, but there were indications of increasing stress and behavioural disruption from days 4-6.

Can you explain that, please? And what, in your opinion, do you think would happen after day six?

MEGAN VERDON: That study is a bit aged now. It was conducted back in about 2018, I think, and it was using the eShepherd technology. So, the first thing I'd say about that is that the technology is moving very fast. I haven't worked with eShepherd for a number of years and whatever it looks like today may be very different to the technology that we were using in that system. What we were seeing was that scientifically, statistically, using the numbers and the variation that we had, there was no difference in physiological stress levels. When we become stressed, our bodies release a hormone called cortisol. Cortisol crosses the barrier into the milk, which in dairy animals provides a really good opportunity for us to then take that milk and analyse it to understand levels of physiological stress.

But cortisol can go up for a number of reasons, so we need to understand what is happening with the animal behaviourally or are there other indicators to suggest it's not coping; we can't just rely on cortisol on its own. In that study we saw no differences in cortisol between when those animals were managed with an electric fence to when they were with a virtual fence, in those first couple of days after being trained. Over the next couple of days, it did look like it was trending upwards for some animals and, unfortunately, there were a couple of things in that system where the design of the collar wasn't suitable for our animals, and we did see some animals with neck lesions. So, the study got cancelled. That meant that we couldn't tell whether this increase in cortisol was associated with animals maybe just adjusting to the technology and, if that was the case, you would expect it to go down again—some increase may be normal when animals are learning this new system—or if it was an indicator of something else going on. We can't say that from that study.

The second thing from that study is that we didn't quite have enough animals in the herd to say for sure how big a difference that is or what was happening. So, it was a bit ambiguous in the conclusions, which I get is a difficult component of that work. I would say since then, more recently, we did a much larger study, a much more comprehensive study with the Halter technology. In that study we took 2,500 milk samples over about a six-week- period. We've only analysed about half of that, but that's still the most substantial study of milk cortisol in these systems in the world, and that's showing no difference between an electric fence or the Halter animals, either in training or in the weeks after training. So, I think that study is probably more rigorous and more current than the older one using that eShepherd.

Ms MARYANNE STUART: Can I also ask another question about Tasmania's legislation? How do they manage the animal welfare risks of virtual stock fencing in your State?

MEGAN VERDON: In Tasmania, using electricity or shock collars has never been not allowed. We never had a ban in place, which means we never had to reverse a ban, so it's still permitted on dogs here as well. I think because that never eventuated, then it has been open to the use of these collars, both for research and commercially. At the moment, we do have—I think the most recent number is about 20 per cent of our cows have Halter collars on them.

Ms CHARISHMA KALIYANDA: Thank you for appearing before the Committee and thank you for your submissions to this inquiry. My question is to Associate Professor Harvey. In your submission, you outline

a range of potential biosecurity risks that might arise. In your view, is there a jurisdiction that has mitigated these risks well, and how have they done that?

ANDREA HARVEY: I guess that they're the sort of hypothetical risks that need to be considered in relation to biosecurity. I don't have direct experience in how various jurisdictions have gone about potentially mitigating those. I don't know whether Megan might have further comments on that, from her experiences.

MEGAN VERDON: I haven't done a lot around the biosecurity risks, to be honest. Just off the top of my head, I've been thinking that the technology could help in managing subgroups of animals or separate herds of animals. It might make it easier to separate potentially diseased or diseased animals and help with biosecurity that way, but I'm just working off the top of my head on that one.

ANDREA HARVEY: I think, also, a lot of it will come down to the technology. Again, with the advances in technology, I'm sure that a lot of that will be built in because most of those biosecurity concerns are related to technology vulnerabilities or data security, power outages and things like that as well. I think that that should all be able to be mitigated by being built into the technology.

Mr STEPHEN BALI: I have a final quick question. In case of fires et cetera—wildfires and bushfires and stuff—should there be a mandate to turn off all this technology?

MEGAN VERDON: Yes, I think that it would be—a mandate? One of the things that we have spoken about is that concept of environmental disaster management and the benefits of virtual fencing in that scenario, because it enables animals to actually flee, and I do think that that is a potential benefit. From a legislative point of view, I don't feel like I have the expertise to comment on whether it should be a mandate or not, but it makes sense to me that that would be the scenario.

Ms MARYANNE STUART: I have a further question to that. What happens in Tasmania when those sorts of events happen?

MEGAN VERDON: We haven't been in that situation yet.

Ms MARYANNE STUART: So, there's no policy or there's no legislation around animal welfare when there are risks associated, such as—

MEGAN VERDON: I don't believe so. But I can take that on notice and provide a written response.

ANDREA HARVEY: I would just comment further on that issue. I think it is very much down to an individual circumstance perspective. I do have experience—not with virtual stock fencing in natural disasters, but I do have experience with stock of a variety of types in bushfires and floods. I think it's a very individual situation and that, with any management of stock, to make a blanket rule can be potentially dangerous. I'm not sure that it would be something that should be mandated, because sometimes if stock are in a safe area, then actually releasing them from a fenced area, whether that's physical or virtual fencing, can actually increase the animal welfare risks. Obviously, if they're not in a safe area with a particular natural disaster that's happening at the time, then releasing them can be beneficial, so I think those would be decisions that need to be made by the farmer at the time. But, obviously, having that ability to do so is really advantageous.

The CHAIR: Justin, do you have any specific questions that you wanted to ask, noting your background as a veterinarian?

Mr JUSTIN CLANCY: Thanks for your evidence, Megan and Andrea. Megan, are temperament and age factors in your studies?

MEGAN VERDON: With how quickly they learn?

Mr JUSTIN CLANCY: Yes.

MEGAN VERDON: Interesting question. It may be, but I don't know how much the age effect is age or experience. Some of our research has shown that younger animals do learn, so they get there fine, but that the older they are, the quicker they may learn. We also found, though, that in our dairy systems, cattle that have had experience with electric fencing actually learn more quickly than those that haven't. In our scenario, I'm not sure if it's just that more experience with electric fencing makes them better at learning these new associations or if it is an age effect.

Mr JUSTIN CLANCY: I suppose the basis of my question is the conditioning of the animal and prior conditioning in that regard. Obviously, your studies have been on beef and dairy cattle. Have you got experience with other livestock classes? Is there any use of that in other jurisdictions?

MEGAN VERDON: As in sheep?

Mr JUSTIN CLANCY: Sheep, free-range pigs.

MEGAN VERDON: Before my life in dairy, I did work with pigs, and we always had trouble getting collars on them because their necks are so big. It's the same thing with bulls, actually, in cattle—that it's hard to keep a collar on them. In sheep there is work, mostly done by Caroline Lee and her group out of CSIRO. They're probably better placed to speak on it. I think one of the issues with sheep is the wool and getting the delivery of the stimulus through the wool. In a research setting, it looks like sheep are able to learn, and the technology can be effective for them. It's just the practical barriers on that.

Mr JUSTIN CLANCY: Obviously, we're exploring the regulatory environment, and there have been several questions already about that. As you said, in Tasmania electric collars haven't been banned, and so there's been less from a regulatory environment in that regard. Some of those conditions that you spoke about around sound behaviour training and collar designs—does that then just rest more on existing instruments such as the Prevention of Cruelty to Animals Act and the safeguard provisions in that regard?

MEGAN VERDON: From my understanding, a lot of those training protocols and the safeguards are not there to address a regulatory requirement; they're there because the product developers see them as necessary for their product.

Mr JUSTIN CLANCY: So, there's generally been good compliance from livestock operators in terms of following those training protocols?

MEGAN VERDON: Yes, and the developers we work with have people on the ground. They're actually supported by people who work, say, for Halter, who come out to the farm and will run them through and be physically present and available for questions.

The CHAIR: We are at time, but there is a really important piece of evidence I want to collect from both of you, if possible. The reading that I have done of the submissions indicates that the pulse that's delivered to, in this case, cattle is 0.2 of a joule of energy, whereas an electric fence is one to four joules of energy. It's referred to in one of the submissions as similar to the electric shock you would receive from static electricity. Very quickly, is that an accurate description of the amount of stimulus that's received? I intend to put one on myself, if they let me, and try it, but I want to hear from you guys if that is an accurate description.

MEGAN VERDON: I have put one on me. I am happy to speak to what it feels like. I have also shocked myself a lot with electric fencing. I understand the reason why some of the developers prefer to use words like "pulse". One of the reasons I prefer to use "shock" is because that's what I think that the sensation is. It's difficult with comparing because there is voltage and energy and current and duration as well that all play a role in how it's perceived. At the maximum—so that 0.2 joules is a maximum—for the Halter tech, it feels similar to me to a moderate shock from an electric fence or a normal shock from an electric fence, but it's different in that when you get an electric fence shock it goes vroom right through your body down to the ground. When you get a shock from one of these, it's in a very localised area. If you do it on your arm, you just feel it there. For me, it felt like a shock but also just in a localised area for a very short duration.

ANDREA HARVEY: All I would add to that is that I also have had many electric fence shocks myself. I haven't tested personally the virtual collar technology but some of my colleagues have and describe a similar sensation to what Megan has. Some of them have described it more like a TENS machine-type shock than an electric fence-type shock and do consider it to be less aversive than an electric fence sensation.

The CHAIR: That's great. Acknowledging the time, we might wrap up here. Thank you both for appearing before the Committee today. You will each be provided with a copy of the transcript of today's proceedings for corrections. The Committee staff will email any questions taken on notice and any supplementary questions from the Committee. We kindly ask that you return these answers by 4.00 p.m. on Thursday 25 July 2024.

(The witnesses withdrew.)

Ms LOUISE WARD, Programs Lead, FOUR PAWS Australia, affirmed and examined

Dr LIZ ARNOTT, Chief Veterinarian, RSPCA NSW, affirmed and examined

The CHAIR: I welcome our next witnesses. Thank you both for appearing before the Committee today to give evidence. Please note that Committee staff will be taking photos and videos during the hearing. The photos and videos will be used for social media purposes on New South Wales Legislative Assembly social media pages. Please inform Committee staff if you object to having photos and videos taken. Can you please confirm that you have both been issued with the Committee terms of reference and information about the standing orders that relate to the examination of witnesses?

LIZ ARNOTT: Yes.

LOUISE WARD: Yes, I have.

The CHAIR: Do you have any questions about this information?

LOUISE WARD: No.

LIZ ARNOTT: No.

The CHAIR: Would either of you like to make a short opening statement before we begin the questions?

LIZ ARNOTT: I will go first. There are two broad issues to be examined today: firstly, the implications of permitting livestock virtual fencing in New South Wales and, secondly, whether the proposed bill is appropriate for doing so. The various submissions to this inquiry, the published literature and the content of parliamentary debate indicate that all reasonable stakeholders on this issue accept that there is an inherent risk to animal welfare in the use of virtual fencing technology. The acknowledgment of this is, of course, the impetus for the current Animal Welfare Task Group review of the matter, the recently commissioned independent scientific literature review on animal welfare considerations in virtual fencing, and this very inquiry.

Of course, while the scientific literature can tell us some of the likely impacts on animal welfare of using virtual fencing, it cannot tell us what we should consider an acceptable impact on those animals. This is an ethical analysis that is complicated and is influenced by the extent of harm that is estimated to occur, whether there are alternatives to virtual fencing, and what benefits are expected by using virtual fencing. RSPCA takes the position that intentionally subjecting animals to discomfort, pain or stress unnecessarily is ethically problematic and that animals under human control should be kept free from unnecessary pain and distress. This same ethical principle also underpins the current animal protection framework in New South Wales. RSPCA advocates for the adoption of animal management techniques with the least risk to animal welfare where they are available.

The authors of the scientific literature review commissioned by the Department of Agriculture, Fisheries and Forestry assessed certain animal welfare risks associated with livestock virtual fencing to be high—that is, the risk of subjecting individual animals to prolonged stress is likely and of major consequence. The use of this technology will mean that there will be certain animals who experience stress or pain and who are not sufficiently monitored or fitted with collars to prevent pain or irritation. RSPCA is uniquely positioned to provide evidence that those who are responsible for animals cannot be always relied upon to do the right thing and the result can be animal suffering. The question is whether there can be adequate assurance that mitigations are in place that can limit this harm sufficiently in both magnitude and frequency to justify the benefits that virtual fencing can bring to producers and land management.

The bill before us certainly does not provide adequate assurance that harm will be reduced to the lowest possible level, firstly because it does not confine the provisions to certain livestock species. The science is clear that virtual fencing research, processes and safeguards are much more advanced in cattle than in any other species. There are still gaps in what we know about their use in cattle, particularly on long-term use and outcomes. However, a bill that proposes to permit virtual fencing in species other than cattle fails to act on the available evidence and the very high welfare risk rating that has been described, for example, in the use of virtual fencing in sheep.

The latest iteration of the bill refers to a requirement for compliance with certain undefined requirements and standards, considering the welfare of animals subjected to virtual fencing is almost wholly determined by the characteristics of the devices and the care with which they are deployed and monitored. It is entirely insufficient to legalise virtual fencing ahead of the adoption in regulation of a set of robust, animal welfare focused standards. Indeed, the current Animal Welfare Task Group stakeholder consultation process is likely an important source of input on the development of a set of requirements or standards and to inform a nationally consistent, safe, well managed and monitored deployment of virtual fencing in cattle. Pre-empting the completion of this process and

progressing this bill in advance of the development of a mandatory virtual fencing code of practice does not support best outcomes for welfare in New South Wales.

LOUISE WARD: FOUR PAWS is a global animal welfare organisation dedicated to revealing suffering, rescuing animals in need and protecting them, with 16 offices worldwide, including one in Australia. Our vision is a world where humans treat animals with respect, empathy and understanding. Our expertise in animal welfare science and leading welfare developments informs our stance on various legislative matters. After reviewing the provisions and intent of the proposed bill alongside relevant research, we have serious concerns about the welfare impacts of virtual fencing on farmed animals. Consequently, FOUR PAWS opposes this bill.

Our key concerns are the potential lack of habituation. If the animals cannot see the fence, this can lead to more shocks due the difficulty for the animals to associate the aversive punishment with a specific, physical barrier, as is the case with conventional or electric fences. We also note the large number of submissions discussing that an inferred benefit of virtual fencing is that it allows the movement of animals more readily, with some submissions mentioning daily movement of animals. This can subsequently hinder their ability to learn and habituate to their surroundings, causing stress and impacting animals' overall health and wellbeing.

Shock collars, also known as e-collars, for dogs are currently illegal to possess, sell or use in New South Wales. Under section 16 of POCTAA, any device producing an electric discharge that an animal cannot escape from is prohibited. Virtual stock fencing devices fall under this category, making them incompatible with existing legal frameworks intended to protect animal welfare. The current framework reflects the understanding that using electrical devices in a way that may harm animals is unacceptable. The people of New South Wales have overwhelmingly rejected aversive training methods in other industries—and the use of shock collars for farm animals should be no exception.

The bill does not restrict the intensity or frequency of the stimulus emitted by the devices. Any volume, intensity or frequency of audio cue is permitted, regardless of welfare impacts. Additionally, devices can emit any level of electrical charge, contrary to claims that it is less than that of a standard electric fence. Shock collars cause pain and discomfort, especially if not fitted correctly. They are also not recommended for juvenile animals, raising questions about how this will be managed, checked and maintained.

Shock collars, also known as virtual stock fencing, could make farm animals more vulnerable to predators, escalating human-wildlife conflicts. This may lead to lethal control of predator animals such as dingoes through shooting, trapping and poisoning, which also kills non-target species and working dogs. Given these concerns, FOUR PAWS Australia concludes that if a negative impact on the animals' wellbeing cannot be excluded with certainty, we do not support or recommend virtual stock fencing. Instead, we advocate for fencing that poses a low risk to wildlife and farmed animals, such as barbless wire.

The CHAIR: We will now move to questions from the Committee. Before we begin, I inform witnesses that they may wish to take a question on notice and provide the Committee an answer in writing. I will get started; the privilege I've got as the Chair is that I get to ask the first question. Dr Arnott, on pages 3 and 4, particularly, of your submission you talk about mitigation of animal welfare risks. I've read all of the submissions, but in particular I read the RSPCA's. I didn't see you say you don't think that this should ever be on cattle. What I'm seeing is that there are certain standards, requirements and safety mechanisms that you think would be required before we could use these devices on cattle. Is that accurate?

LIZ ARNOTT: It's accurate that RSPCA as a federation doesn't yet have a policy position on virtual fencing at this stage. We're definitely very interested to review and consider the DAFF-commissioned literature review and to consider all these issues that are coming forward because it's a complex issue. RSPCA does have a position that farming should be done in a way where practices minimise distress or avoid stress, pain and injury to animals. Certainly, where animals can be managed without subjecting them to electric shocks, if that's avoidable, that would be the preference. I think we're in a position where if Parliament decided that considering all the advantages that virtual fencing might bring justifies their implementation, RSPCA would insist that the animal welfare risks, which are not insignificant, are given the full respect and mitigations and the time to make sure that they're minimised.

Ms MARYANNE STUART: Thank you, Dr Arnott and Ms Ward, for your submissions and for being here today. Dr Arnott, on page 6 of your submission, the very last paragraph states:

> If a decision is taken to permit VF to be used notwithstanding the above, then a minimum period of statutory review (12-18months) should be legislated …

Are you suggesting a trial?

LIZ ARNOTT: I'm suggesting that, as with all government policy, there should be evaluation embedded in policy formation. With respect, I guess we've been involved in enough reviews of legislation to feel like

sometimes that evidence to really inform process is missing, particularly when there are other jurisdictions undertaking this work. So, I don't believe it's an unusual process to embed a statutory review period. We're saying that that would be absolutely essential to ensure that the legislation is fit for purpose and that the animal welfare risks that are hoped to be mitigated are being mitigated.

Ms MARYANNE STUART: You were both in the room when the previous speakers spoke about "pulses" versus "shocks". Dr Megan Verdon has actually worn one of these collars and spoke about the fact that she had experienced a localised pulse rather than a shock going through all the body. I wondered if you had any opinions on that assessment that she made.

LIZ ARNOTT: I'm happy to start. I heard her say that she chooses to refer to it as a shock because she understands that that is her experience.

Ms MARYANNE STUART: That's correct, yes.

LIZ ARNOTT: My comment about that is we can call it whatever we call it. I do definitely adopt the position that the evidence is that the duration and intensity of the shock is not going to cause thermal damage—so, physical damage. It's not going to cause cardiac impacts. I think that's fairly well established. I'm not prepared to adopt that every animal will not find it an aversive, painful experience. No reasonable stakeholder here is providing a position that these aren't aversive. They don't work if they're not aversive. The reality of animal welfare is it is a characteristic of an animal; it's not a characteristic of a population. We know that there is variation in the way that animals and people experience aversive stimuli. We've got reams of scientific data to show that.

I would vouch that Fisher and Cornish, in their literature review, go to the extent of explaining about variation in differences in learning because it's really relevant. There will be some animals who experience that as an annoyance; there will be some animals who experience it as highly aversive. Either way, it's not going to be pleasant for these animals, and that's why the absolute focus is on whether they can control, avoid and predict the stimulus. We know from the literature that it's one thing to experience punishment, which is what it is—an aversive, unpleasant experience. It's another thing—and it has some really significant psychological, and can have physical, impacts—if an animal is not able to predict and avoid a painful or unpleasant experience that is about to occur.

LOUISE WARD: I will add that, from their submission, they did discuss that it was an electric shock. It was short but painful aversive cues. Within their research they did acknowledge that it was painful. I guess there is a big difference between putting on a collar yourself and knowing you're going to be shocked and the kind of habituation that we're talking about. I mentioned that some of the submissions talked about the ability to move animals daily and their ability to be able to predict and have consistency and the stress that that causes animals.

Mr STEPHEN BALI: Thank you for your time in being here today and for your submission. If we're trying to balance the control of the animal versus all the other factors—because, either way, if you look at quad bike accidents happening onsite, the cost of fencing et cetera and you see native animals getting caught up in actual fences and dying and the movement in fire et cetera in disaster-type situations—I suppose we've got to pick what's the best in a bad situation. If we proceed with the legislation, what should we be considering as far as safeguards in this situation for virtual?

LOUISE WARD: Could I just make a comment about the native animals being caught in fences? We already know that 90 per cent of animals caught in fences are caught in the top strand and the bottom strand of wires. There's been no move by government to even legislate that new fencing should have barbless wire on the top strand or the bottom strand. So, I think the idea that virtual fencing is providing a benefit to wildlife—if we did want to do that, we could legislate for that.

The other issue is that a lot of the submissions talked about keeping the boundary fence intact and then it would be internally that you would be using virtual fencing, so then there's no benefit to wildlife if the barbed wire is still in the boundary fence. I guess that would go the same for animals escaping in fire or flood situations. I think mandating a disaster management plan for farms that includes removing animals to safety quickly would be more beneficial to animal welfare. I did note in WIRES's submission that they talked about, I guess, the attacks of farm animals on wildlife, koalas in particular, and the risks that virtual fencing would pose to native wildlife. I think the inferred benefit of virtual fencing for either wildlife or removing animals in disaster situations is, I guess, up for debate, or is not proven with evidence, I don't think.

LIZ ARNOTT: I think in relation to your question about what mitigation should be in place—is that the substance of the question? I think pages 3 and 4 of our submission cover off on them. They've largely been taken from the recommendations of the independent review. Essentially, there are a whole collection of requirements of the technology itself. I accept that it sounds very much like the current technologies have really invested heavily in research and development and have behavioural based algorithms and have a lot of the safeguards in place.

I suppose in terms of futureproofing legislation, it's, I think, concerning or not sufficient to just assume every future product will. I think that has to be regulated.

I would also say that the deployment is the other essential aspect to the mitigations. Certainly using this remote monitoring at length, there are recommendations that the animals need to still be monitored in person to check that the collar fit and the placement collar is adequate; that there are no animals that are unwell that are finding it difficult to move in response to any electric stimulus; that there's a way of responding to non-learners and that they're removed very quickly; and a long list of other requirements around ensuring that there are shutoffs in place for animals that escape the boundary and there are reasonable boundaries set for animals.

LOUISE WARD: Could I just make another comment on the native animals? There are no provisions in the bill, I don't think, for removal of old fencing, so whether the existing fencing would remain in place in addition to virtual fencing. I know wildlife carers will talk about farmers putting up new fencing, but not removing the old fencing and the number of, say, particularly macropods that might clear the first fence but not the second fence, I guess. So, what does happen to the existing fencing?

Mr JUSTIN CLANCY: Liz, just a question for you, please. We heard of jurisdictions where virtual fencing is used. Can you outline the discussions that you may have had with your colleagues in welfare organisations, say, with the SPCA New Zealand and RSPCA in Tasmania—their views and their understanding, having been in jurisdictions? Also in that regard, we've just heard from a witness with regard to the Tasmanian regulatory environment where there hasn't been a ban on electric fences so the regulatory environment hasn't been built up around virtual fencing; it's just that it's permitted use, and welfare aspects are then taken care of through the prevention of cruelty to animal Act. Have you seen evidence of failures in the regulatory environment in Tasmania as a consequence of that?

LIZ ARNOTT: I can take that on notice. I don't have any feedback on me from RSPCAs in other jurisdictions. As I understand it, in several of the jurisdictions, government departments enforce their animal welfare laws with respect to livestock, so I'm not sure how much visibility RSPCA has in those States. But I'll take that on notice.

The CHAIR: This is probably a bit unorthodox, but have you guys had a chance to have a look at other submissions?

LIZ ARNOTT: Yes, I have.

LOUISE WARD: Yes.

The CHAIR: I'm interested in your comments on someone else's submission. It's the Halter submission. I will read it to you:

> Because the low-energy pulse is predictable and controllable for cows, no trained cow receives a pulse she was not expecting. A cow will never receive a low-energy pulse without first receiving, and ignoring, the primary sound or vibration cues.

I think what they're saying is as the cow is familiarised—I think it's a four- to 10-day period in which the cow becomes familiar with the technology—it learns that if it keeps going in a direction after an audio cue and a buzz, it is going to get a pulse. Have you got any comment on that in terms of no trained cow receiving a pulse without expecting it?

LIZ ARNOTT: Yes. I feel like it's like saying that when it works well, it works very well. And I don't doubt that. I have no doubt that there are a population of cows, even potentially the majority of cattle, who will cope with it as a minor stressor, learn to avoid it and therefore not experience extreme or prolonged welfare impact. The issue, which I touched on before, is that animal welfare is not a population characteristic. It is an individual characteristic. I'm trying to provide an example: if I said that the majority of people in Australia are food secure, so there's not much to worry about. But 4 per cent to 10 per cent of Australians are hungry. For them, the fact that 90 per cent of Australians aren't is probably irrelevant—for one million to two million people. That's the thing with livestock policy. We're talking about hundreds of thousands of animals.

The CHAIR: Absolutely.

LIZ ARNOTT: If 4 per cent or 5 per cent of cattle are not learning, which is not what the Halter submission in that statement is referring to, then there could be 1,500 or 2,000 animals that are experiencing distress. In other contexts, if I told you that there were animals that were being electric shocked two or three times a day over 30 days, you might find that concerning. So, it's important, again, when we're talking about safeguards, to keep in context that averages, so an average of two to three shocks, doesn't speak to the experience of all these thousands and thousands of animals that might be captured in these systems.

The CHAIR: I do note that one of the protections you mentioned, Dr Arnott, is the rapid removal of animals that are non-learners. I think that there are other examples in the submissions that talk about that as well—identifying animals that are not adjusting and not learning, and getting them out into a fenced area or putting them on a truck or whatever you have to do.

LIZ ARNOTT: Yes, exactly. I believe it was your earlier witnesses, Dr Verdon and Andrea Harvey, who were talking about the importance of that training and certification piece. It may seem obvious, but you would have to rely on someone to recognise that the animal wasn't learning and to spend the time observing it. I have full respect for our producers, and they have a lot of skill and commitment to their animals, but things fall through the cracks. Somehow, we have to be confident that they know how to recognise those animals and that they're given the time, training and oversight to do so.

LOUISE WARD: Could I make a comment on that one as well? Most of these studies are small studies, and they're short term. There seems to be a lack of peer-reviewed studies within this. And, of course, Halter is a company that makes money off these devices, so they do have a vested interest in producing and designing research that backs up their commercial claims.

Ms CHARISHMA KALIYANDA: Thank you, Dr Arnott and Ms Ward, for taking the time to appear today and for your submissions. You raise a range of very important ethical considerations and potential gaps in legislation and practice. I was interested that in the RSPCA submission you mentioned a mandatory code of practice that can address animal welfare implications. This question is for both of you: What do you believe a potential code of practice should include, and is there anything that we can learn from a similar code of practice or other jurisdictions where that might exist?

LIZ ARNOTT: My concern, with the cursory knowledge I have of the approach of other jurisdictions, is they use phases such as "use in line with manufacturer recommendations". I am not a legal expert, but I imagine, working for a regulatory body, those kinds of provisions are hard to enforce. If we had a code of practice that had, rather than the recommendations of the manufacturers not to put it on juvenile animals—that's fairly arbitrary, to me. I think a code of practice would, for example, provide an age limit whereby it was inappropriate to place a collar, because they weigh two kilograms, the animal's growing rapidly and at greater risk of strangulation, and we don't have much data about their learning capability. One very small example about that—how animals should be monitored and what animals should have these placed on them.

I also think an absolute essential—arguably captured in the Prevention of Cruelty to Animals Act but not entirely—is that the animals have to be provided all the resources they need in the area they're confined to. Asking an animal to choose between an electric shock and finding access to adequate shade, for example, I think feels unfair because it is unfair. A lot of the studies show that the animals that are breaking through are choosing to accept the electric shock and are often doing so when the feed available to them gets low. It's known that punishment—when you're trying to suppress an inherent behaviour like accessing survival-critical resources such as food, social contact, shade and water—has a greater impact. All those kinds of things—again, if you refer to pages 2 and 3 of our submission and, again, to the DAFF literature review, certainly there are a range of inclusions that would be really important to have in a code of practice on how these are implemented, monitored, managed and overseen.

Mr RICHIE WILLIAMSON: Dr Arnott, does the RSPCA have a level of acceptable risk or acceptable pulses or shocks? Where I am going to is—I am not totally across the software. We will see it, but I am assuming that the software will report back how many pulses are sent to beast three, and we can identify, possibly—I don't know, I'm assuming—the slow learners. Is there an acceptable risk that the RSPCA has landed on?

LIZ ARNOTT: With respect to virtual fencing, I can't define for you an acceptable risk. I would say, generally, when you review our policies on the use of animals, we would generally accept that the use of animals is permissible, acceptable and ethically okay, as long as the animals are not subject to unnecessary pain, distress or suffering, and that goes for this circumstance. General principles are that the magnitude of a punisher should be as low as possible, only used, if necessary, predictable and avoidable. It's very hard to define, at the end of this, what is absolutely necessary. I guess it's our job to point out the animal welfare impacts. It's others' jobs to point out what the benefits are. Finding a balance there is very difficult and, obviously, we are not major stakeholders in animal production. We certainly are major stakeholders in animal welfare, so we are very driven to have that risk accepted as significant and mitigated as much as possible.

Mr STEPHEN BALI: You were talking previously about the—to shock animals, not to be able to access food, social contact, shade and water. This leads to two points. Firstly, are we talking about outliers? As we talked about, some animals may feel the pain of a shock, and it will only be 2 per cent of the population. I cannot see farmers being able to try to stop animals from accessing food, social contact, shade and water, so are we talking

about an outlier situation? Secondly, would that be addressed if we only mandate that they can use it for an external boundary—the limitations of the boundary—as opposed to internal boundary fencing or movement?

LIZ ARNOTT: I think some of the studies where animals were provided adequate food, shelter and water showed animals breaking through because they still had a motivation to do so. The whole premise, as I understand it, of cell grazing and strip grazing is that you are feeding down to a low level of food before you move on. There is going to be a conflict for animals where the grass is greener. There are also studies where animals were breaking through because there were other cohorts of cattle. Yes, I am sure there are things that can be put in place to be managed. I'm not convinced, however, that it's an outlier, necessarily, that all animals are provided adequate shade in every paddock in summer in New South Wales. I think that's an ongoing issue for livestock management. I would hope, particularly with this technology in place, that it is uncommon. But I do think it's worth putting in a code of practice, because it's important.

Mr STEPHEN BALI: Should it be restricted just to the external fence, or can a farmer then create internal paddocks using the technology?

LIZ ARNOTT: I haven't considered exactly the implications of what you're describing. I just understand that some of the benefits are about creating internal barriers. So, it seems that having an external boundary is critical for safety and, absolutely, I think all the recommendations are there has to be a boundary fence for the purposes of safety.

The CHAIR: I'm just very conscious of time. Thank you both for appearing before the Committee today. You will be provided with a copy of the transcript of today's proceedings for corrections. The Committee staff will also email any questions taken on notice from you today—I think there was only one from you, Dr Arnott—and any supplementary questions from the Committee. We kindly ask that you return answers by 4.00 p.m. on Thursday 25 July 2024.

(The witnesses withdrew.)

Ms KARRI NADAZDY, ACA Horse and Livestock Representative, Animal Care Australia, affirmed and examined

Mrs KYLIE GILBERT, ACA Dog Representative, Animal Care Australia, before the Committee via videoconference, affirmed and examined

The CHAIR: I welcome our next witnesses. Thank you both for appearing before the Committee today to give evidence. Please note that the Committee staff will be taking photos and videos during the hearing. The photos and videos will be used for social media purposes on the New South Wales Legislative Assembly social media pages. Please inform the Committee staff if you object to having photos and videos taken. Can you please both confirm that you've been issued with the Committee terms of reference and information about the standing orders that relate to the examination of witnesses?

KARRI NADAZDY: Yes.

KYLIE GILBERT: Yes.

The CHAIR: Do either of you have any questions about this information?

KARRI NADAZDY: No.

KYLIE GILBERT: No.

The CHAIR: Would either of you like to make a short opening statement before we begin with questions?

KARRI NADAZDY: Yes, please. Good morning, Chair. I ask that this statement be tabled. Today we're here to discuss the advantages of virtual fencing as they result to horses and livestock kept on hobby farms, recreationally and as pets, but also for wildlife. We support responsible animal ownership, and keeping animals contained to our own property is one way animal owners can act responsibly. Claims that electric or virtual fencing is cruel solely because it is aversive comes exclusively from animal rights groups who lack expertise or knowledge of the products, learning theory or animal training.

This is anthropomorphising at its best. Electric fencing has been in use since the 1930s, and virtual fencing is the exact same experience for the animal but with huge technological advantages that benefit animal welfare, safety for the animals as well as the community and added convenience for owners. We should never make it harder or more expensive to be responsible animal owners and carers. Electric and virtual fencing is a very effective deterrent, and Animal Care Australia has no welfare concerns with the use of these devices as long as they are sized correctly for the species or to the need. Why would we force owners to buy duplicate systems for each species when the virtual fence could simply have different collars for different species? This technology is inevitable and not far away but will remain illegal in New South Wales under this amendment.

Animal Care Australia believes that limiting the permitted use of virtual fencing to only livestock will create unintended consequences. We need these options available to us as soon as the manufacturers release them. We must stay focused on improving animal welfare and avoid distractions from the animal rights lobby's ongoing efforts to complicate and increase the cost of animal ownership. We thank the Chair and the Committee for inviting us to appear today, and we welcome your questions.

The CHAIR: Thank you. Ms Gilbert, do you have another statement or are you happy with what has been read there?

KYLIE GILBERT: No, it's all good.

The CHAIR: Thank you. We will now move to questions from the Committee. Before we begin the questions, I wish to inform the witnesses that they may wish to take a question on notice and provide the Committee with an answer in writing. As the Chair, I will ask the first question. I note in your submission—and you've referred to it in your opening statement—you believe that this technology should be available to more species than just ruminant animals or livestock and include companion animals and horses, whatever, to be able to use the same technology. Have you got examples from other jurisdictions where it is in use, and it has been regulated in a way that addresses or overcomes genuine animal welfare concerns?

KARRI NADAZDY: A big part of what I see as the problem with the way the current schedule for electrical devices in the current regulations is written is that each item is separated by species. We already have canine invisible boundaries right now—that's a virtual electric fence. So, we have that. Now we are creating another item on this schedule for livestock. This then still excludes cats. One of my primary concerns is that where a lot of jurisdictions are now introducing cat containment laws—and we are supportive of that—electric fencing and invisible fencing is a really good way to ensure that cats stay inside their owners' properties. We don't have

that option right now. What I'm suggesting is that things like canine invisible boundary and the livestock virtual fencing, these should be in the same categories. What should happen in the description is to say that it's species-specific—that the items are species-specific. A lot of these items could then be collated into less—it's less confusing. I found this list confusing myself, and I know all these products. If we could combine them and make it not species-specific, that would make a big difference.

Mr RICHIE WILLIAMSON: Thank you for your opening remarks. We've read, obviously, your submission. What safeguards should be in place, in your opinion? I'm thinking for cattle per se, but if you want to expand on that, please do. What safeguards need to be contained within regulation or legislation, in your opinion?

KARRI NADAZDY: It needs to be fairly broad because, as you said, "livestock" covers a lot of different animals. I'm the horse and livestock representative. Horses are considered livestock. They have very different needs to cattle. Sheep have very different needs. This also covers alpacas, llamas, goats. All of these animals have very different needs. If you make the regulations too specific, you then make it impossible to comply because it won't be suitable for different species. The other thing is, as we've heard today, it's very individual as well for the animals, so you need some room to move. I've got small ponies at home and standard horse fencing doesn't work. I use bull electric fencing because they're so furry and so fluffy and little teddy bears that they don't feel the shock, so you have to have a stronger fence. If you then said, "Okay, horse fencing can only be up to 4,000 volts," you've now created a problem where I can't contain my animals.

We want to be responsible animal owners. We need to make it suitable to the purpose. Treating farmers and animal owners and anyone that owns animals as if they're idiots and can't see that their animals are having a problem or struggling to understand the fence, or not learning from the technology, is just ludicrous. People aren't idiots. There's no incentive for anyone that owns animals to be harming our own animals. It's in our interests for our animals to be healthy, well and productive if we're producing them, and the same with recreation, especially with horses. We don't want horses injured in fences. It's much safer to have a virtual fence that they can't get tangled in when the power goes out than to have them fall off a cliff or go in a river or even get tangled in an electric fence. It needs to be fairly broad. If it's too specific, it becomes useless, as well as having no regulations at all. But you'd have to go through stakeholder consultation to do that.

Mr STEPHEN BALI: Just because of your focus on horses and my limited knowledge—apart from going to pony clubs and stuff on presentation days—horses move at a reasonable pace and speed compared to a cow or a sheep et cetera. If they have those virtual devices presenting a shock while the horse is running at great speed away from what they believe is a problem, and if they're still getting the shock after travelling quite a bit of distance, how would the horse know which direction to go for the shocks to stop happening?

KARRI NADAZDY: As we heard this morning, there's a warning cue. You have to look at it this way. You've got static electric fencing on this side, and you've got virtual fencing on this side. The static electric fence has got white tape, for example, or it could just be wire, and that's a visual barrier. Prey animals like horses, cattle and sheep—their eyes are on the sides of their heads, not in front like ours, so a visual barrier is much more obvious to us but not more obvious to them. Quite often, when you first put horses into electric fencing, they don't even see it. They cannot see it because they can't see right in front of themselves, so an audio cue or a vibration that warns before they get to the fence is a more effective cue to prey animals, especially—like horses and cattle and sheep—than the visual fence is.

We tend to anthropomorphise and think, "Well, the fence is clearer to us; therefore, it must be clearer to them," and it's not. In my opinion, the virtual fence is safer because they will get that warning as they approach. They're not getting a shock out of nowhere; it's not a surprise. They have that warning, so it would actually be safer. They'd have that warning, so they won't go further. There's that learning period that we heard about this morning already.

Mr STEPHEN BALI: But once you've progressed into an area, how would the horse know which way to go to stop the electric shock?

KARRI NADAZDY: Well, how do they know now, when they've gone through an electric fence and wrapped it all around their legs and ripped their legs apart? Same way—they come to a stop eventually. Most horses, if they panic, will run for 100 to 200 metres and then stop and turn around and look at what's chasing them. If they're caught up in a fence, they will drag that fence that whole distance, so they'll take that with them. So, in a virtual fence—

Mr STEPHEN BALI: But with a virtual fence, you don't know where—

KARRI NADAZDY: But they do know because, as they walk around their paddock in that learning period, they're learning where those boundaries are. They have that audio cue or vibration that tells them, "You are approaching the fence". They do actually think about things and recognise cues, and they're much quicker at

picking up warning signals than we are. They're much more sensitive to that, so they will learn those cues very quickly.

The CHAIR: I'm not a witness providing evidence, but I would say that it's the same reason you don't put a horse in a paddock for the first time at night, especially if there's thunder or lightning.

KARRI NADAZDY: Yes, exactly.

The CHAIR: You give them a chance to walk the paddock. If they've got a device on, they will know that's the limit there; that's the limit there. But I've seen what happens when a horse goes into a fence during a thunderstorm. They get a lightning strike right next to them and take off like a shot, and it's pretty untidy and the vets make a lot of money.

KARRI NADAZDY: It's the same thing when there are emergency situations, with fires and floods and whatnot—especially fires. The advice that we're given is that you should open all your internal fencing, but don't let them out of the property. That's the safety advice—the current advice. What happens when fires approach is that, if you have all the gates open, the horses know where the gates are, and they will follow that pattern and move from one end of the property to the other. With a virtual fence, you can then take all of those medial fences out and take all those dangers away because horses often are wrapped up in fences in those scenarios. That happens in floodwater. Most of the animals dying in floods are from going through floodwater and then getting their legs caught in fences. By not having any of that there, you are making it so much safer for them. That is the learning period. If you were really concerned, you could always put up a strand of electric visual tape, but that's for our benefit not for theirs.

Ms CHARISHMA KALIYANDA: Thank you, Ms Nadazdy, for your time this morning and for providing evidence. I was interested that there was extensive consideration of the use of virtual fencing in cat containment strategies within the submission. I think we've already heard this morning that collars can be used in Tasmania for smaller animals like dogs. Is there a jurisdiction that has done this well to balance the ethical and welfare considerations that we've heard about this morning, as opposed to the practical potential benefits of virtual fencing?

KARRI NADAZDY: I'd have to take it on notice. I think there are, but I am not 100 per cent sure. I know that the manufacturers of the canine invisible fence do sell it for cats, and I have investigated that, but it's still quite large. This is what we were saying in our submission, that the technology is advancing quite quickly and as it gets smaller it will become more appropriate for cats. When I looked at it, I thought, "I wouldn't like to see my cats wearing that all day." These are the sorts of decisions we have to make. This is why I am saying it needs to be species specific to make things suitable for them. But not having that option available right now means we can't even consider it. You might have a Maine Coon that is bigger than most dogs, but you can't use those collars on them right now under the current regulations, even if this amendment goes through. This is why we are saying that, when the technology becomes available, it should be available to use and trial.

Ms CHARISHMA KALIYANDA: We've heard from previous attendees and through other submissions that there might be risks associated with technology, whether it's on the data side of things or the biosecurity side of things. Do you share some of these concerns? What is your view on that?

KARRI NADAZDY: Everything we do has risks. The way I see it is that the positives outweigh the negatives. With the research that is currently being done—more research will be done. Once you have some species using these products, it's not a big stretch to change them for other species. It's usually more about size and the appropriate voltage. Once these become more commercially available—personally, I can't wait for the stock fencing to become small enough and affordable enough for the domestic market. It will be a game changer. We shouldn't be making it more expensive to look after animals. Our pounds are overflowing right now, and shelters can't take in anymore. We need to make it easier and cheaper to keep animals, and that applies to horses as well.

Since COVID, all the saleyards are closed—for horses, I mean, not for cattle. We don't know where all these animals are even going. Right now, I see much bigger welfare concerns that are going on than what fence you use. As long as you keep your animal on your property then you are being responsible—and you are doing it in a way that's not going to harm your animals. Wire fencing is one of the biggest causes of injuries for horses. It is number one for vets. By taking away that visual barrier that we already have, which isn't working very well, you already improve animal welfare. There are huge benefits to be gained. We have to be responsible, and we have to do it responsibly. That is part of being a good animal owner. That is what we need to ensure everyone is educated on.

KYLIE GILBERT: I just wanted to say on all this, when we are talking about welfare, I don't have a huge cattle background. I will put that out there now. Clearly, I am dogs, cats and mainly domestic animals. But

I don't think any farmer would put their stock at risk. I don't think they would want to see stress levels increase. Previous speakers have spoken about how stress levels alter milk and all these sorts of things. So, I think we have to have a bit of faith in our production and our farmers to think that they're going to pick the best technology for what is going to suit them and keep their animals safe as well.

My biggest concern is, when I've listened to some of the previous speakers, it's a lot about aversive techniques and "We can't have anything aversive." In previous inquiries that we've taken part in around the POCTAA and different things, it's actually been proven, especially around New South Wales, that by removing some of these aversive techniques such as the e-collars in dogs, it has actually raised euthanasia rates in domestic animals. We're now looking to take away some of the amazing technological opportunities and further restrict things for farmers. I don't know that we'd see an increase in euthanasia rates like we have with dogs, but are we going to see production farmers unable to keep as many animals because of restrictions and things like that? I just wanted to raise that no-one goes out there in these fields to harm their animals—decline in welfare conditions. It's always about education and increases in technology and not just taking everything away. It's about making sure it's being done right.

Mr JUSTIN CLANCY: Briefly, for the benefit of the Committee and for myself, I want to return to invisible fencing for dogs. I appreciate that they're commercially available in Australia. They are legal for use in New South Wales—and that's a question for clarification. When we talk about invisible fencing for dogs, what is the mechanism of restraint? Is it, again, an electric pulse or shock, or is it auditory? I just want clarity around that and what safeguards are employed in terms of welfare when it comes to invisible fencing for dogs.

KYLIE GILBERT: As far as I'm aware from the products that I've seen, the current invisible fencing for dogs has the same responses; so, it does have the shock and the auditory as well. But there are a few different ones out there. It would depend on the individual technology. Obviously, they're not up as far as the cattle ones when we're hearing about them alerting farmers when the cattle are getting close to lines or they've stopped and all of this sort of stuff. But the technology sort of works in the same way in that they get that initial auditory warning, and then it goes on to a pulse.

Mr JUSTIN CLANCY: But that same aversive stimulus technology is already being utilised for dog containment in New South Wales?

KYLIE GILBERT: I'm not sure about New South Wales because I would say that because shock collars are banned that would fall under that, because they give a shock. We use them in Victoria under the guidance of a dog trainer or a vet, but I would have to go back and double-check. I was under the assumption that they were outlawed in New South Wales because they do produce a shock.

KARRI NADAZDY: Yes, they are allowed in New South Wales. A canine invisible boundary is currently under schedule 3, electrical devices, but it has a restriction that it's only if used inside a fence through which dogs cannot pass and that is at least 1.5 metres high. So, it's quite restrictive. The other thing about using the word "aversive"—all that means is it's something the animal doesn't like. That's all-aversive means. We're hearing this word thrown around as if it has some special meaning or it's somehow inherently cruel or it's something really terrible. All it means is that they don't like it, which means, if you want to ban all aversives used on animals and in animal management, then we better stop taking them to the vet because they don't like those vaccinations and they don't like the wormer, and a lot of them don't like their feet trimmed and they don't like their teeth done.

We can't cottonwool our animals to the point where they're not allowed to engage with their own environment. These fences are just engaging with their environment. The problem with aversives—and I would agree with the animal rights groups on the point where it's used in training: Where the person is standing there and applying positive punishment to the animal, I'd agree with them. But this is when the person is not there and there's not a risk of the animal associating that with the person. It's part of their environment. This is just learning that the hotplate is hot. It's equivalent to that. It's not as scary as it sounds. When you hear the word "aversive", just remember this is giving them a tablet. It's on the same level. This is not being cruel or abusive or anything like that. It's very different.

The CHAIR: I am going to have to call time because we have run a little bit over. I thank you both for appearing before the Committee today. You'll each be provided a copy of the transcript of today's proceedings for corrections. The Committee staff will also email any questions taken on notice and any supplementary questions from the Committee. We kindly ask that you return answers to those by 4.00 p.m. on Thursday 25 July 2024. Thank you both very much for attending.

(The witnesses withdrew.)

Mr KEN POWELL, Senior Solicitor, Animal Defenders Office, before the Committee via videoconference, affirmed and examined

Ms TARA WARD, Managing Solicitor (Volunteer), Animal Defenders Office, before the Committee via videoconference, affirmed and examined

The CHAIR: I welcome our next witnesses. Thank you both for appearing before the Committee today to give evidence. Please note that Committee staff will be taking photos and videos during the hearing that will be used for social media purposes on the New South Wales Legislative Assembly's social media pages. Please inform Committee staff if you object to having photos and videos taken. Can you please confirm you've been issued with the Committee's terms of reference and information about the standing orders that relate to the examination of witnesses?

TARA WARD: Confirmed.

KEN POWELL: Yes, I confirm that.

The CHAIR: Do either of you have any questions about this information?

TARA WARD: No, thank you.

KEN POWELL: No.

The CHAIR: Would either of you like to make a short opening statement before we begin with questions?

KEN POWELL: Yes, thank you, Chair. I'll make a short statement on behalf of both of us. This is an inquiry into a proposed amendment to the Prevention of Cruelty to Animals Act 1979, which I will call the POCTA Act, for convenience. The objects of the POCTA Act include "to prevent cruelty to animals" and "to promote the welfare of animals"; that is, of course, in section 3. The proposed amendments would allow the use of devices emitting electric shocks and audio cues on farmed animals. The use of such devices is currently prohibited under New South Wales animal welfare laws, meaning their use would constitute animal cruelty. The proposal is therefore inherently about animal welfare and the prevention of cruelty to animals. Accordingly, we say this must be the primary focus of the proposed reform and the justifications for it. As far as we can see, those advocating for the use of these prohibited electrical devices do so primarily on other grounds, including economic grounds.

While certain animal welfare benefits are cited as potential benefits from the proposed amendment, there are currently still many gaps in our knowledge and understanding of animal welfare issues associated with electrical devices. Moreover, animal welfare does not appear to be the main objective of the bill. Finally, if the ban on these electrical devices were to be overturned, many commentators on both sides of the debate have called for far greater regulation of the devices, given the large gaps in our knowledge about their welfare implications. Species, age, the use on individuals or subgroups, or animals who do not adapt, limits on the frequency and number of shocks, and monitoring requirements—these are all details that should be prescribed before even starting to contemplate overturning the existing ban. For these reasons, in summary, the Animal Defenders Office recommends that the bill not be passed.

The CHAIR: We will now move to questions from the Committee. Before we begin, I wish to inform witnesses that they may wish to take a question on notice and provide the Committee with an answer in writing. I will get started. I'm happy to hear from either of you on this one. Are you aware of any legal or animal welfare issues arising from the introduction of virtual stock fencing in other Australian jurisdictions where it's currently in use, such as Tasmania and Queensland? Are you aware of any legal or animal welfare issues that have arisen that haven't been able to be overcome?

TARA WARD: No, we're not aware of that. We're focusing on the actual state of regulation in animal welfare laws—what's permitted and what isn't permitted. We're not an enforcement agency, so matters such as whether there was implementation or use issues adversely affecting animal welfare would not come to our attention. I note also earlier from the RSPCA's responses that animal welfare issues regarding farmed animals tend to be managed, administered or regulated by government agencies, such as departments of primary industries, so this kind of information would have to be got on notice.

The CHAIR: To clarify, the question was in relation to New South Wales considering looking at virtual fencing. In States where it's already allowed, are you aware of any legal or animal welfare issues arising? It wasn't that I expected you to have an enforcement role. It was more as part of your understanding of what the issues were where it's been implemented and if there had been legal or animal welfare issues that you are aware of. That's all.

KEN POWELL: I would just add, not that we're aware of. That's not to say that there aren't any.

TARA WARD: That's right. Also, noting that where there is partial use allowed, it's often in very limited circumstances. I think we have a table in our submission. In some of the jurisdictions, for example, it's purely research, so that is a heavily regulated environment. Welfare issues would be managed at that sort of level through the already heavily regulated environment of animal research.

Mr STEPHEN BALI: Looking through your submission, you're basically saying as a suggested amendment to 16 (1) to look at the definition but exclude virtual stock fencing device. Am I reading this that you're basically against virtual stock fencing?

TARA WARD: That's correct.

Mr STEPHEN BALI: So why not simply say no to the bill? The purpose of the bill is to have a virtual stock fence.

TARA WARD: We do. That is our recommendation: that the bill not be passed. It's currently animal cruelty to use such devices in New South Wales. Our recommendation is that the status quo prevails.

Ms CHARISHMA KALIYANDA: Thank you both for your time; for being here today and for your submission. One of the previous witnesses mentioned that making a regulatory system or making a set of regulations too onerous would then render it impossible to follow. I note that in your submission you recommended a very detailed set of requirements for devices to minimise animal welfare issues. What is your view on that balance between how detailed you can make the requirements for devices versus the capacity for people to follow the regulations and to be able to utilise them?

KEN POWELL: If I can just jump in there, the first thing I need to note—and this is borne out in some of the literature in other submissions—is that the animal welfare issues are very nuanced and will vary depending on a range of factors, including the type of animal, age and so forth. Inherently, that presents a challenge in a regulatory context. It's not a one size fits all approach. Secondly, the matters you mentioned which we refer to in our submissions, we weren't necessarily saying they are the matters that should be adopted, but they're illustrative of the fact that this is a complex issue. In the literature it is suggested—and that was from the DAFF report—that a range of these things should be managed. We think that from the legal perspective the most effective way of doing that is through regulation. Ultimately, where that balance lies between, if you like, rigid prescription and flexibility, does lie with the lawmakers, but it needs to be informed by appropriate expert and technical evidence.

Mr JUSTIN CLANCY: Thank you, Tara and Ken. Again, just a conversation in terms of other jurisdictions. I assume there are Animal Defenders Offices in other jurisdictions.

TARA WARD: No, there isn't.

Mr JUSTIN CLANCY: Just in New South Wales?

TARA WARD: We're actually based in the ACT, but because of the absence of any other organisation like ours—there's one other in Victoria, but they have a very limited focus. We're the only generalist animal law community legal centre—unfortunately run by volunteers and unfunded, so we have limited capacity to be able to meet the need. But people from all around Australia do contact us for that reason—that there isn't another organisation like ours. The majority of our work is in New South Wales and then ACT.

Mr JUSTIN CLANCY: Thank you, Tara. I appreciate that answer. As you mentioned, being the sole legal defender for animals in Australia, have you had people reach out to contact you from other States with regards to virtual fencing?

TARA WARD: No, we haven't.

The CHAIR: One of the things that your submission touched on was touched on by others as well, and that's around whether to go down the road of legislation or regulation. I wonder, just for a moment, if you could speak on that. I know that some of the submissions talked about the regulation having the flexibility to adapt to emerging technology, changes in industry—those sorts of things. If you could give us a brief response to which way you think it should go, and why.

KEN POWELL: What I would say, and I think we mentioned this in the submissions, is both are open as a legal option. There are pros and cons of both approaches. Having it embedded in the Act obviously invites parliamentary scrutiny, committee inquiries and hearings such as this one today, which is inherently a good thing. On the flip side, it's far more rigid and less easy to change. On the other hand, a regulation is more flexible and can be changed much more readily but is an exercise of Executive power so has less oversight and scrutiny. We don't have a particular view on which one of those is inherently better than the other or preferable. However, I would say, consistent with our submissions, in the context of this law, the existing or traditional approach has

been to prescribe these things in the regulations. For the sake of consistency, that would appear to be the preferable option. That is, we would say, the main reason. Tara, is there anything else you would like to add to that?

TARA WARD: I think we're all aware of the context this is occurring in, where the Prevention of Cruelty to Animals Act in New South Wales is now the oldest animal welfare law in the country—one of eight. Our enforcement agencies are despairing—not being one ourselves—of this piecemeal reforming or changing of the primary legislation, meaning the Act, and regulations are legislation too, of course. That needs to be borne in mind as well. This proposal to amend the Act is an issue in and of itself because of this piecemeal way of amending this now very old Act, when we are looking at a potentially whole new Act being brought into New South Wales. It is that question of whether these sorts of considerations should wait for that kind of wholesale reform of our animal welfare laws in New South Wales.

The CHAIR: I'd like to thank you both very much for appearing before the Committee today. You will each be provided with a copy of the transcript of today's proceedings for corrections. The Committee staff will also email any questions taken on notice from today and supplementary questions from the Committee. We kindly ask that you return these answers by 4.00 p.m. on Thursday 25 July 2024. Thank you both very much. The Committee will now take a short break and return at 11.30 a.m.

(The witnesses withdrew.)

(Short adjournment)

Mr CHARLIE BAKER, Vice President of Growth, Halter, affirmed and examined

Ms SARAH ADAMS, General Manager Strategy and New Ventures - Gallagher Animal Management, Gallagher eShepherd Pty Ltd, affirmed and examined

Mr FRANK WOOTEN, Director of Marketing, MSD Animal Health, before the Committee via videoconference, affirmed and examined

The CHAIR: I welcome our next witnesses. Thank you all for appearing before the Committee today to give evidence. Please note that Committee staff will be taking photos and videos during the hearing. The photos and videos will be used for social media purposes on the New South Wales Legislative Assembly's social media pages. Please inform the Committee staff if you object to having photos and videos taken. Can you please each confirm that you have been issued with the Committee's terms of reference and information about the standing orders that relate to the examination of witnesses?

CHARLIE BAKER: I have.

SARAH ADAMS: I have.

The CHAIR: Do any of you have any questions about this information?

CHARLIE BAKER: No.

SARAH ADAMS: No.

The CHAIR: Would anyone like to make a short opening statement before we begin with the questions?

SARAH ADAMS: Yes. Livestock production is coming under increasing pressure to better respond to some of agriculture's megatrends, which are producing more from less, responding to environmental concerns, and giving consumers a connection to their food and traceability of that food. Virtual fencing is enabling pastoral livestock producers to better respond to these megatrends in a way that does not compromise animal welfare outcomes and often enhances them and provides more resilience to the changing climatic conditions they face. It also enables producers to change their focus from mob-based management to managing each animal as an individual, which enables a huge opportunity for improved animal welfare outcomes as well as creating an environment for the next quantum leap in livestock productivity and profitability.

Not allowing virtual fencing in New South Wales will not only disadvantage the New South Wales livestock producers, as compared to producers in other States of Australia, but will also reduce the competitive advantage of Australian pastoral livestock producers and red meat production as compared to other grass-fed pastoral systems in the likes of New Zealand, USA and LATAM. We believe there need to be minimum product specifications around safety and efficacy for a virtual fencing product, and it needs to be assessed as suitable for use. We're currently working with animal welfare experts globally to build a code of conduct around product specifications and product use. At Gallagher, we were the founding members of the global standards for electric fencing to ensure safety and efficacy of those products, and we will be working to implement something similar for virtual fencing.

CHARLIE BAKER: On behalf of Halter, thank you for the opportunity to present today. Halter is more than just a virtual fencing technology; it is the base operating system for hundreds of dairy and beef farmers across New Zealand, Australia and the US. Halter has been at commercial scale for over four years and is growing rapidly. We have safely trained over 200,000 animals with Halter's virtual fencing and virtual herding technologies. Our customers use Halter to run more productive, more efficient and more sustainable farms. With Halter, our customers grow and harvest more grass. They monitor the health and fertility status of their animals. They save significant time, and they care for their environment and their animals better than before.

Farmers in New South Wales contribute significantly to the regional and State economy. However, these farmers risk being left behind as virtual fencing technology is rapidly adopted by farmers in other States. Halter supports the overall intent of the virtual stock fencing bill and the proposed definition of a virtual stock fencing device as a GPS-enabled sensor in the proposed bill. We also strongly recommend the Committee include herding to the definition of virtual fencing's purpose. Virtual herding allows farmers to virtually shift cattle without the use of conventional methods such as quad bikes or dogs, which we know are stressful for animals. At the core of the Halter system is a rigorous set of safeguards that ensures animal welfare is protected at all times. Cows are intelligent and they learn the Halter guidance cues quickly. Once trained, a typical cow is guided around the farm every day using only sound and vibration. Halter can help farmers in New South Wales run more productive, more efficient and more sustainable farms, and to protect the health and welfare of their animals.

FRANK WOOTEN: Thank you to the Committee for welcoming us. On behalf of MSD, we echo the sentiments of our co virtual fencing companies. At Vence we are now managing in excess of 50,000 animals on nearly four plus- million acres of land on a global basis, making us one of the largest land managers on the planet. Within MSD, we have a commitment to animal health and welfare, which is infused in everything that we do. Our company sponsors animal welfare summits and shares in leading veterinary practices in 50 countries in over 140 markets that we operate in a network of. We advocate for the use of technological, biological and pharmaceutical solutions to ensure proper animal welfare. Our animal identification and monitoring solutions are leading the way to help monitor the behaviour of animals, potentially leading to the identification of health issues before they become more serious.

Our prevention programs aim to maintain the highest levels of animal health and our specific treatments aim to help animals recover from diseases to make sure that their welfare is restored as soon as possible. When I founded Vence alongside a rancher from the North Island of New Zealand seven plus- years ago, our singular goal was to improve the welfare of our customers, their animals and their landscape. We continue to strive to do that, and we worry that any area which does not have access to this technology would, like the fellow participants said, fall behind in their competitive nature on a global scale.

The CHAIR: I inform witnesses that you may wish to take a question on notice and provide the Committee with an answer in writing. As the Chair, I will ask the first question. I am going to put it to all of you. I am playing devil's advocate. We've heard different things from different witnesses, read different things in submissions. I ask you, as the manufacturers of these devices, how wrong could it go? How wrong could it go for cattle, for sheep, for any sort of livestock, if something were to go horribly wrong?

SARAH ADAMS: I'm a livestock producer as well. We farm out on the Raglan Harbour, my husband and I. We have done everything in the device to ensure that there are safety cut-outs, there is nothing that can go wrong, they cannot get over pulsed-. At Gallagher, we are experts in building pulse delivery circuits and ensuring that safety and efficacy on animals. In a farming environment, there needs to be a boundary fence there for all animals. We don't sell unless we know we have a boundary fence. So, if something did go wrong that they were not fenced anymore, they will still be contained. And also, we have alerts that tell us if anything goes slightly wrong. So, a farmer can respond, or our customer success customer support team responds and tells a farmer if anything's going wrong. So, there are many, many safety and efficacy points in the product that will ensure that animals are carefully looked after.

The CHAIR: I'd like to ask you a follow-up question, but I want to see if Mr Baker or Mr Wooten would like to address that same question.

CHARLIE BAKER: Sure. We know how wrong it can go on conventional farms, where there's very little oversight of animals. Variables can come up on farms all the time, often unexpectedly—the environment. To echo Sarah's answer, with a system like Halter we have continuous monitoring of the behaviour of the animals at all times, and that leads into our health alerts that can identify when things are going wrong. In the last year alone, we've alerted to 260,000 animals, whereby it gives that farmer a chance to intervene a lot sooner than they would've otherwise. In fact, the system helps to prevent a lot of things from going wrong.

The CHAIR: Mr Wooten, do you anything to add?

FRANK WOOTEN: Yes, I think that the presupposition is that in any animal-rearing environment, the ultimate risk is that an animal deceases for some reason or another. I think that that risk exists whether or not virtual fencing is present on the farm. I think that the benefit that virtual fencing brings is that it allows you to be alerted to where that animal is and that it alerts you in real time, versus the ability to potentially have to wait until somebody is driving by that location or, by chance, finds out that that animal is not in a place where they thought they were. Like all of our competitors and colleagues, we are happy to run through. We submitted all of the different safeguards that we have as it relates to animal welfare, and we see no vital risk as it relates to those animals due to using the system.

The CHAIR: To clarify what I've heard from the three of you, the question was around how wrong it could go. What I've heard is that, by design, the devices themselves actually limit the opportunities for things to go wrong significantly. Secondly, what you've all said in your own way is that, in fact, the landholder or the owner might have more rich information that actually provides better opportunities for animal welfare. Is that accurate?

SARAH ADAMS: Absolutely.

CHARLIE BAKER: Absolutely.

Mr JUSTIN CLANCY: My first question is to Mr Baker. You mentioned that you've got 200,000 animals trained to use Halter. I daresay you're monitoring complications. What's your incident rate for complications and what sort of complications are you observing?

CHARLIE BAKER: To clarify your question, do you mean what are we detecting with the animal complication?

Mr JUSTIN CLANCY: No, complications in terms of the use of your product. Are you encountering—

CHARLIE BAKER: I see, sorry. I understand. Let me clarify that earlier statement. Halter has animal health alerts. We are measuring continuously each animal's grazing, rumination activity, sleep—all these behavioural measures—and so we have a very clear baseline of each individual cow's baseline behaviour. When that cow deviates from that baseline—if her rumination drops off or grazing pulls right back compared to the mob that she's with—then we can alert that farmer that something's up with this cow. That might be early signs of lameness or mastitis or other things like that. That's what I meant about the 260,000 alerts.

Mr JUSTIN CLANCY: Yes. I'm sorry, I appreciate that but I daresay you are, given the significant use that you've had on scale—and this perhaps goes to the other witnesses as well—utilising it on scale, so you would be building a body of evidence of situations where, for whatever reason, the product may have a complication, with neck lesions as one example. What sort of incidents are you encountering? What sort of complications do you see?

CHARLIE BAKER: Thank you for clarifying. Before we were at commercial scale—so more than four years ago—with an early version of the collar, we did have incidents of collars rubbing, and that was on a very small scale of a handful of customer farms. That informed the development of the current product that is a quarter of the weight of the original pre-commercial version. That's an example of a type of incident that we worked through many years ago, before we were at commercial scale. Now that we're at 200,000 cows—including, for example, in Australia one of our largest customers has over 5,000 animals every day being guided and contained with Halter—it must operate at a very high level of reliability. The incidents that we've encountered were at our much earlier scale.

Mr JUSTIN CLANCY: I'm also interested, Ms Adams, with Gallagher, because Gallagher has had a reputation in terms of electric fencing for decades. As virtual fencing grows, that's had an impact on your own business model in terms of away from electric fencing. Why does Gallagher see virtual fencing as a step to move forward with, particularly when it might impact on your business model with your conventional fencing?

SARAH ADAMS: Gallagher sees it as an absolute evolution of farming. We really understand the value of subdivisions and the understanding of enabling animals to graze better—resting pasture and all of those things. The more flexible we can make a fencing system to enable farmers to get all of those benefits with not only their animals but their soil health and their pasture health, and to become more efficient and respond to those megatrends, we need to move into that. Also, we do have boundary fencing still, and we will see that it is basically a road to automation. We're moving to automated and knowing more about your animals, but there will be some people for whom fencing is still a very big part of their business and they don't move this way. We see it actually opening up the market for fencing also.

There are areas of land that can't be fenced at the moment, that can't have stock managed on, so they will start needing to do boundary fences and some fencing, and then use virtual fencing for that subdivision. The other thing that we see with virtual fencing is we know so much more about the animals. Animals can get caught in fences. We have a lot of reasons around the world why people don't take up electric fencing. In the US, for example, it's wildlife. Wildlife gets caught in electric fences. We also have the problem with very dry land that earthing is difficult with electric fences. Virtual fencing solves all of these problems and enables them to get to that much more intensive pasture or regenerative grazing.

Mr JUSTIN CLANCY: Some of those examples where conventional fencing may not currently be applicable would be, for example, private forestry or solar farms and things like that, where there's existing impediments to conventional fencing.

SARAH ADAMS: Absolutely. On a lot of public land in the US, they aren't allowed to fence, but they do want to manage animals on them, manage fire risk and manage that fire load. Virtual fencing enables them to do that. We can't use traditional fencing. We see it as an extension of our business, rather than something that will completely disrupt us.

Ms MARYANNE STUART: Thank you all for being here today and for your submissions. My first question is to Halter. The University of Tasmania's submission has stated that Halter's been deployed on nearly 20 per cent of the Tasmanian dairy herd in under two years. Is that correct?

CHARLIE BAKER: Correct.

Ms MARYANNE STUART: Can you explain why it's only 20 per cent that has taken it up?

CHARLIE BAKER: I would frame it as rapid adoption. We've been in Tasmania for about 20 months. To scale, 20 per cent of the State's dairy herd in that time has been a rate of adoption greater than even we were expecting with ambitious targets. I think that's probably the only way I could answer that.

Ms MARYANNE STUART: Mr Wooten mentioned sponsoring summits and things like that. Do any of the three of your organisations have any ongoing working relationship with universities or anyone or any company that has made submissions before us today?

SARAH ADAMS: Gallagher has relationships with CSIRO. We license IP out of CSIRO, so that is where the issue with technology comes from. We have also worked in the past with the University of Tasmania.

CHARLIE BAKER: You're familiar with Halter's relationship with the Tasmanian Institute of Agriculture, which has conducted independent research. Separately, Dr John Hellstrom submitted—he is an animal welfare expert from New Zealand.

FRANK WOOTEN: I don't know everybody who has made submissions, unfortunately. I do note from the US side that we have in excess of 10 different lab grant universities throughout the US with which we operate trials and partnerships, and then within Australia we ran a trial with SARDI in South Australia. I'm not sure whether that was on sheep; I'm not sure whether they have made a submission. We also ran a trial in Western Australia in collaboration with Rio Tinto and the university in Perth.

Ms MARYANNE STUART: I have a quick subsequent question. I'm hearing about research, IP trials et cetera. Can the three of you give a yes or no answer: Do you make donations from your organisations to any of those that have put submissions before us today?

SARAH ADAMS: No.

CHARLIE BAKER: No.

FRANK WOOTEN: No.

Mr STEPHEN BALI: In the submission that Sarah was talking about—or at the beginning, you were talking about two issues. First, manage each animal as an individual—I like that aspect. Could you explore that? I know it generates data. But if an animal is—and we heard other submissions saying this—maybe reticent to learning about it, how do you suggest your technology will help with that particular animal or disconnecting from the system, or is there a way of enhancing their behaviour so they don't get buzzed? Second, you were talking about global standards being developed. Is that led by your organisation or is that through an animal welfare organisation? Where are the global standards for virtual stock fencing coming from?

SARAH ADAMS: On the first one, we monitor very carefully during animal training and then, following animal training, about managing animals as individuals. If they are a certain amount—two standard deviations away from a norm, we will do some different things with them to ensure their training is enhanced. If there are any animals that can't meet those training metrics, which is a very, very small number—

Mr STEPHEN BALI: What percentage would that be, roughly?

SARAH ADAMS: Less than 1 per cent. We've done all this work through the ethics committee of AgResearch in New Zealand and our own ethics committee here and had to do behavioural monitoring as well as—watching animals, and then behavioural monitoring, and then doing these audio to pulse ratios. We work really hard on that and ensure that they're well trained. If they're not, then we ask that they are removed from the mob.

Mr STEPHEN BALI: Just exploring, if I may, you're talking about two standard deviations. If 1 per cent of the animals are not responding, how do you—I suppose I'm just trying to correlate it to previous submissions that we've had here.

The CHAIR: Is it potentially the ratio of pulses to—

Mr STEPHEN BALI: They're saying about 5 to 10 per cent of the cows weren't reacting, or they were adversely reacting to the technology, and they weren't being roughly—I'm probably putting words into their mouths. If it's as high as 10 per cent—

SARAH ADAMS: They weren't being contained or they—

Mr STEPHEN BALI: Or getting buzzed and then not reacting or not learning from the technology. Is it as high as that, do you see?

SARAH ADAMS: We're not seeing anywhere near that size, but you do have to have an aversive pulse—so a low-energy pulse that is aversive. If it isn't an aversive pulse, you will start seeing degradation of training. There are a number of levers you can pull in making an aversive pulse that does not have to have high energy, but there are some other levers you can pull also. At Gallagher, we are very good at understanding what they are and how you do build an aversive pulse in there. If they do have that and they are taught about training, or they're trained, and the method that we have for training animals, we are getting very low. When I'm talking about two standard deviations, we're looking at the pulse-to-audio ratio. If it's further than two standard deviations away from the norm, that's when we start looking at what we do with those animals.

Mr STEPHEN BALI: As far as who's developing the global standards, what influence do you have over the global standards?

SARAH ADAMS: We're working with some animal welfare experts in New Zealand and the US currently and starting in Europe also. When I talked about the global standards, we did that with electric fencing. We're a founding member of that, and it is something that we will be starting to communicate or work on with some of the other virtual fencing companies to see if they would like to come on board, just like we did with the electric fencing standards, and then work with these global animal welfare people to help develop them.

Mr STEPHEN BALI: As a follow-up to that, I'm just trying to manage the politics. It's like a tobacco company coming up with a standard for smoking for you guys to take an active lead. Who's actually generating and who's doing, potentially, the virtual fencing code of conduct or regulations? Are you influencing that, or are you working through other organisations?

SARAH ADAMS: The animal welfare experts will be leading the work.

Mr STEPHEN BALI: Sorry, I don't want to sound confrontational, but we've had people who call themselves animal welfare experts who've been here basically saying that there's no problem with buzzing an animal, and others saying that even the slightest buzz is the end of society.

SARAH ADAMS: That's right. I've worked very closely with a lot of animal welfare experts who have started at the end that giving an aversive stimulus to an animal is not good. Once they've learned about how we work our product and what we do in that, they have come on board, and they have come around to the other way. We've worked really hard with them to help them understand how the product works and done some trials around showing the things that concern them about virtual fencing. I think we have to work even harder. A lot of these people that you're talking about I have never engaged with. I can't engage with everybody, but we have talked to some of the people who we think are experts in animal welfare around the world. I'm not saying these others aren't, but we now have a number of people we're going to work with who will help us do these standards. It's exactly how we did it in electric fencing. We were the instigator of it, but we weren't the builder of it.

Mr STEPHEN BALI: Thank you. I really appreciate it.

CHARLIE BAKER: Can I just add to that as well? This is a space that's fast developing, and so sometimes some folks will quote research that's now quite outdated. Also, amongst this community, there are those who have direct experience of studying and using this product, or different products here, and those that haven't had that direct experience. We'd encourage the most recent science to talk for itself on that point.

Mr RICHIE WILLIAMSON: My question will be an open question to all three witnesses. We've had some discussion from people giving evidence about age of cattle and what is an appropriate age to put the collars on. Do you have any insight into that from what you're doing now?

CHARLIE BAKER: The advice out of the UK animal welfare expert committee, who published a report on this, recommended that it be at least six months for cattle to be trained with virtual fencing. Currently, commercially, for Halter, we train dairy or beef cattle that are 12 months or older. We're also nearing completion of successful trials with animals that are seven months of age as well.

SARAH ADAMS: For us, it's a weaned beef calf at eight months of age or 200 kilograms. We have a minimum weight requirement and that's to be within the guidelines of the weight of the collar to the animal weight, and then a weaned calf. Often, we're finding that the calves learn from their mothers. The mothers can be trained with a virtual fence and the calves, after they're weaned, we put the collar on them. We have done a lot of trials around that. I did see in some submission around young animals and growing fast, but actually older animals grow faster. From a year old to two years, animals will grow at a faster rate and have different neck sizes much more than a younger animal. We don't believe that the neck size indicator is a problem. It's also the design of your collar

as to whether you can fence younger animals with smaller neck sizes. I think it's not the weight or age of an animal more than the design of the collar.

Mr RICHIE WILLIAMSON: I have a point of clarification that I have been frantically searching for. One of the submissions did go to the rogue animal, as in being chased by a predator, and what happens. I think someone might have spoken about that today. In that instance, what happens?

SARAH ADAMS: With the eShepherd neckband, the accelerometer detects a running speed. It's not just a predator but also if you come out in your truck and you have lightning or anything like that. It detects what we call a panic state and the speed the animal is going. It turns off and they receive no audios and no pulses. Once the animal is back to a walking speed or a non-distressed state, then the system clicks back in, and they are free to come back into the grazing area. If they try and go further away from the grazing area, they will get the stimuli—the audio and pulse, if necessary—and then the fence follows them back up until they are back in the grazing area. They are returned back to their mob.

CHARLIE BAKER: I have almost an identical answer.

FRANK WOOTEN: I think that the one thing to consider is that the virtual fence is a pressure tool. It's not a six barbed wire fence that can hold animals permanently in any space. Even in the scenario where there is predator pressure or even humans walking in a pasture and putting pressure on the animal, with a certain amount of pressure those animals will go through a virtual fence line. To that end, it's one of the reasons that, when we look at animal welfare perspective, we really believe that there is almost no scenario where we feel like the animal, if the pressure from a predator or the pressure from a mother needing to get to its calf is significant enough, will not push through a virtual fencing line and can do that. We see that. That's the only other thing I wanted to add to that comment.

Mr STEPHEN BALI: I have two hopefully quick questions. How often would you need to adjust the collar on a growing animal? Somehow does your technology pick up that the collar is tight and that informs the farmer of which animal to actually adjust? Secondly, a lot of the discussion has been about cows, but we have also heard that for sheep and alpacas, and others, the technology is just not there yet. Do you feel that's the case as well?

FRANK WOOTEN: I can talk on the second question, given that we ran a trial with SARDI in southern Australia and it was very high efficacy in the trial. For us, we are a relatively small company within a larger company. We need to maintain a very high level of focus in terms of getting the product to our initial target market before we look at expansion markets like sheep or other species. We do think that the fundamental technology works on these other species, but it's not something that we expect to have any intention of bringing to market at any time in the near future.

SARAH ADAMS: CSIRO did some work on sheep. The concept works but, again, the technology, with the weight and things of a collar currently, we will not be bringing it to market for some time until we have actually looked at that further—and alpacas, the same thing. We haven't done any work on alpacas. CSIRO has done the work on sheep, and we've had access to that work. On collars and tightness, if an animal is growing about one kilo a day, our current collar—about three months before it needs to be adjusted. As we now have it underneath the animal's neck rather than on top, where we did it have it, we can actually have it looser and so we're three months. We are currently working on something around tightness and expect to have that reasonably soon to be able to alert a farmer around tightness.

Mr STEPHEN BALI: Whose responsibility would it be—the farmer or you, as the organisation selling the product—to do the follow-up adjustments?

SARAH ADAMS: The farmer does the follow-up adjustments. We send them reminders around it, and we will have something around tightness reasonably soon.

The CHAIR: We've heard a fair bit of talk about—and some of the submissions actually really encourage the Committee to look at—confinement and herding or being able to move animals. Can you give me some comment on how ready we are to see the slow herding through virtual fencing happen in a way that isn't distressing for the livestock, and at times of emergencies or natural disasters, can keep people out of the mix as well—like fires, floods, that sort of thing? So, get the livestock to a safe space but keep people out of the way.

CHARLIE BAKER: Virtual herding is a core part of Halter and has been from the start. Many years at commercial scale of virtual herding—it's absolutely all the evidence in the field, and through independent research, that we are more than ready and well past that point. Virtual herding obviously uses the same principles and cues as virtual fencing. Sound cues orientate the cow in the right direction and then a soft vibration, like your phone vibrating, as a cue to move forward in that direction. Each individual cow gets their own unique cue. That

means the whole mob moves in their natural hierarchy and each cow moves at their own pace. That's much better than conventional herding of animals where you obviously pressure them from behind and you can get a lot of bunching, lameness and stress for those animals. The other benefit is that it actually gives farmers a lot more flexibility. We get our customers—the last thing they do before they go to sleep each night is schedule their milking mobs to meet them at the shed in the morning and it gives them that extra 45 minutes of sleep, and we all know how much farmers need that.

The CHAIR: Absolutely. Just a clarification on that. Ms Adams, you talked about a beast that bolted—that, basically, the fence follows them back until they're in the parameter. Does it work the same way with the moving of the parameters—that the fence just follows the livestock as they move, so they're not getting stimulus apart from if they are trying to go the wrong way, basically?

CHARLIE BAKER: No, there's not a shifting fence in that respect. It's simply cues. Imagine a cow is grazing, and then she would receive some cues that it's time to move. She'd get those sound and vibration cues. They would last for five seconds. Because cows are so routine driven, they know where the gate is; they know where the dairy is. For that whole movement, they're only getting cues right at the beginning. The research shows Halter cows experience these primary and sound cues for only 1.6 minutes per day for all fencing and shifting. For 99 per cent of the day the collar just monitoring the animal.

The CHAIR: Sure. Let's take it away from dairy and take to it a beef cattle producer in western New South Wales with 10,000 acres, which is probably a small farm for a pastoralist out there, and the need to move them from one area where maybe the water has dried up, or there's no food resource left, to an area that could be 15 kilometres away. Would that work in the same way?

CHARLIE BAKER: Currently we're not in Queensland, but we're coming to Queensland later this year. We would use the same principles of virtual herding.

SARAH ADAMS: For us, we like the animals to have as much freedom as they can. We tell them what they can't do; we don't tell them what they can do. Exactly like you were talking about; we tell them they can't go one way. We tell them where they can't go because of either production reasons or safety reasons. But then they're free to go and, with that fence following up, we can herd them. But it's a very slow, gradual way. We let them have as much freedom as they can, except for the fact of what they can't do. We don't drive them. We just let them do what they want to do, apart from telling them what they can't do.

The CHAIR: And when they do move in the wrong direction, the vast majority of the corrections or signals are audible, or vibration as opposed to pulses?

SARAH ADAMS: Audible.

The CHAIR: Just audible?

SARAH ADAMS: We don't use vibration. What we see is, the way we've set that up is that once that mob starts moving, they all drift off and then it just follows them up.

The CHAIR: Excellent. If there are no other questions from members, I thank you all for appearing before the Committee today. You will each be provided a copy of the transcript of today's proceedings for corrections. The Committee staff will also email any questions taken on notice from today and any supplementary questions from the Committee. We kindly ask that you return those answers by 4.00 p.m. on Thursday 25 July 2024. Thank you all very much.

(The witnesses withdrew.)

Mr ROBERT McINTOSH, Chair, NSW Farmers Dairy and Animal Welfare Committee, NSW Farmers Association, sworn and examined

Mr ASHLEY COOPER, Policy Director, Agricultural Industries, NSW Farmers Association, sworn and examined

Mr PHIL HOLLAND, Senior Policy Advisor, Animal Welfare, Federated Farmers of New Zealand, before the Committee via videoconference, affirmed and examined

The CHAIR: I welcome our next witnesses. Thank you all for appearing before the Committee today to give evidence. Please note the Committee staff will be taking photos and videos during the hearing. The photos and videos will be used for social media purposes on the New South Wales Legislative Assembly social media pages. Please inform the Committee staff if you object to having photos and videos taken. Can you each confirm that you have been issued with the Committee terms of reference and information about the standing orders that relate to the examination of witnesses?

ASHLEY COOPER: Yes.

ROBERT McINTOSH: Yes.

PHIL HOLLAND: Yes, I have.

The CHAIR: Do any of you have any questions about this information?

ASHLEY COOPER: No.

ROBERT McINTOSH: No.

PHIL HOLLAND: No.

The CHAIR: Would anyone like to make a short opening statement before we begin the questions?

ROBERT McINTOSH: I would like to, and effectively table the opening statement that we provide. By way of introduction, I don't profess to be the scientist or the technology guru that many before you have been. I'm a dairy farmer from down at Berry on the New South Wales South Coast, along with my wife and two sons. We've been in dairy for well over 100 years down in that environment. We live in an area that is highly sensitive for both regional development and also for environmental impact, and dairy has been a mainstay for the local agricultural community down there. Having said that, I am convinced of the scientific basis with regard to virtual fencing and how it relates to animal behaviour. We don't have virtual fencing ourselves—I'm happy to declare that—but we do use collars as sensor responders for our animal welfare and health needs.

I believe the virtual fencing technology lies very easily within the five domains of animal behaviour, which are worldwide accepted measurements of good animal behaviour and welfare, and it is measurable, as you've probably appreciated from other speakers before me. I'm happy with the sound technology of it. We already use collars, as I mentioned, in our herd and know the real benefit that they have, with information from individual animals. It benefits animal welfare and animal health, and obviously the economics of our rural properties. With regard to sustainability now and into the future, I do believe that the virtual fencing is environmentally acceptable and sound. We've found that it's acceptable. I understand from the information that I have received and the information we know as a farmer that both domestic and native animals will benefit from new technology like this. Certainly, as an ageing dairy farmer myself, I would appreciate the human resource advantages of virtual fencing as well. With those short comments, I am happy to present the opening statement for NSW Farmers.

The CHAIR: Mr Cooper, Mr Holland, do either of you have anything you would like to do as a short opening statement?

ASHLEY COOPER: If I could just make a contribution very quickly, the position of the NSW Farmers dairy committee is support for virtual fencing being available for use on New South Wales farms.

PHIL HOLLAND: Federated Farmers of New Zealand support the intent of the bill and thanks the Committee for considering our submission.

The CHAIR: We will now move to questions from the Committee. Before we begin the questions, I wish to inform witnesses that you may wish to take a question on notice and provide the Committee with an answer in writing. Mr McIntosh, I might start with you because you're the first person that's been here today that can talk about collars that are not virtual fences. I wonder if you could tell us about the collars that you are currently using and the functionality of those collars—what they do, how you use them, what data they give you, that sort of thing?

ROBERT McINTOSH: Yes, happy to do that. We use sensory collars now for rumination in the animals. We use them for heat detection as far as monitoring our breed fertility and reproduction purposes. They also measure heat sensitivity of the animals—that is, body temperature; that can tell us and give early warnings for animal sickness. They also give a reading on movement sensors. That effectively tells us how much movement one animal might do compared to another. If they're outside the normal realm, we get to understand that, whether it's less movement or more, and can react appropriately.

The CHAIR: It sounds like a lot of that functionality is the same data that's available in virtual fencing collars. You just don't have the functionality of the audio cues or the stimulus to move the animal with the collar. Is that accurate?

ROBERT McINTOSH: That's correct.

The CHAIR: Thank you very much for that. That helps.

Mr STEPHEN BALI: From a farmer's perspective—I don't know if you had the opportunity to talk to the providers et cetera—how do you see the cost structure on virtual collars? Have you had any understanding of how much it will cost per animal, the maintenance of the technology? Is there an ongoing licence fee? Finally, one of the questions I posed to the manufacturers was who's ultimately responsible for adjusting the collar? As you were just talking about before, the technology is pretty good to identify if the animal is in distress or whatever, and they'll notify the farmer, but ultimately the farmer is responsible. How do you see that, depending on the size of your herd? How would you identify which cow needs to be adjusted?

ROBERT McINTOSH: I guess, just answering the adjustment questions first, in a dairy situation we see our animals twice a day and we would identify them out of the herd individually for a range of different reasons throughout their life, but essentially our key times of collar analysis and adjustment would be at the beginning of a lactation when they come into the dairy. We apply the collar then to the animal that's springing, coming in ready to calve, and then if there was the issue of problems with the collar at the time of heat or ill health throughout the lactation, we may have cause to adjust the collars more recently through the stage of lactation. As you would probably appreciate, there are some variations in body weight during that exercise but, generally speaking, the perimeter of the neck region doesn't really change a great deal once they're more of a mature size.

ASHLEY COOPER: If I could just add, the United Kingdom Government's animal welfare committee's report found that there weren't issues associated with ill-fitting collars. So, they've actually said that it's not as much of a problem with the technology being used, in their inquiry into the fitting aspects of the collars.

Mr STEPHEN BALI: And the costs?

ROBERT McINTOSH: With regard to the cost, my comment is simply on our own idea at the moment, on our own farm. We perceive that we had enough cost on the farm at the primary time that was more of a priority for us than going fully extended into virtual fencing, in addition to the sensitivities that we already get from the collars. So, we haven't ventured that far, but we would certainly consider it. What I would also say along that line is that the area in which we farm is a very sensitive area, environmentally and ecologically, because of the river system and the flood plain nature of the South Coast of New South Wales. We're situated at Berry. We already have a permanent boundary fence, which we appreciate, with a close regional township and community around us. But we have use of electric fencing extensively on our farm, which is one-wire electric fencing. That already exists, and there wasn't a great need to change that. We do put in some temporary fencing within those boundaries, but electric fencing is our main form of fencing on our property already.

ASHLEY COOPER: We understand that Halter in Tasmania calculated the cost of $8.50 per cow, per month. We would expect that if this technology was available for commercial use in New South Wales, and with increased competition between the providers of this technology, the usual market demands, supply, economics et cetera would influence that cost. But I can also provide that for one kilometre of fencing on my own small hobby farm, I've just been quoted $25,000 for a kilometre of plain wire and star picket fencing by a contractor.

Mr RICHIE WILLIAMSON: My question is to Mr Holland. Considering the technology is well and truly in use, what has been the reaction to your farmers, and what on-farm training is provided, either by the company or by your organisation, to ensure that quality control is at the forefront of everyone's minds?

PHIL HOLLAND: Thanks for that question. We are an organisation that doesn't do any farm training. We are an advocacy organisation that deals with policy settings, both local and government, hence our interest in this as a piece of legislation. But the feedback we're getting from our members is that they feel well supported by the companies and that the uptake is very rapid. The price in New Zealand has actually dropped recently, so it's becoming much more economical. The overwhelming thing is that our experience is 99 per cent dairy, and we're

having no adverse member reaction to it at all. Like a lot of innovation in farming, people watch their neighbours, and it's spreading from one farm to another on the basis that there is nothing adverse about it, to use a bad pun with the word that is being bandied around a lot today.

Mr RICHIE WILLIAMSON: I have a very quick follow-up question. You said that 99 per cent is dairy. What other breed might be using the fencing?

PHIL HOLLAND: In New Zealand, until the latest price reductions, it has been our three main dairy breeds. Now, that $8 a month, which is a similar cost to New Zealand—we are in the infancy of it spreading to beef animals and, in the main, the herd is Hereford, Angus and some of the other continental breeds. We don't have any of your Asian-type, dry-country cattle in New Zealand on a large scale.

ROBERT McINTOSH: Through you, Chair, I wonder if I could just make a comment on the training. I understand that there is a question with regard to training, on both animals and human resources alike. But I must say that over the years, especially in dairy, training and upskilling have been ongoing issues, from the original walk-through dairy, to herringbones, to rotaries and to robotic dairies. There is not a time when we're not training and trying to utilise technology and science better every day, so I really don't know that it's quite the issue that's being suggested.

Ms MARYANNE STUART: Thank you to the three of you for your submissions and also for your attendance today. Mr McIntosh, did you say five generations of family farming?

ROBERT McINTOSH: Three, sorry.

Ms MARYANNE STUART: Three. Terrific. It is a nice part of the world, too, down at Berry. My question is to Mr Holland. Similar to the question of my colleague from the Clarence area, my question is in regard to animal welfare reports. Are you aware of any animal welfare reports from the introduction of virtual fencing in New Zealand?

PHIL HOLLAND: I am personally not aware of any and, to my knowledge, there has certainly never been anything to the scale of a legislative intervention. Our animal welfare system is nationally run; we don't have State legislatures. There hasn't been a prosecution and, to my knowledge, no official interventions. The very few cases that are talked about are generally anecdotal or innuendo, but it would be very easy for you to contact our animal welfare people at the Ministry for Primary Industries in New Zealand. I am sure that they could answer that question for you.

Ms CHARISHMA KALIYANDA: Thank you all for your time in being here today and for your submissions. My question is to Mr Holland. You mentioned in your submission that, although there have been no reports of lasting negative impacts on animals, welfare codes to include provisions to ensure animals are not subject to an excessive number of pulses are suggested. Would you be able to drill down into that a little bit more and perhaps give us more detail on what you think should be included in such welfare codes and whether there have been incidents of maltreatment of animals in New Zealand?

PHIL HOLLAND: To answer the last question first, as I say, I have no knowledge of any maltreatment. Unlike a dog training collar, there is no way, in the technology, for a person to decide to apply the pulse. It is always down to the algorithm and for the right reasons, one would hope. I think that is possibly where some of the mistrust of the public comes from. They see somebody with a thing like a remote control being able to administer this. In our animal welfare system, we have a guide which is called an animal welfare code. The dairy one is currently being reviewed and is currently with the Minister for his sign-off. That is likely to further restrict the use of cattle prods, which I think you will probably be familiar with, which can be administered by a person. And it's going to have for virtual fencing a clause which is basically, as you read from our submission, a provision that there is not an excessive number of pulses and that any cow or any animal that is identified as not responding to the training is taken out of the system and put into a conventional system of fencing. Those are the safeguards that we are wanting to have built into the system.

Ms CHARISHMA KALIYANDA: In relation to that, can you speak to the evolution of the technology and what you've seen in terms of improvement? Taking into consideration some of the concerns raised by animal welfare groups and that sort of thing, how has the evolution of the technology accounted for that?

PHIL HOLLAND: I have very little direct experience of that. I have had a little, and the main thing is that the AI technology that is running these systems is continually learning. It is not a fixed thing. I can't speak for Gallagher, but I know that the Halter people are changing—almost daily, they're improving the system. So, it learns from anything that they detect is not as they would wish it to be, which is not necessarily animal welfare things. Like all computer technologies, it is changing by the day.

The CHAIR: This is probably a question for NSW Farmers. A lot of my electorate is not flush with rain or moisture, but there are large properties. There are large pastoral farms in Queensland and large properties in other States and Territories. In terms of competition between States, what is the commercial implication of a State being able to implement virtual fencing and a neighbouring State with the same product not being able to implement it?

ASHLEY COOPER: I think it's a good question and that's why one of our subheadings in our submission was "Queensland, Tasmania, Western Australia…. New South Wales?" It is about equity and access to products that support farmers to operate viable businesses, efficient businesses, and the savings that can be made, both from an economic perspective but also those benefits that are then realised through occupational health and safety for farmers and their workers themselves. With the heat that you experience in your electorate during summer, to the snow and cold weather that we see down in the Monaro—we have anecdotal evidence that's been provided to us from New Zealand farmers, where the technology has actually provided those benefits to them beyond the ability to make improvements to the management of stock, the movement of stock and the like.

I think it's really important to state, as part of a response to the question from the member before, that our farmers want good animal welfare for their stock. If a piece of technology wasn't quite ready for use, I don't think any of them would want to use it. They'd want to make sure that their animals are receiving the best health, welfare et cetera. To that point, that's why we have this interest in virtual technology. Seeing what other States get to use it for and the benefits they're deriving, why can't we receive those same outcomes in New South Wales?

Mr STEPHEN BALI: I'd like to ask about physical fencing. How do you feel, as far as its effectiveness to hold out feral animals? If it does hold out feral animals that attack your cows et cetera, getting rid of the physical fence for a virtual fence, would that mean that your cattle or cows et cetera are more susceptible to feral animal attacks?

ROBERT McINTOSH: I don't believe it would lead to any more risk analysis for our cattle for two reasons. The animal entanglement in fences is a real issue, whether it's conventional fences or current electric fences, but it wouldn't be with virtual fences.

Mr STEPHEN BALI: How many of your cows would get caught up in a fence per year?

ROBERT McINTOSH: That's right, because with regard to feral animals, one of the things that they will inject into a population of animals is panic, and the result of panic is often entanglement or self-damage and that's- probably more the damage than the feral animals. Having said that, I understand there are certain areas—and we're not one of them—where feral animals cause a great deal of harm to livestock, especially in sheep country and goat country. That's not been our experience on the South Coast so I wouldn't want to comment on the validity of virtual fencing in that circumstance. But certainly, in ours, fence entanglement can be a real issue with conventional fencing and with electric fencing, and it would be my suggestion that virtual fencing would create a much more user-friendly- and less invasive form of fencing with regard to animal injury and health.

ASHLEY COOPER: A perimeter fence—boundary fence—can be used still if virtual fencing is being used internally, so you could provide for that exclusion fencing through your existing perimeter fencing.

Ms MARYANNE STUART: Can I ask a follow-up question, Chair?

The CHAIR: Two minutes.

Ms MARYANNE STUART: Thank you. I won't need that long, I don't think. There was discussion before around barbed wire fencing. I'm interested, with what you've just said, if we keep the boundary fencing and have the virtual fencing on the inside, would we still need to keep barbed wire fencing?

ROBERT McINTOSH: My understanding is that in local government jurisdictions, the requirement is for a five-strand barbed wire boundary fence. We have boundary fence on our own farm with two other farming neighbours but with three other neighbours that aren't farmers, and they're quite particular about their boundary fence. We also share a 1½-kilometre boundary with public roads. So, yes, boundary fences are a necessity and probably the requirement for the five-strand is reasonable.

The CHAIR: I think it's fair to say that plain wire fences—bulls or cattle or horses scratch themselves against them, they break the wires and they're not respectful of them at all. But barbed wire, they pay a little bit more attention to.

ASHLEY COOPER: Barbed wire also doesn't have the ability to constrict in the way plain wire does if there was an entanglement.

Mr JUSTIN CLANCY: I have a question for NSW Farmers. Ashley, previous witnesses have suggested that government might want to wait until POCTAA has had its review. At the end of your submission, you write

that NSW Farmers would not want to see a delay. Could I ask you to speak further to that as to why you feel that we should be acting on it now rather than delaying until POCTAA has its review?

ASHLEY COOPER: A simple answer is when will the POCTAA review be? If we had a set date for the review of POCTAA, perhaps we could consider whether or not that would be an appropriate time frame. But it goes to the comments in response to Mr Butler's question: If it's able to be used on farms in other States, why not New South Wales? The benefits have been outlined to this Committee. We want to realise those benefits sooner rather than later on New South Wales farms.

The CHAIR: Thank you, all, for appearing before the Committee today. You will each be provided with a copy of the transcript of today's proceedings for corrections. The Committee staff will also email any questions taken on notice from today and any supplementary questions from the Committee. We kindly ask that you return these answers by 4.00 p.m. on Thursday 25 July 2024.

(The witnesses withdrew.)

Dr ANDREW HANCOCK, Sustainable Animal Care Manager, Dairy Australia, affirmed and examined

Dr JAMES NEAL, Chair, Dairy NSW, before the Committee via videoconference, sworn and examined

Mr JOHN McGOVERNE, Policy Advisor, Sheep Producers Australia, before the Committee via videoconference, sworn and examined

The CHAIR: I welcome our next witnesses. Thank you for appearing before the Committee today to give evidence. Please note that Committee staff will be taking photos and videos during the hearing. Photos and videos will be used for social media purposes on the New South Wales Legislative Assembly social media pages. Please inform the Committee staff if you object to having photos and videos taken. Can each of you please confirm that you've been issued with the Committee terms of reference and information about the standing orders that relate to the examination of witnesses?

ANDREW HANCOCK: Yes, I have.

The CHAIR: Dr Neal and Mr McGoverne, can you confirm that you've received the terms of reference and the standing orders? Can you please stick up a hand if you can hear me?

JAMES NEAL: Yes, just then. It was on mute or something; I couldn't hear anything. I can hear you now.

The CHAIR: I've just done an introduction. I've welcomed you all. I've thanked you for appearing. I've told you there's going to be photos and videos and asked if everyone's okay with that. Mr McGoverne and Dr Neal, can you each confirm that you have been issued with the Committee's terms of reference and information about the standing orders that relate to examination of witnesses, please?

JAMES NEAL: Yes.

JOHN McGOVERNE: Yes. Thank you.

The CHAIR: Do any of you have any questions about this information?

JAMES NEAL: No.

ANDREW HANCOCK: No.

JOHN McGOVERNE: No.

The CHAIR: Would anyone like to make a short opening statement before we begin the questions?

ANDREW HANCOCK: Thank you for your time in holding this Committee. For context, I am a dairy veterinarian with 15 years of experience in the Australian and global dairy industries, working in clinical practice, academia, industry and government. I currently work for Dairy Australia and have been asked to attend on behalf of Dairy NSW. We support the introduction of legislation which permits the use of virtual fencing and virtual herding technologies. As our and many other submissions have outlined, these technologies have myriad potential benefits for the Australian dairy industry, which are already being realised in some Australian States and competitor trading nations. These benefits include labour savings, workplace health and safety improvements, optimal pasture utilisation, animal health and welfare benefits and monitoring, environmental and wildlife protections, biosecurity and traceability benefits, and emergency management.

Currently available virtual fencing and herding technologies have been demonstrated to show no adverse welfare outcomes when compared to conventional fencing. However, it is important that any new entrants to the market are appropriately designed and used to safeguard against any unforeseen negative impact. We commend the rigour which this Committee has taken to make sure it understands all perspectives. I am a member of the DAFF Animal Welfare Task Group virtual fencing subcommittee stakeholder reference group. The virtual fencing subcommittee is preparing a guide for jurisdictions to allow for harmonisation of virtual fencing and herding regulations for cattle. This document will facilitate the development of appropriate regulatory safeguards, which I believe should be ready later this year. Thanks for your time, and I look forward to taking questions.

The CHAIR: Thanks, Dr Hancock. Mr McGoverne or Dr Neal, would either of you like to make an additional statement?

JOHN McGOVERNE: I'm happy to go to questions. Thanks, Chair. You've got our submission.

The CHAIR: No problems. You are the same, Dr Neal?

JAMES NEAL: No, I'll make a submission as well. I am a fifth-generation dairy farmer in Taree, New South Wales. Like many other young farmers, to beat the cost price squeeze in farming, I have extensively developed skills via a degree in agricultural science with first class honours and a PhD, as well as being a rapid adopter of technology, to remain profitable and sustainable for future generations. The dairy industry in New South Wales is the fourth largest rural industry in New South Wales. The community flow-on impacts are estimated to be well over $1 billion. This virtual fencing technology, as a dairy farmer, is an absolute game changer for the dairy industry. Like many other industries, we are finding it extremely difficult to find staff. The unemployment rate in regional New South Wales is 2.9 per cent—well below the range of what is considered to be full employment—making the recruitment of staff on farms difficult and expensive.

Research reported in the National Farmers' Federation *2030 Roadmap* points to an immediate shortage across the agriculture sector in excess of 100,000 full-time equivalents, further supported by survey data which reports that worker shortages were dairy industry respondents' second highest priority. Productivity is flatlining across Australia. This technology has the potential to dramatically increase productivity on dairy farms. Listening to farmers from Tasmania and New Zealand who are already utilising this virtual fencing, this has been an absolute game changer in productivity improvements. I don't want the dairy industry in New South Wales to fall behind other States and countries in competitiveness due to not being able to utilise this fantastic technology, which, as discussed today, already has huge productivity, sustainability and animal welfare outcomes.

The CHAIR: Before we begin the questions, I inform the witnesses that you may wish to take a question on notice and provide the Committee with an answer in writing. I'll ask the first question to Dr Hancock. I'm interested in your experience—you said, I think, 15 years domestic and international experience with dairy cattle as a veterinarian. Does that include experience with virtual fencing in other jurisdictions as well?

ANDREW HANCOCK: When I was working in Ireland for Zoetis International, which is a global multinational animal health company, I was responsible for outcomes research projects which demonstrated the value proposition for our precision livestock farming portfolio, which included an ear tag-based accelerometer technology which localised cattle and did health and rumination and heat detection. It didn't virtually fence, but it's very similar technology. Working in that space and working with our commercial development team, we also worked with emerging technologies such as virtual fencing technology.

My exposure to it since working back in Australia, being back in Australia the last couple of years and working with Dairy Australia this year, is more exposure to the research that you've already been discussing today with, for example, Tasmanian Institute of Agriculture and also the manufacturers of the products themselves. In terms of the technical understanding of how those products work, those submissions are obviously your best source of information.

The CHAIR: Just as a quick follow-up, if New South Wales was to go down the road of allowing virtual fencing, from your experience, are there any pitfalls or problems that you would like to warn us about or tell us we've got to be wary of?

ANDREW HANCOCK: No, I think that the main concern is that you need to regulate for the lowest common denominator. The technologies that are currently commercially available are fantastic, well proven and scientifically researched to show no adverse welfare outcomes compared with conventional fencing, and obviously with all the benefits that have been discussed. The last thing we would want as an industry is for a subpar technology to be introduced and actually ruin it for the good, sophisticated, well-developed and well-designed technologies. I think that's the pitfall—that precision livestock farming, generally, can have quite a diverse range of quality of technology, so it is important that the appropriate safeguards are in place to make sure that we have the best technology. There are market forces that drive that, too, as you can see with Halter and eShepherd and the advanced technologies that work really well.

Mr JUSTIN CLANCY: I'd be very interested to hear from Mr McGoverne a little bit further, because we've heard much from a dairy and beef cattle perspective. From a sheep industry perspective, what do you see in terms of virtual fencing? Importantly, as we look at the regulatory environment, if virtual fencing is to go ahead, would you like to see that it does capture sheep farming as well?

JOHN McGOVERNE: Thank you for the question. It is technology like a lot of these other new technologies that are coming into the industry. A lot of this is around research on different types of tags that will enhance our ability to actually monitor biosecurity incursions, hopefully, before they ever get here but, if they do, that we can pick them up through surveillance and that type of thing a lot quicker. The regulatory environment is obviously one that the sheep industry works with government quite significantly on, and that is to get better outcomes both for animal welfare and to protect the reputation of the industry. We wouldn't see any great difference in that for sheep than what applies to the dairy or the beef industries. Those benefits that have been outlined by those in the dairy and beef industries would apply to the sheep industry as well, notwithstanding the

fact that the animal welfare concern is one that the sheep industry takes very seriously. We work towards better animal welfare outcomes.

The benefits of this technology, though, are quite significant, particularly in relation to being able to manage pastures and grazing pressure et cetera, as well as to control animals grazing along watercourses et cetera. As someone has already pointed out, the cost associated with physical fencing now is significant, particularly along rivers and streams et cetera where they constantly get washed out during flood events. Rather than actually trying to manage those watercourses, they are often left unfenced. Consequently, livestock have continued access to them, which isn't a great way to manage those types of environments.

We see the benefits of this not just from the perspective of grazing management and an economic advantage, but that environmental aspect as well is a very important part. The sheep industry, like the cattle and the dairy industries, is moving towards measuring a lot of the environmental outcomes that we use through sustainability frameworks. This type of technology is actually going to enhance our ability to manage those environmental aspects a lot better. I can't overstate the importance of that enough, really. As we are all aware, biodiversity, climate change and how we manage and mitigate those impacts is imperative to the industry, and this is just another tool in the kit for us.

Mr JUSTIN CLANCY: Several manufacturers have mentioned that they are not looking to make a commercial application for virtual fencing for sheep just yet. Are you aware of any commercial applications or in the near future?

JOHN McGOVERNE: I'm not. I've only spoken to a few of the manufacturers. We acknowledge that the technology is still cost prohibitive, particularly when you start talking about the numbers of the sheep required. I run beef in Western Australia, and I would love to get into virtual fencing, but even from that perspective it is still a little bit cost prohibitive. The sheep industry is going to piggyback off the beef and dairy industries with this technology. As I mentioned earlier, this type of technology will evolve over time and, like all technology, will become cheaper as it gets better. The actual physical collars that are used at the moment, probably, may or may not suit the sheep industry. But if you look at—and, if I can give an example, Safe Meat has just given approval for the goat industry to use hock straps in those situations where it's not, from an animal welfare or practical perspective, to put an ear tag in. As we're all moving to an electronic identification system, those types of things are adaptable and it's how industry does that that's probably a longer-term outcome.

Going back to your original question around the regulatory environment, what we don't want through regulation is to stifle that innovation because that's the really important part for us: that the technology can evolve over time and become more cost effective and be adapted for all those things that I mentioned earlier around biosecurity disease management. The potential benefits are enormous if we can get it right. What we're always very concerned about, and encourage governments, is not to regulate to the point where it becomes unviable for companies to actually undertake that research and continue that evolution of that technology.

Mr RICHIE WILLIAMSON: Dr Neal, I was going to ask Mr McIntosh, a previous witness, the same question. As a farmer, on the ground, doing the business every day, what do you see as the single largest benefit to you, your family and your business, should this be approved and lawful in New South Wales?

JAMES NEAL: It's a great question, because one of the challenges—I don't want to repeat everything all the other speakers have said, but, like Rob, I also have the collars. I have the Allflex collars, which are just for rumination and heat detection and health. They're very valuable for that perspective. Like everyone these days, we have to be utilising as much technology as we can to make improvements. How I see this is, like I said in my opening statement, we need productivity improvements because that's the big challenge in Australia at the moment: We're really flatlining on productivity improvements.

Here, I can see one of the big challenges for dairy farmers is it's really hard to get staff, and because one of those roles—and we've talked about OH&S and quad bikes and things like that, and dogs bringing back in the stock. Obviously, this is one job less that the staff have to do, and they can concentrate on more important jobs on the farm. Obviously, there's no shortage of jobs on the farm; you ask any farmer, there's always a million things to do and no time to do it. Obviously, this is where I see a huge advantage in these virtual fencing collars—but also, the animal health side of things, from an animal welfare point, I think are really fantastic as well. The information you can get about all of your cows is unbelievable, and that's how we utilise the current collars we have now.

ANDREW HANCOCK: I'd like to add to that point. It's a really good point from Dr Neal. Being able to allocate labour to more valued tasks on the farm is really important, rather than getting up at five in the morning, sitting in the cold and the rain on a quad bike behind cows. There's also a job satisfaction and workplace retention piece to that as well—doing tasks on the farm that are more valued. I think that's really important. As James has

already said, attracting and then retaining staff is really difficult in a lot of industries at the moment, but especially agriculture and dairy.

Mr STEPHEN BALI: Picking up on the cost factor, looking at Dairy NSW, arguably there are about 140,000 dairy cows out there which, if you then multiply it by $8 per month per cow, that's a $134 million cost to the industry. If you look at the sheep, there are roughly 24.7 million sheep in New South Wales. That's $2.3 billion a year. I note technology is coming down in price, but do you see that potentially the adoption of technology is going to advantage the larger farmer and run the smaller ones out of business if they can't compete? Especially with the sale of milk and being squashed by Woolworths and Coles and everyone else, can the dairy industry afford $134 million in extra expenses per year?

ANDREW HANCOCK: It's a really good question. If I could take that to the farm level and do some back of the envelope calculations on that—

Mr STEPHEN BALI: That's all this is as well!

ANDREW HANCOCK: At eight bucks fifty per cow, per month, it is $100 a cow per year. You talk about a smaller farm, so let's talk about a 200 cow farm. An average herd size might be 400. That's 20 to 40 grand per year for that technology. Just the labour saving, in terms of reducing full-time equivalents on a farm required to herd cows every day, would pay for itself just in that, I would say. Like I said, a proper cost-benefit economic analysis hasn't been done. Tasmania Institute of Agriculture has commenced one, so there will be better research on that coming down the pipeline, which will be great. Just in the labour saving—and not coming into all the other benefits around optimising pasture utilisation, improving production efficiency, saving on the cost of physical fencing, workplace health and safety et cetera—it's actually quite a small cost in the scheme of the total annual expenses of a dairy farm. There's a lot of incomings and outgoings on a dairy farm. I'd also defer to Dr Neal and his opinion on that as well.

JAMES NEAL: You've really taken the words out of my mouth there. I think you've done a really good job in highlighting all the value. But obviously, from my perspective, the inability to get labour is the biggest challenge, if you know what I mean. It's not just the dairy industry; it's across industries. I know plumbers and electricians are struggling to find staff. From the cost of that particular example, the cost has just paid for itself in the labour savings, let alone all the other benefits that you'll receive from utilising that technology. That's why, as they discussed earlier, there been such a widespread adoption down in Tasmania—20 per cent of the Tasmanian herd already done in two years. That is amazing. For technology adoption, that is unbelievable. I think they've got challenges in labour as well, so this is an easy way to solve and get people, as they discussed before, onto the high-value jobs instead of sitting behind a quad bike for an hour bringing the cows in. It's getting those people into the high value things that are really going to drive the productivity of the farm.

Mr STEPHEN BALI: Finally, from John's perspective with the sheep, because the technology is still developing its application for the sheep et cetera, can you shed any light on how the sheep farmers would be able to benefit from this? Or is it still a few years away, from your understanding, given that it's not in New South Wales yet?

JOHN McGOVERNE: Yes, I think it's probably still a few years away. But as I pointed out earlier, it needs to be cost effective. That's going to take some time to reach a level where it is. But those advantages that have been pointed out, particularly around the labour saving et cetera, are going to be one that's going to drive the uptake of this type of technology as well. Across agriculture we have the same issues of labour retention and finding people who are interested in agriculture and are good stock people as well. It's a challenging job, at times, and probably not an industry that people are lining up to be part of. So, anything that we can do to make it, I suppose, one of those things that is seen as a professional industry and attract people who have an interest in agriculture and in the way we move to more sustainable farming systems and improve that job satisfaction is pretty important. It's part of the bigger picture, and one we're always working towards trying to achieve.

The CHAIR: It's probably more a statement than a question but, John, listening to you talk about sheep and talking about the technology, it strikes me that the case of a smartwatch holds more features and functionality—apart from the ability to provide a pulse—than a lot of these existing devices have. So, the possibility of getting to something that could just go in an ear which overcomes the connectivity issue for sheep doesn't seem like it's that far off. Someone has just got to invest in the technology, that's all.

JOHN McGOVERNE: Yes. It's getting it down to a commercially viable level. We could probably put just about any technology into it that you wanted to. As I pointed out earlier, that technology is going to evolve. These threats from other things like biosecurity are becoming more and more real every day. We've got FMD in Indonesia now and we've got lumpy skin disease. That's obviously specific to cattle, but those things are much closer than they were. Anything that we can use from a technology perspective—all these things feed into each

other. They all support and help the different industries and the different research that's undertaken. It all helps. As I pointed out earlier, the last thing we want to do in any way through regulation is stifle that innovation.

The CHAIR: Yes, agreed. Folks, we've hit time. Thank you all for appearing before the Committee today. You will be provided with a copy of the transcript of today's proceedings for corrections. The Committee staff will also email any questions taken on notice by you today and any supplementary questions from the Committee. We kindly ask that you return these answers by 4.00 p.m. on Thursday 25 July 2024. Thank you all for your time and for your submissions.

(The witnesses withdrew.)

(Luncheon adjournment)

Ms ROBYN COOPER, Manager, Health and Regulatory Services, Shire Futures, Wollondilly Shire Council, before the Committee via videoconference, sworn and examined

Ms DONNA AUSLING, Director, Planning and Sustainability, Narrabri Shire Council, before the Committee via videoconference, affirmed and examined

The CHAIR: I welcome our next witnesses. Thank you both for appearing before the Committee today to give evidence. Please note that Committee staff will be taking photos and videos during the hearing. The photos and videos will be used for social media purposes on the New South Wales Legislative Assembly social media pages. Please inform the Committee staff if you object to having photos or videos taken. Can you please confirm that you have been issued with the Committee terms of reference and information about the standing orders that relate to the examination of witnesses?

DONNA AUSLING: I have.

The CHAIR: Ms Cooper? We are making contact with Ms Cooper to make sure that we are getting through. We will kick off. We know that Ms Ausling can hear us, and we will try to get contact with Ms Cooper working. We will have to backtrack a bit when we get Ms Cooper online to cover off housekeeping matters. Ms Ausling, would you like to make a short opening statement before we begin questions?

DONNA AUSLING: Yes. Firstly, Narrabri Shire Council supports the bill for three primary reasons. Virtual stock fencing will enable stock owners to quickly and effectively contain their stock during a flood or bushfire without the need to erect temporary physical fencing. Similarly, in droughts, virtual stock fencing will allow graziers to rest portions of their paddock for regrowth without the cost of physical fencing. Secondly, virtual stock fencing will enhance community responses to biosecurity outbreaks and events by enabling virtual exclusion zones in affected areas. Thirdly, stock fencing will enable graziers to better control their stock in travelling stock routes—TSRs—and reduce the risk of stock escaping onto roads and being hit by traffic. Narrabri Shire Council submits there should be appropriate standards, regulations and codes of practice. In short, Narrabri Shire Council supports the bill for its benefits to natural disaster response, biosecurity events response and safety around TSRs, subject to adequate regulation.

The CHAIR: Thanks, Ms Ausling. Ms Cooper, I understand that we've got you now.

ROBYN COOPER: Yes.

The CHAIR: Excellent. I'll just very quickly run through some housekeeping, which you couldn't hear before. Thank you for appearing. We will be taking photos and videos. Can you let us know if you don't wish to participate in those photos and videos? It's for social media. Can you confirm you've been issued with the Committee terms of reference and information about the standing orders that relate to the examination of witnesses?

ROBYN COOPER: Yes.

The CHAIR: Do you have any questions about that information?

ROBYN COOPER: No.

The CHAIR: Great. Ms Ausling had the opportunity to make a short opening statement. Ms Cooper, would you like to make a short opening statement?

ROBYN COOPER: No.

The CHAIR: No problems. We will move to questions from the Committee. Before we begin with questions, I wish to inform the witnesses that you may take a question on notice and provide the Committee with an answer in writing. As the Chair, I'll ask the first question. From a local government perspective, given that your two submissions were the only local government submissions we received, what interaction do you see between any change in virtual fencing and the POCTAA as it stands today, and local governments? Do you see there being any role for local government if there was to be a change?

DONNA AUSLING: I'm happy to answer that, Mr Chair. I do see a role for local government in the event of an emergency management response—for example, via local emergency management committees and our local emergency management officer, the LEMO. There may be a relationship between those activities and stock owners and graziers who may be able to communicate with those emergency organisations in the event of a natural disaster.

The CHAIR: Ms Cooper, do you wish to add anything?

ROBYN COOPER: Yes. Outside of those situations, our particular concern with electric fences is if they were to be applied to boundary fences and the impacts that it could have in terms of our applying the POCTAA legislation and fencing requirements under the Local Government Act. There are the implications if electric fencing were to fail, and stock enter onto land. And there is the impact that that would have in some of our areas where it's quite built up, as opposed to maybe rurally zoned areas used for agricultural purposes, in terms of traffic movements and population, which is an entirely different situation to the west of the State.

The CHAIR: Just to clarify, Ms Cooper, when you say the failure of electric fences, I'm interpreting that as the failure of virtual fencing. Is that right?

ROBYN COOPER: That's right. Sorry.

The CHAIR: That's okay. I just wanted to make sure.

Ms MARYANNE STUART: Thank you to both of you for your submissions and for your attendance today. Ms Cooper, you just spoke about how you had concerns with the boundary fencing. Could you elaborate on that for me, please?

ROBYN COOPER: Sure. If boundary fences were included in virtual fencing, we see that we would get a lot of representations from people in the community who could see that cattle were grazing or wandering and that there was no fencing. We would have to investigate that. It may be that there's virtual fencing or it may be that they're unfenced. It could be a real safety issue, so it would be something that we couldn't ignore. We're also concerned about things like—we do have a lot of dog attacks on stock and dogs in a heightened state. They could penetrate a virtual fence if they are in that state, and I think that would increase our issues with having to manage dog attacks. We have quite a lot of experience with virtual fencing with dogs, and we know that from time to time the virtual fences fail for a variety of reasons. Whilst that's got its own challenges, if that was to occur in our areas and cattle were able to wander onto our roads as a result of that, that could be catastrophic.

Ms MARYANNE STUART: As a follow-up question, you just said the virtual fencing, or electric fences can fail.

ROBYN COOPER: Yes.

Ms MARYANNE STUART: Can you give me some examples of that?

ROBYN COOPER: From speaking to people who have cattle, the collars can fail on cattle as they can on dogs. The fences—I'm not sure how they would be supplied with their energy but, if it's solar, in long periods of overcast or wet weather, are they maintained? Are they viable? Those were mainly our issues. We know that cattle can lose their collars. They can get caught in tree branches and things, and then it renders the virtual fence ineffective. We've got no issues with internal fencing; it's just perimeter fencing.

Mr STEPHEN BALI: To follow up on some of the issues that you raised, you were talking about virtual fencing for dogs. What does that look like?

ROBYN COOPER: They have collars and there's electric fencing that's normally laid underground. It's very effective if it works.

Mr STEPHEN BALI: Is that common? I didn't know it was legal.

ROBYN COOPER: We do have quite a few property owners who actually utilise that.

The CHAIR: It's a wire that is buried around the perimeter, and as the dog gets closer to the wire that is buried, the collar on its neck will start beeping giving an audio cue. If it persists in going towards it, it will get a pulse. It basically tells the dog to stay away from the fence and the gate. I have seen it work and I have seen it not work. I have seen dogs go, "Bugger it. I'm going to cop the hit" and run across the wire. That is how it works. A hot wire is buried in the ground or strung up on a fence and if the dog goes too close it gets a beep and then a zap.

Mr STEPHEN BALI: As far as the fencing requirements in general, is it under Local Government Act that you require farms to have perimeter fences of five wires and barbed wire at the top, et cetera? Is that a regulation or is that just a request by local council?

ROBYN COOPER: I'm not sure about the barbed wire, but we issue our notices either under the Local Government Act or the PSUP Act, and we require them to have fencing that will contain animals to prevent them from straying onto public land.

Mr STEPHEN BALI: And if they stray onto public land, can council enforce penalties?

ROBYN COOPER: Yes, we can. We serve notices and directions, and if they fail to comply with those, to carry out the appropriate fencing, it's $600 per stock if they enter onto the road.

The CHAIR: Councils also have the ability to impound livestock that's wandering and can charge fees for watering and medical attention and those sorts of things.

ROBYN COOPER: Correct.

Ms CHARISHMA KALIYANDA: Thank you both for appearing before us this afternoon and for your submissions. My question is for Ms Cooper. My understanding is that Wollondilly shire is straddling that sometimes uncomfortable situation between parts of it still being quite rural and increasing density and suburbanisation.

ROBYN COOPER: Peri-urban, I think, is how most people are referring to it.

Ms CHARISHMA KALIYANDA: Yes, peri-urban. In your submission you speak about public perception and wandering cattle and dogs. Do you believe that virtual fencing is a suitable alternative to physical fencing, given the peri-urban location of the shire?

ROBYN COOPER: No, I don't, because we still have large tracks of rural land—nothing that compares to the situations out west, but we still have properties that are containing 20, 30, 50 head of cattle. In fact, we're dealing with a matter now on a property of about 20 hectares. We've issued notices and directions, and we are at the point of actually seizing the cattle, and we have started to issue penalties. So, it is a real problem for us, and it is one of two things that we will attend out of hours because it is such a danger to the public.

Ms CHARISHMA KALIYANDA: As a follow-up to that, I imagine there would be other parts of the State where there is a changing boundary between rural open areas where livestock roam freely and growing urbanisation, if I can put it that way. What do you think is the best way of managing that balance, if the legislation were to proceed?

ROBYN COOPER: Wollondilly doesn't have what I believe are called the long plain- activities with raising stock on road reserves, and so it would be a different thing, possibly, for other areas. But for us, if the legislation was to go ahead and people could use virtual fencing, perimeter fencing, it would be very difficult for us, for some of the reasons that I've outlined before.

The CHAIR: A follow-up question from me, because within my electorate out west there are long paddocks and big paddocks and properties that are tens of thousands of acres. Tell me if I have this wrong, Ms Cooper: The important thing from your perspective is that the boundary fence of the property that separates that lot and DP from adjoining property or public land is the important boundary to be maintained. What happens inside that perimeter fence, whether it's with virtual fencing or with physical fencing, my understanding is that that wouldn't be as important to council as having the perimeter fence being a physical fence.

ROBYN COOPER: Correct. Also, under the legislation, councils aren't authorised to implement any of the POCTAA provisions anyway. Our real concerns are definitely just for boundary fences, particularly boundary fences that are boundaries with public roads as opposed to adjoining properties.

The CHAIR: Sure. I can't speak on behalf of the Committee, but I can say that a lot of evidence we've heard today from people who are supportive of virtual fencing and not supportive of virtual fencing has been a common understanding that a boundary fence would be part of the mix to ensure that, if something were to happen, there is still a safeguard from stock leaving the property.

Mr JUSTIN CLANCY: I will just add to that. Conceivably, Ms Cooper, in terms of external perimeter fencing, a virtual fence could complement that external fence—complement and even strengthen the perimeter fence. That'd be a fair assumption?

ROBYN COOPER: Correct.

The CHAIR: Absolutely. So, if a tree went down over the physical fence, the virtual fence could then potentially keep the stock on the property. I think that's a really good point. Thanks, Justin.

Ms MARYANNE STUART: I'm just trying to think about what you said. So, you're saying the physical boundary fence could also be a virtual fence. Is that what you're saying?

The CHAIR: Yes. So, there could be a physical fence there with barbed wire. But if a tree goes down over that, you could also set the perimeter for the virtual fence as the same perimeter, which means that if the cattle or livestock went close to that they would get the same reactions—to back away from it.

Ms MARYANNE STUART: Thank you for clarifying, Chair.

The CHAIR: Thank you both for appearing before the Committee today. You'll each be provided with a copy of the transcript of today's proceedings for corrections. The Committee staff will also email any questions

taken on notice and any supplementary questions from the Committee. We kindly ask that you return these answers by 4.00 p.m. on Thursday 25 July 2024. Thank you both and thank you for persevering, Ms Cooper, with the technological problems we've had.

(The witnesses withdrew.)

Dr CAROLINE LEE, Senior Principal Research Scientist - Animal Behaviour and Welfare, Commonwealth Scientific and Industrial Research Organisation, affirmed and examined

The CHAIR: I welcome our next witness, Dr Caroline Lee. Thank you for appearing before the Committee today to give evidence. Please note that Committee staff will be taking photos and videos during the hearing. The photos and videos will be used for social media purposes on the New South Wales Legislative Assembly social media pages. Please inform the Committee staff if you object to having photos or videos taken. Can you please confirm that you've been issued with the Committee terms of reference and information about the standing orders that relate to the examination of witnesses?

CAROLINE LEE: Yes, I have.

The CHAIR: Do you have any questions about that information?

CAROLINE LEE: No.

The CHAIR: Would you like to make a short opening statement before we begin questions?

CAROLINE LEE: Yes, please. Thank you for having me here today. CSIRO did not make a submission to this inquiry, but we have been working in the area of virtual fencing since 2005. We have several patents on virtual fencing technology for livestock and are ongoing world leaders in assessing the animal welfare impacts of technology such as virtual fencing. The virtual fencing system developed by CSIRO is based on animal learning theory and best practice animal training principles. This is important, as electric shock stimulus is aversive and painful, so animals need to learn quickly that they can avoid receiving the stimulus by responding to the audio warning signal.

We developed and tested a framework to assess the welfare impacts of virtual fencing based on predictability and controllability. The approach is based on sound, associative learning and behaviour-based application of the cues. When this approach is taken, the welfare impacts are minimal. However, if the virtual fencing approach is not aligned with animal learning theory, significant ongoing stress can be experienced by the animals. It is the ongoing or chronic nature of the stress that is a major welfare concern, and this should be avoided at all times. We have many publications in the area and are happy to share these with the Committee. I'm happy to answer any questions relating to my area of scientific expertise.

The CHAIR: The Committee has heard that most research on virtual stock fencing has been completed on cattle. Are the animal welfare implications for other stock animals well understood? If so, which species do we have data on to be able to make a determination on the efficacy?

CAROLINE LEE: There are, as you said, a lot of publications on cattle now. I will provide a list of the CSIRO publications on virtual fencing as part of the opening statement. We have quite a lot of work that we've done now on sheep with virtual fencing, particularly the stress responses to the cues and testing out the associative learning principles and the welfare assessment framework that I've just described to you around controllability and predictability. A lot of that work was done in sheep. We had a PhD student who did her whole thesis on this area.

Ms MARYANNE STUART: Is there a reason why the CSIRO did not make a submission?

CAROLINE LEE: We're very comfortable to provide scientific evidence underpinning any of the policy that's going to be developed around virtual fencing. Therefore, I'm hoping that the opening statement and the list of references will provide the underpinning science to enable the decisions to be made around policy.

Ms MARYANNE STUART: What would be the CSIRO's position on virtual fencing?

CAROLINE LEE: We don't really have a policy-type position ourselves. Really, our role is, as I said, to provide the scientific information that hopefully can inform on any decisions that policymakers will make around this legislation.

Ms MARYANNE STUART: I have one more follow-up. You said welfare impacts are minimal. So that means there are welfare impacts?

CAROLINE LEE: Definitely, yes. The framework that we developed, and the subsequent publications as well, really highlight that in the initial learning period when the animals have to learn to respond to an audio cue to then prevent receiving the electric shock, when they first interact with the virtual fencing, they hear the audio sound but they don't know what that means. They do have to interact further to receive the electric shock to then associatively learn what the audio cue means to then prevent them from keeping moving forward and getting the shock.

We've done studies on this to show that it's a stressful experience. As I said, electric shock is aversive. It's painful. It induces a stress response, an acute stress response. But over time if the approach is clear to the animal and it is able to understand what it needs to do, it will respond to the audio cue and not continue forward. Therefore, it enables the animal to have predictability over the situation, by hearing the audio cue, and then controllability. It's really important that they can then go, "I understand what I need to do. I can control this situation and not keep going forward so that I don't get the electric shock." It's very similar principles to a conventional electric fence, where the animal at first won't know that if it touches the fence, it will receive a shock. But once it does those one or two times, then it quickly learns to avoid the fence, using a visual cue at the fence.

The CHAIR: I forgot some housekeeping. We've obviously moved to questions already, but I just need to let you know that you can take any question on notice as well and provide the Committee with an answer in writing, which we'll talk about later on. I just wanted to make sure you're aware of that. The line of questioning from Ms Stuart raised an issue for me. You talked about a stress response from the animal. I suppose in the hierarchy of stressors—probably one end of the spectrum being, "A predator is about to kill me", and the other, "I'm being annoyed by this fly that wants to bite me"—where is it on the hierarchy of stressors?

CAROLINE LEE: The acute stress response is the first interaction with the fence. We've done studies to compare in sheep the electric shock cue with the presence of a barking dog—it's a recording of a barking dog, sorry—and restraint, where they were—

The CHAIR: So, a virtual dog?

CAROLINE LEE: Yes, and restraint, where you tip a sheep, basically, and hold it. The cortisol response—this is one measure of stress, if your stress cortisol goes up—did show that, I think, the barking dog and the restraint were similar to receiving the electric shock. They do recover quickly from the event of a shock. However, really, it is key that they do learn that so that they don't have ongoing stress. As I mentioned, if the animals can't control and predict their situation, then this can lead to ongoing stress, and that's where animal welfare really would be impacted negatively.

The CHAIR: That's where a non-learner needs to be removed from virtual fencing and put back behind conventional fencing or sent to market or whatever?

CAROLINE LEE: Yes. If an animal is not learning, then it would be in a situation which is not good for its welfare.

Mr STEPHEN BALI: A bit tough, Mr Chair. If you don't learn, you get sent off to market.

The CHAIR: That's what you do with fences now, with cattle.

Mr STEPHEN BALI: Capital offence for not learning!

The CHAIR: If you've got repeat offenders, they go on a truck.

Mr STEPHEN BALI: I have a couple of questions. In your opinion, how long does it normally take within—whatever normal is—the standard time for the animals to learn what all the responses are and about virtual fence? How long would it normally take?

CAROLINE LEE: In the studies that we've done, which are all on beef cattle or sheep, we found that the cattle was on average—so the sorts of stats we do, I'll try to describe. On average, I think 50 per cent of cattle could learn within about three or four approaches to the virtual fence. Sheep were actually a little bit quicker. They're quite sensitive to the cues and learn quickly, which some people may be surprised about. But I have to really highlight that the key is also, like I was talking about, that the training cues have to be provided in a way that the animals can learn quickly. There are key principles around animal training. The consistency of the cues is really important. Application at the right time in relation to their behaviour is really important. If those things are not incorporated into a virtual fencing system, then there could be issues around the animal welfare implications as well.

Mr STEPHEN BALI: And you've developed a framework for that that we could adopt, like a code of conduct. If someone wants to go down a virtual fencing process, you've developed a code or developed a framework that ought to be considered?

CAROLINE LEE: Yes, there's a framework around welfare assessment. There are a suite of different measures that probably need to be included in a welfare assessment. It's not robust just to have one or two key measures; you kind of need to have information around—for example, I talked about a stress hormone like cortisol. Cortisol can go up when an animal is stressed; if it receives an electric shock, it can go up. But it can also go up if an animal is playing, so you need to differentiate whether or not something is actually a positive or a negative situation. You need additional measures, which are often behaviour. Behaviour will tell you: If the animal is

playing, its cortisol is up but it's probably quite happy. If an animal is reacting negatively and jumping or something in response to an electric shock, its cortisol is up but its behaviour is showing that it's not in a positive state. So, you do need to have multiple measures when you're measuring animal welfare.

Mr STEPHEN BALI: If the animal is not learning—I'm still trying to work it out. It's almost like walking around with a blindfold, I reckon. You're getting buzzed and then the electric shock as you get closer to the fence line. How would the animal know which direction to go in?

CAROLINE LEE: Yes, so that's also important too. When I talked about behaviourally based application of cues, timing of the cues is really important too. We know from the research that we've done, if you keep the electric shock on for too long and don't release it at the right time, the animal can actually spin around because it's trying to escape the electric shock. So it needs to be really quick; otherwise, if you hold it on, the animal has reacted and turned but it hasn't come off, so then it actually turns right around in a 360, which is really confusing for the animal because it's like, "Well, what do I have to do here to get away from this negative cue?"

There is a lot more to these systems. Because we're dealing with sentient animals, they vary a lot between different animals. We know that they have different personalities and different temperaments, which can impact how they react to the cues. That's where I talked about how some animals can learn within three to five interactions with a fence, but there's variation between animals, and so a tech has to really take that into consideration as well. The principles that I talk about today are the sorts of things that really need to be incorporated when you're describing what are the best welfare outcomes for an animal. These sorts of principles, around any tech that's developed, need to be incorporated, because I know that there are several technologies that have already been developed and are commercially available. But there will be new technologies that come in, and we need to have the same robust principles that are considered in relation to those as well so that we don't get negative welfare implications for animals.

Mr STEPHEN BALI: Is there a maximum number that ought to be considered? I'm more focused on the shock rather than the audio. If they're getting zapped, at what point should the system automatically shut down if the animal is just wandering to a particular point? Is it two, three, five, 15 shocks? How many should it go to before we—

CAROLINE LEE: Yes, I couldn't give you a number because it's so different.

Mr STEPHEN BALI: How far apart are the shocks?

The CHAIR: It differs between the devices. If you read the Halter submission, it talks about the maximum number of shocks it can give. eShepherd has got a maximum number of shocks. Basically, if the beast keeps moving in a direction, it'll actually end up stopping. It won't just keep continually delivering the pulse; it'll actually stop because it'll realise something is wrong.

Mr STEPHEN BALI: But that's the manufacturer doing that. For us, looking at a code of conduct or whatever, what should we consider as the maximum number of shocks an animal should get?

The CHAIR: Can I jump in? I think it's probably about the correlation between cues versus shocks. Once they start responding to the cue and not the shock—but going through the shock more often is a problem. I suppose maybe you've got a combination of time frame to learn and, based on its peers, how many times an animal is ignoring the cues and going through to getting shocked. That would be a point where you are giving a negative experience to this animal and it's not enjoying its existence out there in the paddock, where it should be having a reasonably good time. They have one really bad day, but they have lots of good days. Should we be removing that animal from virtual fencing and either putting it in a conventional paddock or sending it to market? I don't know. That's based on the evidence I've heard and what I've read. It's that correlation between not responding to the cues and leading to a pulse. That's the signal that's a problem.

CAROLINE LEE: I think we often measure the proportion of audio to shock cues. You would hope that, once they've gone through that initial learning period—where obviously initially it's 100 per cent because they interact with a fence, they get an audio and then they get a shock. After they've done that a few times, you want that to be going down quite rapidly. I can't give you the figure. It would depend very much on the context. It would depend on the tech as well. If animals aren't learning and if that is 100 per cent that they're always needing an electric shock, then that would be an indication that they're not learning and that would be a concern.

Mr STEPHEN BALI: The debate is also including if they have maintained the physical fence as the barrier to the farm and then internal fencing as you move the cows, sheep or whatever stock animals around. You were saying in your presentation—if I understand it correctly because, being a Sydney person, I may have challenges in understanding all this—that in learning it's about consistency and application. If an animal one minute is sitting nicely in a paddock and then the next minute, they want to virtually herd the cattle or the sheep

somewhere else, does that raise confusion in the animal? If it's used to, "This part is good. I better not go there", and suddenly that virtual gate is open where the animal would have got a shock before, how would they respond to now suddenly walking through an area that they may recognise as a danger zone before?

CAROLINE LEE: That's a really good question. That is a key question with virtual fencing. To ensure it's practical, you need the animals to be learning to respond to the audio cue and not the location in which it gets the cues. We actually have done research into that. The reason why is that, if they're just learning the location, you can't move the fence. It's going to be not very practical on your farm. We asked that question quite early on and there's publication that supports this is as well. What we did was we questioned whether or not they were learning the audio cue or the location they were receiving the cues and we found that it was the audio cue that they were responding to. The reason we know that is because, when we move the fence, the animals enter that zone within one to three hours. That means that the animals are testing the fence and going, "I don't hear audio. I'll keep going." They have to do that, and they do that fairly rapidly, which is really important because, if they didn't learn that it wouldn't be very useful on any farm.

Were you asking about herding as well? Herding is an important one too. We've done limited work on herding. But the work we did do—and this is with beef cattle, not with dairy cattle—we found that the best herding method was to have a back fence. What I mean by that is that you have your virtual fence that prevents the animals from going forward. When we tried to push them forward actively, it didn't work well, basically. What did work well was just having a back fence that follows the last animal along so that it can't go back the other way.

Mr STEPHEN BALI: Is that a virtual back fence or an actual back fence?

CAROLINE LEE: A virtual back fence. It's a passive herding. That's what I would call it. It's not active. You're not giving them any cues to move. You're just keeping behind them so that they can't go back where they came from. This, I think, works well because they're not having to learn anything new; it's all based on the same principles of what they've learnt. It's just audio cue means you turn and go back and stay within. I think that works well. In terms of active cues, the work we've done hasn't shown that it works very well in beef cattle. I know work has been done on dairy cattle. That seems to work better. The work on beef cattle, I would say, probably means passive herding would be suitable.

Mr JUSTIN CLANCY: Dr Lee, at the end of the day, good practice is contingent on alignment with animal learning theory. From a regulatory viewpoint, does that need to be captured into whatever the regulatory framework looks like?

CAROLINE LEE: I'm not quite sure how you would do it, but the principles are really important because, if you just have an algorithm that's not aligned with the animal's learning and cognitive abilities, then that would be concerning if the animal didn't understand what it needed to do to interact with the virtual fence and welfare could be compromised.

Mr JUSTIN CLANCY: Fair point. You're saying, rather than just relying on manufacturers creating an effective system, it should be somehow encapsulated in the regulatory environment?

CAROLINE LEE: Yes. Our research has really shown that, if you don't apply the cues in a way aligned with learning theory, the animals have undue stress on an ongoing basis.

The CHAIR: Dr Lee, in regard to learning theory, this is obviously particularly interesting to us. The example that was used earlier was the moving back fence with the last animal so that, as they turn the wrong way, they'll get the audio cue, and they know, "No, not that way; this way." Then, as they move, the fence follows them, essentially, until they're in the area they're meant to be. Are those learning principles or learning theories contained in the documents that CSIRO has already published? That's information that, as Mr Bali indicated earlier, we might be able to grab hold of and use to help to inform a code of practice or something like that.

CAROLINE LEE: Yes, they're contained in the papers—published.

The CHAIR: In terms of the work you've done on sheep, it was interesting because we had somebody from the sheep industry earlier who wasn't aware of devices that were available for sheep. But it sounds like some of the research work you've done has been on sheep, so there are commercial devices right now?

CAROLINE LEE: There are no commercial devices. The work that we've done on sheep is using manual dog collars. Basically, we've had to do it all manually. There's no automation.

The CHAIR: You press a buzzer; it sends a stimulus to the sheep.

CAROLINE LEE: Yes, it's an audio cue which you can manually apply. It's also the electric shock which is manually applied. It's without an algorithm. We're the algorithm and we're applying the cues but, once again, it's based on the learning theory and behaviourally based application of cues. It's based on removing cues when

the animal's doing the right thing and applying them when we want to prevent certain behaviours. It's positive punishment.

The CHAIR: Yes, I think Ms Adams used the line, "We tell them what they can't do, not what they can do," which I thought was a good way of explaining it.

CAROLINE LEE: Yes.

Mr STEPHEN BALI: Have you tried it also on alpacas and goats and other stock animals?

CAROLINE LEE: We haven't tried it on those species. At CSIRO, we've worked on sheep and cattle.

Mr STEPHEN BALI: Would you, just in general, see that the behaviour or knowledge or brain capacity of an alpaca or a goat is different to a sheep?

CAROLINE LEE: I think with all different species, it really will relate to how they've evolved. If they're more of a prey species, they might be a bit more reactive. It depends very much on their behavioural ecology; how they've developed over time in the environments they're in. But, until the research is done, then we wouldn't know how they would respond to different cues. There might be different sensitivities. Like I said, the reactivity could be different too. It would have to be tested in these species to know, otherwise it's a real knowledge gap.

Mr STEPHEN BALI: And horses?

CAROLINE LEE: Yes, horses are a flight animal as well. I would want to see research conducted specifically on those animals to determine how they're going to respond to the cues. When we started with sheep, we weren't sure how they were going to respond. We didn't know how quickly they would learn. We found that they learnt, in a way, almost quicker than beef cattle did.

Ms MARYANNE STUART: Following on from Mr Bali's line of questioning, in your view, are there any animals that you think wouldn't suit virtual fencing?

CAROLINE LEE: I can't think, off the top of my head. But, like I said, you'd want to test it. There'd probably be specific types of changes that you'd do for different species. They would maybe require different levels of stimuli, for example. The sheep require a lower level of electric stimulus versus cattle as well.

Ms MARYANNE STUART: Are you able to set the virtual fencing at different heights? You'd have to for different heights of animals, wouldn't you?

CAROLINE LEE: Well, it's contained on the collar, so the collar would be—

Ms MARYANNE STUART: Of course.

Ms CHARISHMA KALIYANDA: In relation to the way that CSIRO decides if there are further species that require testing and research—let's say the bill were to proceed. Would CSIRO decide that it would need to conduct research into other species? Could you shed some light in terms of how that research might be done?

CAROLINE LEE: I think the CSIRO research is in alignment with our strategy and addressing Australian needs. If the industries were keen to have this sort of tech for another species and it was aligned with a strategy, we would be potentially able to work in that area and start to address some of those knowledge gaps.

Ms CHARISHMA KALIYANDA: Would you need a specific request from, say, industry or from the Government, or would that come up through, for example, the bill proceeding and then CSIRO deciding there's a knowledge gap here that needs to be addressed?

CAROLINE LEE: I think we would look at if there were needs to enable Australia to be competitive, for example, in certain areas then—CSIRO's role is really to do research to further Australia's interests, to Australia's benefit. If that was an area that would align with a strategy and tick those boxes, then it'd be something that we'd potentially look into.

The CHAIR: Dr Lee, thank you for appearing before the Committee today. You will be provided with a copy of the transcript of today's proceedings for correction. Committee staff will also email any questions taken on notice and any supplementary questions from the Committee. We kindly ask that you return those answers by 4.00 p.m. on Thursday 25 July 2024. Thank you for your time today.

(The witness withdrew.)

Mr SIÔN JONES, Director, Extensive Livestock, Department of Primary Industries and Regional Development, affirmed and examined

Ms KATE LORIMER-WARD, Executive Director, Agriculture, Department of Primary Industries and Regional Development, affirmed and examined

Dr KIM FILMER, Chief Animal Welfare Officer, Department of Primary Industries and Regional Development, affirmed and examined

Dr HELEN SCHAEFER, Team Leader, Animal Welfare (Livestock), Department of Primary Industries and Regional Development, sworn and examined

The CHAIR: I would like to welcome our next witnesses. Thank you for appearing before the Committee today to give evidence. Please note that the Committee staff will be taking photos and videos during the hearing. The photos and videos will be used for social media purposes on the New South Wales Legislative Assembly social media pages. Please inform the Committee staff if you object to having photos and videos taken. Can you all confirm that you've been issued with the Committee terms of reference and information about the standing orders that relate to the examination of witnesses?

HELEN SCHAEFER: Yes.

KIM FILMER: Yes.

KATE LORIMER-WARD: Yes.

SIÔN JONES: Yes.

The CHAIR: Do any of you have any questions about this information?

HELEN SCHAEFER: No.

KIM FILMER: No.

KATE LORIMER-WARD: No.

SIÔN JONES: No.

The CHAIR: Great. Would anyone like to make a short opening statement before we begin questions?

KATE LORIMER-WARD: Yes. Dr Kim Filmer will make the opening statement on behalf of the organisation.

KIM FILMER: Virtual fencing is a new and emerging technology that has attracted a mix of stakeholder views. Proponents raise the potential productivity and management benefits for primary producers in New South Wales. However, as with all emerging technologies or new livestock management practices, the welfare of animals is paramount. Virtual fencing devices are regulated under animal welfare legislation, which is primarily a State and Territory responsibility. In New South Wales, virtual fencing is currently captured by provisions of the Prevention of Cruelty to Animals Act 1979 that prohibit the use of electrical devices outside of certain prescribed circumstances.

There is currently a mix of legislative arrangements taken in other jurisdictions, which we are happy to run through with the Committee during the session if desired. We have been examining virtual fencing for some time, including commencing discussions with one supplier in 2018 to seek an increased understanding of the implications of virtual fencing. Further, we have been actively involved in national-level processes that consider virtual fencing in the context of five key dimensions: supporting national consistency across jurisdictions; achieving optimal animal welfare outcomes; providing clarity for primary producers seeking to access this technology; providing certainty for stakeholder investment; and providing reassurance to overseas trading partners.

The national process has generated a literature review, which highlighted the potential benefits of virtual fencing, considered key characteristics required to minimise its animal welfare impacts, and outlined the gaps in available research on this topic—namely, that the evidence base is only well developed for cattle at this stage. We are also happy to take the Committee through the detail of the literature review. I have a copy here if you would like that tabled. We note that this national process is continuing through the development of an Australian animal welfare guide to virtual fencing, which is intended to provide practical recommendations and guidance for its use, informed by the current evidence base.

In light of the literature review, and in consideration of the rapid advancement of both the technology and the research surrounding it, the department considers that flexibility and futureproofing will be key factors when considering any adoption of virtual fencing in New South Wales. This is to ensure that the continually evolving evidence base can be used to inform updates to the regulatory arrangements; that any adoption in New South Wales does not disadvantage new suppliers or technological developments; and, importantly, that any adverse welfare impacts are appropriately mitigated.

The CHAIR: We will move to questions now from the Committee. Before we begin the questions, I wish to inform the witnesses that you may wish to take a question on notice and provide the Committee with an answer in writing. The first question is—and you may have answered some of this a moment ago, Dr Filmer—if we were to allow virtual stock fencing in New South Wales, with a set of safeguards or a code of practice, whether it's through the Act or through regulations, would your department be responsible for monitoring compliance with those safeguards?

KIM FILMER: No, it wouldn't. The compliance of POCTAA in New South Wales is undertaken by the approved charitable organisations—that's the Animal Welfare League and RSPCA—as well as the police.

Mr JUSTIN CLANCY: Dr Filmer, good to see you. Thank you to each of you. You mentioned the Australian animal welfare guide on virtual fencing. Can you give us a bit of an update as to where that sits in its creation? In that sense, to your point about ensuring that any regulatory environment in New South Wales is futureproofed and allows for future adoption, would the encouragement be to have a framework that encapsulates that welfare guide and uses that guide as a blueprint or framework for, say, a code of practice?

KIM FILMER: The Animal Welfare Task Group has set up a subgroup to look at virtual fencing, and Dr Schaefer is on that group. So, I might hand over to Dr Schaefer to give you an update on where that guideline document is up to.

HELEN SCHAEFER: As you said, the Animal Welfare Task Group has formed a subgroup, working on virtual fencing. That was secondary to a request that happened two or three years ago from the Federal Minister for agriculture at the time. Subsequent to that formation, we were the ones that commissioned the animal welfare literature review, conducted by the late Professor Fisher, that has given us the independent literature review on welfare implications for virtual fencing. On the back of that, it was determined that the appropriate way to put together the available evidence and scientific research that we have was in the form of a guide, which you alluded to. Further to that, it has been identified that we have two groups of stakeholders that need to have guides provided and with which jurisdictions around the nation can work.

Chapter 1 or part 1 of the guide will be for the end users, and chapter 2 or part 2 will actually be for the suppliers or manufacturers, depending on your terminology. To inform that guide we have constituted a stakeholder reference group, some of the members of whom actually have appeared as witnesses today to the inquiry, so you have had an excellent array of evidence provided. They have met with the subgroup, being observers, four times, looking at the various issues, and it's one of those cases where you don't know what you don't know. Until we had those amazing minds in the room, we really didn't understand how much there was to be explored.

Having said that, that group has finished meeting, primarily, in terms of accumulating all the information. Based on that, a guide will be drafted, and it is expected that the draft will be prepared by the end of this year. That is the sort of time frame. There is a lot of information to get through but, to ensure that all available scientific research and evidence is assessed, that is how long it's going to take. It is expected there will be a draft produced based from DAFF based on that by the of the year.

Mr JUSTIN CLANCY: In that regard, can you outline the process from a draft guide at the end of this year? What is the process from there, in terms of what that guide would look like? It would go for further consultation, I would imagine.

HELEN SCHAEFER: Yes, it will. That will be the commencement. As I said, it has been a fairly broad range of people on that stakeholder reference group, but there will be consultation conducted after that, the details of which are yet to be determined.

Mr JUSTIN CLANCY: I understand other jurisdictions are moving on the regulatory environment as well. I think South Australia was potentially mentioned as one. Are they moving independent of this guide being created, or have you got a sense of where they are up to in that regard?

HELEN SCHAEFER: To give you some context, members of the subgroup—the Animal Welfare Task Group—include New South Wales, Western Australia, Queensland, South Australia and Victoria. We are all on

that and are all heavily invested in seeing the results of that, as I said, to accumulate and collate all of the evidence that's available, which is a rapidly changing environment, I hasten to add.

Mr STEPHEN BALI: Thanks for coming along and for your evidence. I am trying to work out how we can correlate what we have learnt, and all of the information being provided to this inquiry, so I have a series of general questions. Firstly, have you guys actually looked at what has been submitted here—and, obviously, the transcript from today—and will it be part of your formulation of the guide? Secondly, we have been talking about potentially having a code of practice and/or regulations to administer this, as well as the legislation—the three tier approach. Obviously, if you are going to put out a guide—which I would probably see at the line of code of practice guide or whatever you want to call it. Would you suggest that we wait until you put that out, because you are the experts in the area—hopefully, independent experts in the area—before we implement any legislation? Should we wait for you to put that out first?

HELEN SCHAEFER: That is a decision for government. We have a national process which is operating independently from this process. I think, certainly, the evidence provided by the witnesses you've had appear at the inquiry will contribute to that information. Having said that, as I already alluded to, quite a number of your witnesses are actually members of that stakeholder reference group, so we're getting a sort of—

Mr STEPHEN BALI: Is the guide national based or State based?

HELEN SCHAEFER: No, it's national. The Animal Welfare Task Group is a body that operates under the auspices of AGSOC, who are obviously directed by AGMIN, so that's a national process.

Mr STEPHEN BALI: But if the legislation seeks to have a code of practice or guide—whatever you want to call it—plus regulations, that is putting an onus on the Minister, who then puts it on his department, which I assume is you guys. Pardon the chicken and the egg—not that the chicken is going to get a virtual collar—but we need to support the legislation. We can't simply legalise it and have a laissez faire approach like Tasmania. If it is going to get through, it needs a code of practice or guidelines, whatever you want to call it. Apart from the national code, is the department currently looking at what it would like to see in there?

KIM FILMER: I'll answer that one. That's a decision for government. It's not for us to make those decisions. But common sense would dictate that we have information that will come out of this inquiry and a report, which will be very helpful to look at. There will be information that will come out of the development of that guideline through the Animal Welfare Task Group that will be very helpful. It's not our decision to make in terms of that.

Mr STEPHEN BALI: I know it's not your decision, but it's just—

KIM FILMER: But logic would dictate that those are two very important pieces of information, in conjunction with the independent scientific literature review. A lot of the work that the Animal Welfare Task Group is doing, and the guidelines, will be based on that literature review, because that has a lot of information there that will probably be helpful for all of those processes.

The CHAIR: Dr Filmer, I think it's important to clarify that if the Animal Welfare Task Group or the department comes up with any guidelines or code, there still needs to be a change in regulation or law; only the Parliament can do that. So, we still have to change things through legislation, or at this point it is looking more like regulation, to enable the devices to be used and not fall foul of POCTAA as it stands. Notwithstanding, POCTAA probably needs a more comprehensive review, which can happen at another time. But I think that's one piece of work. The legislature or executive government needs to make a decision on that. That was my longwinded way of getting to this question: If that were to happen, would you be ready to go in a short period of time with an interim code of practice to bridge the gap between when the law changes and when we have the result of the AWTG's work?

KIM FILMER: Can you repeat that question, please? It was too longwinded for me.

The CHAIR: Sure. We can change the law.

KIM FILMER: Yes, you can.

The CHAIR: At the parliamentary level, the Government can choose to do that. If it changes the law, can you draft and will you be able to present to the Minister an interim code of practice or an interim guide for using these devices, or certain approved devices, until AWTG (Animal Welfare Task Group) can finalise their work, which sounds like is still some way off?

KIM FILMER: I think it would be better to wait for that national process to take its course because, as Dr Schaefer has said, the people who are on that stakeholder reference group and involved in that process, you have had them speaking to you here today—you have the expertise on that group. It would be sensible to wait for

that group to develop their document using the expertise that they've got on board. They've got industry there. They've got people with the research knowledge. They've got the whole gamut of people that you would require in one space, and they're working towards developing that document. So, it just seems pretty sensible to me that you would utilise that resource rather than trying to go it alone, because it's a very complex area.

The CHAIR: Sorry, Dr Filmer, I'm not suggesting we put something in place forever for New South Wales. I'm talking about bridging the time—if this Committee makes a recommendation that is adopted by the Government and the law changes, obviously we could put a caveat on it that says it doesn't become live until a certain date in the future when the AWTG stuff is available. But my guess is that given that a lot of the safeguards are actually built into the devices, in terms of the use of the devices, the devices control what they can and can't do. In terms of an approved line of devices within a bridging code of practice that states, "In the interim we're going to make sure that you know what you're doing and what you can do," I'm hearing that it's probably not something you guys want to do, but is it something you could do?

HELEN SCHAEFER: It's probably something—I mean, we can do anything if we have to, and we're instructed to do so. I would support Dr Filmer's comments that it's a complex area and to get it right, even albeit interim, would require quite a significant investment of time and, potentially, double handling.

I would also say, as Dr Filmer read out in the opening statement, that it's really important that any adoption of virtual fencing technology really needs to be futureproofed and very flexible, because this is such an area of rapid development. There's still ongoing research, as we've heard from some of your witnesses. There's still work being done on the utilisation, application and development of this technology in Australian conditions and in the various enterprises. So, any changes you'd want to make would need to be quite robust and yet flexible and futureproof. It's not something that's a one-week job.

The CHAIR: I think that's probably why the discussion has been considering regulation as opposed to legislative change.

HELEN SCHAEFER: Understood.

The CHAIR: I just make the point—you're probably aware from the hearing today that 20 per cent of the Tasmanian dairy herd is using virtual fencing, and they have no regulation that controls that.

HELEN SCHAEFER: Yes, indeed.

The CHAIR: And the world has kept going.

HELEN SCHAEFER: Absolutely. That's one of the points of saying—because there are various agricultural enterprises, and I think we can all understand from the evidence that's been presented that the response of animals is due in part to their experience. Obviously, dairy cattle are used to being in a routine and being handled and moved in certain ways. We want to make sure that anything that might happen in that area is also catering for the potential use in beef industries as well.

Mr JUSTIN CLANCY: Dr Schaefer, is it envisaged that the guidelines would be best practice guidelines or minimum level guidelines? I'm thinking perhaps around the dog breeding guidelines as an example of ones that have a mix of those that are enforceable and then those that are non-mandatory but are best practice. Is there a sense of how those guidelines will look in that regard?

HELEN SCHAEFER: I'd hasten to say that, nationally, these are guidelines. We're looking at developing a guide, as against developing standards and guidelines—which is what has been the process, for example, for the transport of livestock processing standards and guidelines which are being undertaken at the moment. This is a guide to be utilised by each jurisdiction across the nation as they see fit, to help inform each jurisdiction of the latest evidence. It is not envisaged, in answer to your question, of it being a Standard and Guideline—capital S, capital G—that States may incorporate holus-bolus and then have the standards as mandatory, which is what currently happens with national standards and guidelines. It will be a guide—small g—to be utilised to inform each jurisdiction's legislation and regulation as they see fit. You can do with it what you will.

Mr JUSTIN CLANCY: So even after the creation of guidelines, the State may well then still need to develop formal standards or guidelines for the State to follow.

HELEN SCHAEFER: Correct, in whatever capacity they see fit. That's correct.

Mr JUSTIN CLANCY: What can government be doing to assist DPIE and regional development to progress this in as timely a manner as possible?

HELEN SCHAEFER: To progress the development of the national guide?

Mr JUSTIN CLANCY: Yes, and then, from there, moving forward as a State.

HELEN SCHAEFER: I think that process is all underway. If you mean what can the New South Wales Government do, we are involved on that subgroup and involved with discussions. That process is being led by DAFF. In answer to your question, I'm not sure that there is anything—apart from the fact that this actual inquiry is contributing a wonderful amount of stakeholder feedback and evidence that the Animal Welfare Task Group will take into account. That contribution in itself is significant. But in terms of speeding up the process, I don't think that there is anything, as such, that the New South Wales Government can do.

Mr JUSTIN CLANCY: Okay, so nothing from a prioritisation point of view or anything like that?

HELEN SCHAEFER: No, it's on the list and it's being considered, because there are quite a few jurisdictions that are keen on seeing what comes out of that. But it's going to take time.

Mr STEPHEN BALI: From the stuff that we heard today, I am wondering why it is taking so long. Given that, as the Chair was talking about, it is already implemented in Tasmania—and the world hasn't stopped—why would it take until the end of the year? And then a secondary question is, when you go for further consultation, how long do you think it will take before the guidelines are actually produced and certified?

HELEN SCHAEFER: Longer than you would prefer, clearly.

Mr STEPHEN BALI: Is it into next year? Is it another three months or so and then you would be seeking feedback and then come up with a second or third draft?

HELEN SCHAEFER: I can't actually answer that, but can I just say—and I really don't know; I would give you an answer if I knew—that there is nothing prohibiting the Government if it chooses of New South Wales to do whatever they see fit.

Mr STEPHEN BALI: Sorry to cut you off there, but I totally understand that. We can just legalise it. But obviously, there is going to be a lot of outcry. Some people will be very happy and there will be lots of people very upset. How do we actually show confidence to the public that we have done the right thing? In my opinion, code of practice guidelines or whatever is something that needs to be done. We don't want to overregulate the industry. We want to give flexibility. To do that means that, if we pass the legislation, it has no operative date. We can take on what the Chair said, and we can pass the law tomorrow but, if there is no operative date, then what is the use of passing the law until the guidelines are made? In the evidence that we have been receiving, the vast majority is basically saying, "Everything is fine." There are a couple of people expressing a little bit of concern. To rephrase my question, where are the stumbling blocks? Where do you see the concerns currently through to discussions and what the national people are looking at? Where is the key research that needs to be done to make sure that issues are addressed? What are key issues of this virtual stock fence?

KIM FILMER: Maybe I'll jump in. I think the key here is that, if something is implemented without any guidelines there, there is a risk and there are people that will have concern with that happening. The guidelines provide an opportunity to put some guardrails in place, effectively—

Mr STEPHEN BALI: Virtual guardrails.

KIM FILMER: Virtual or not, but some sort of guardrails. I think that will give comfort to the people who have concerns about this technology. I think that came through in the evidence earlier this morning from Dr Arnott at the RSPCA, that there need to be guardrails in place to be sure that what is happening and continues to happen—because it is evolving. It's complex and it's evolving. Even in the literature review that was done two years ago there has been reference today in this inquiry that some of that literature already is out of date. That is the difficulty in this space. That's why it's not simple to just put together a set of guidelines in five minutes, because things are evolving.

The other thing that needs to happen is that whatever gets developed needs to be future proofed. At the moment, in the hearing this morning, you had three business organisations that produce this technology that seemed to be very concerned and aware of the animal welfare requirements of their technology. That's where they get their social licence. They are acutely aware of that. But, in a space where things are happening very quickly, you don't know that there might not be new players that come into this space. Do they hold themselves to the same level of animal welfare standards, for example, that the people that were talking to you this morning were? When you make legislation in any space, not just this space, you would need to make sure that—most people do the right thing most of the time. That's the way the world operates.

The legislation would need to provide a minimum standard. The detail that might be required for that would come through in that guideline document. It's not a simple task; it's a very complex area. It needs to be right and it needs to be able to adapt over time as new technologies come on and not lock people into what you might have now, which you think is okay and which is better than what we had five years ago, but, you know what, there might be better things in five years' time or in five months or in five days' time. It needs to be presented and

considered in a way that allows the flexibility and the ability to be improved over time, and also make sure that you don't end up with problems in the short term, particularly if there were other players in this space that weren't necessarily at the same level as the current ones.

The CHAIR: That's why I said earlier, maybe as an interim arrangement, you could have devices that are approved, because most of the safety mechanisms are in-built into the devices and the algorithm and the software that operates them.

HELEN SCHAEFER: That's something that could be considered by government, and we would do what we need to.

The CHAIR: I understand that; I'm a former public servant.

HELEN SCHAEFER: Understood.

The CHAIR: I'm just frustrated that we're hearing that it's potentially 18 months to two years before we've got a guide that we could implement at a State level, which means 18 months to two years before we could otherwise start having these devices used out in New South Wales. That's frustrating to me, but anyway.

Ms MARYANNE STUART: That last conversation we had was extremely helpful. Thank you, Dr Filmer. I'll come back to Dr Schaefer. Just bear with me while I'm trying to analyse all that we've heard today and have you, as subject matter experts and senior public servants in the New South Wales department of planning and agriculture, to be able to help and advise the Committee going forward. What we've heard today is that we need to, if this becomes a law in New South Wales, have ongoing evaluations; that the studies have been small studies; and that there have been no peer reviews. What we're hearing, Dr Schaefer, in the Federal space is that there is to be a guide, but it's not to harmonise. We're not looking at harmonising laws federally; it's a guide. Yes?

HELEN SCHAEFER: Yes.

KIM FILMER: The animal welfare laws are a State matter.

Ms MARYANNE STUART: Yes, that's fine, but the guide is not going to be for everyone to be on the same page. It's basically a guide and then, as was discussed before, each State can do their own standards, regulations et cetera.

HELEN SCHAEFER: That's correct.

Ms MARYANNE STUART: What we've heard today as well is there are biosecurity risks. Some people are saying the boundary fence should be physical; some are saying that it should be virtual. In your opinion, if this was to proceed, not only should there be evaluations, but should there be limitations—for example, limitations on what stock has already been researched? And so, should it be something that is a transitional approach in the State of New South Wales?

HELEN SCHAEFER: I think that it does, as we've already alluded to. Any changes that might be considered by the Government in the regulation of virtual fencing technology—and I know I'm using the same words, but it's important—need to be flexible and futureproofed. As indicated and evidenced in the independent literature review, and as others have said—those that have been involved in the scientific space and the research space for some time today—it is clear that the technology is in a better place to cater for use in cattle than it is for other species.

There is work being done on sheep, so it may get to a point where they are understood, and their welfare risks and their learning capabilities are understood well enough so that the algorithms that are in this technology cater for them and then perhaps other species. So, I don't think—and, clearly, from the evidence that's been presented today and the literature review—it's a case of "It's okay for cattle, full stop, end of story," at all. That gets into that flexibility and futureproofing for anything that is done. Now I've forgotten the other parts of your question.

Ms MARYANNE STUART: Whether there should be limitations put on it and evaluations as the process rolls out.

HELEN SCHAEFER: That's actually part of the discussions that are happening at the national level. There is that tension, as there always is in this sort of space, between outcome based and being too prescriptive. That's quite the tension. When you're talking about limitations, that's where it comes into play. We've got to get that balance, in the presence of very new technology that's changing all the time. It's quite a challenge versus other things that we're used to and that aren't evolving so much.

Ms MARYANNE STUART: I will ask one more question. It's a bit out of left field but is something that I feel, while I've got the subject matter experts in the room, I can ask. Do you see virtual fencing to be something that we may consider in this State for, say, the protection of koalas?

HELEN SCHAEFER: That's out of left field! I'm not sure that we have—

Ms MARYANNE STUART: I'm happy for you to take it on notice.

HELEN SCHAEFER: Anything is possible at this point, but there would need to be the scientific and evidence-based research presented.

Ms CHARISHMA KALIYANDA: Just following on from that, keeping in mind that the department doesn't really have oversight over compliance with regulations and with the Act, how do you see that compliance piece fitting into evaluations and with monitoring implementation of any bill, code of practice or transitional measure?

KIM FILMER: The department doesn't undertake the compliance for POCTAA, as you've said, but we do get annual reports from the two primary agencies, apart from the police, who do compliance work in that space. We have oversight in terms of being able to see—for example, if there was a spike or an increase in numbers of people that were charged relating to that type of device then obviously that would provide excellent feedback to require changes. That would probably be the mechanism. We do, as a department, liaise closely with the two approved charitable organisations that do the compliance for POCTAA. Again, without waiting for an annual report, if there was something going on in that space and there was evidence, and they were detecting changes or trends, we would certainly be informed of that. We do meet regularly with them. We meet quarterly, formally, but more often than that informally and for other reasons. That would probably be the main mechanism that we'd have of getting feedback in terms of the compliance activities—or if there was a change in that space, we would be alerted to that through that mechanism.

HELEN SCHAEFER: May I just add, because Dr Filmer is the New South Wales representative on the Animal Welfare Task Group and I go along, we 'd be keeping in touch with what's happening nationally and what may be occurring in other jurisdictions as well.

Ms CHARISHMA KALIYANDA: Flowing on from that, can you give me some insight in terms of how the resourcing of compliance works? Are the charitable organisations and the police provided with additional resources through government? How does that work?

KIM FILMER: I can't talk to the police area, but I can talk to the approved charitable organisations. They do receive some funding from the Government. There has been a review undertaken of that space in the last year or so. They undertake the compliance function for all types of animals across all of New South Wales in New South Wales. The model in New South Wales is a little different to some of the other States, but that's what happens in New South Wales.

Ms CHARISHMA KALIYANDA: Is that through the department or through a different part of government?

KIM FILMER: You mean our department?

Ms CHARISHMA KALIYANDA: Yes.

KIM FILMER: Our very long named one?

Ms CHARISHMA KALIYANDA: Yes.

KIM FILMER: The ongoing recurrent funding traditionally has been through the Department of Primary Industries, which was our former department. There has also been one-off funding from other departments. For example, the Office of Local Government has provided funding for particular projects for particular reasons, as has the old Department of Primary Industries, which is our old department.

Mr JUSTIN CLANCY: Previous witnesses—I think it was the Animal Defenders Office—recommended delaying the implementation of a virtual fencing regulatory framework until a review of animal welfare legislation and POCTAA was completed. When asked, NSW Farmers said that that's all dependent on when that animal welfare legislation review is completed. Are you able to give an update on the status of the review of animal welfare legislation, including POCTAA? Where is that up to?

KIM FILMER: The delivery of the POCTAA reform election commitments will be informed by this stakeholder feedback and there is a commitment from the Government to review POCTAA by the end of this year.

Mr JUSTIN CLANCY: Apologies, Dr Filmer. When you say "commitment by the end of this year", as in to be presenting model legislation or draft legislation by the end of this year?

KIM FILMER: I probably can't give you the detail on that, but the election commitment is that POCTAA will be reviewed by the end of this year.

Mr JUSTIN CLANCY: When you say, "reviewed by the end of this year ", as in review completed, started or out for further consultation? Is there an ability to be a bit more specific there?

KIM FILMER: There's work being undertaken at the moment. There has been work undertaken over the past few years, as you would know. There has been consultation over the past few years in that space. So, there is a wealth of information that we have available to us from previous consultation. There is work being undertaken to look at not only that previous consultation and feedback, but also looking at the inquiries in this space. There was an animal welfare bill inquiry, you will recall, that's also being looked at. So those things are happening now.

Mr STEPHEN BALI: Can I pick up on Mr Clancy's point? I can understand the legislation or changes and all that stuff, but you will complete the review by the end of this year. That's what you're saying. Does that include some kind of discussion paper that you're going to publish by the end of this year, or at least give it to the Minister for consideration to be published at some stage? It's one thing you doing the review, but is anyone going to see the review?

KIM FILMER: I think I'd better take that on notice because I'm not comfortable enough with timings to be able to give you that information here today. I don't want to give you the wrong information.

Mr STEPHEN BALI: That could be a question on notice. I think that suits us all. Picking up on Mr Clancy's point, if there's going to be a document, at least it is circulated to the Minister, and obviously it's up to the Minister when she circulates it to everybody else. But as long as there's some type of document by the end of this year that the department has completed.

KIM FILMER: Okay.

Mr STEPHEN BALI: That could be a question on notice. It's has been very informative, actually. Lucky you came in last, I reckon.

Ms MARYANNE STUART: We've spoken about the accountability, which is the police and the animal welfare groups.

KIM FILMER: Animal Welfare League and RSPCA are the two approved charitable organisations that do the compliance work for POCTAA. There are a lot of acronyms in there—sorry.

Ms MARYANNE STUART: Who administers all of this then?

KIM FILMER: In terms of the legislation?

Ms MARYANNE STUART: In terms of compliance.

KIM FILMER: Those three organisations do the compliance for POCTAA in New South Wales.

Ms MARYANNE STUART: So, they do all the administration work as well?

KIM FILMER: What do you mean by administration?

Ms MARYANNE STUART: Wouldn't we need to see who's using virtual fencing and who's not using virtual fencing? Or is that more done by the manufacturers?

The CHAIR: If I may, I think what you're getting at is how would the Animal Welfare League or the RSPCA encounter a problem to know they need to go and investigate?

Mr STEPHEN BALI: If the RSPCA is not enforcing it or if there is some issue about the enforcer, who enforces the enforcer? Does the State Government have officers that can overrule the RSPCA?

Ms MARYANNE STUART: In the first instance, how do we know who is using virtual stock fencing and who won't be?

Mr STEPHEN BALI: We haven't got it at the moment.

The CHAIR: I suppose that's the same as how do we know who's using cattle prods? The point is if there's a problem and it's identified as a problem, then the RSPCA or the Animal Welfare League will get a call to say, "This is what I've seen, and I'm concerned about it." Anyone can ring and make those calls. It could be a neighbour or somebody dropping off livestock, feed or whatever. They see a problem and go, "There's a problem here." So,

I don't think there are any mechanisms that would say because you're using a certain technology you automatically come under the purview—

Ms MARYANNE STUART: So, it's not going to be the same as when you get your dog tagged at the local council in case it gets lost or whatever? It's not going to be administered like that?

The CHAIR: You've got an NLIS tag or a rumen bolus tag that's got your property ID. Then you normally have another ear tag—this is if you're cattle—which has in plain English "Butler" or "Oakleigh" saying where the cow's come from. So, you have two ways of identification that are already on the cow.

Ms MARYANNE STUART: I think you're missing my point. If the administration is there for a dog that needs to be—I can't remember the word.

The CHAIR: Microchipped?

Ms MARYANNE STUART: Microchipped—there is not going to be any administration around virtual stock fencing at all?

HELEN SCHAEFER: It depends on the Government's decision.

The CHAIR: I wasn't sure where you were going there, sorry. Thank you all for appearing before the Committee today. You will each be provided with a copy of the transcript of today's proceedings for corrections. The Committee staff will also email any questions taken on notice from today and any supplementary questions from the Committee. We kindly ask that you return these answers by 4.00 p.m. on Thursday 25 July 2024. That concludes our public hearing for today. I again place on record my thanks and the Committee's thanks to all of the witnesses who appeared today. In addition, I thank the Committee members, Committee staff, Hansard and staff of the Department of Parliamentary Services for their assistance in the conduct of the hearing. Without them, it wouldn't happen.

(The witnesses withdrew.)

The Committee adjourned at 15:50.