Supplementary Questions - Prevention of Cruelty to Animals Amendment (Virtual Stock Fencing) Bill 2024

1. What data or feedback does Halter collect from its users to monitor animal welfare and/or improve its devices?

Halter has two types of data monitoring that protect and benefit animal welfare:

- Cue monitoring and welfare alarms, and
- Behaviour monitoring and health alerts

Cue monitoring and welfare alarms

Halter continuously monitors the following cues for each cow and each mob: the primary guidance cues (sound and vibration) and the secondary reinforcement cue (low-energy pulse). Halter can also assess the frequency, ratios and 'reinforcement rates' of these cues which is the percentage of primary cues (sound and vibration) that escalate to the secondary cue (low-energy pulse). We have ongoing monitoring to identify rare cases where unexpected events or welfare issues might arise and if required we take appropriate action with the farmer or make changes in our system.

Precise and effective training is essential to protect the welfare of virtually fenced cows. During training, cows learn to understand the cues. Halter continuously monitors cows progressing through training. If we identify an issue, we alert the farmer and give feedback around corrections needed to meet the training protocol. Halter's training is a comprehensive programme guided by specific standards and safeguards, as listed in detail on our [website](#).

We analyse a cow's understanding and response to the system by analysing the reinforcement rate and continuously monitoring the pulse count. We have configured thresholds and alarms to monitor for unusual events. Critical alarms trigger an automated phone call to alert Halter staff on call 24/7 (and if necessary they are woken up in the night). We investigate the issue, diagnose the cause, and if necessary, we alert and educate the farmer about the cause and the corrective action needed.

Behaviour monitoring and health alerts

Halter also continuously measures each animal's location and behaviour, including their grazing, rumination, activity, and rest. Halter compares their real-time data to their historic baseline of 'normal' behaviour and the behaviour of their mob, to detect anomalies in cow behaviour. If a cow is showing early signs of illness we immediately alert the farmer who can observe that animal and intervene. This helps to improve animal health because farmers and veterinarians can intervene much earlier than normal for illness or injury and provide treatment. In the last 12 months, Halter has alerted farmers to over 260,000 cows showing signs of illness.

Safeguards

The cue and behaviour data mentioned above also informs the built-in safeguards in the system that protect animal welfare. For example, if a cow fails to respond to the guidance cues, the system automatically disables for that cow and will not reactivate until the cow is moving freely. These safeguards are listed publicly on our [website](#).

2. Has Halter received any reports of animal welfare issues with virtual stock fencing devices from its users, and what action do you take when you receive a report?

Very occasionally variables arise that are outside of normal operating conditions that can compromise the welfare of cows being managed with Halter, e.g. weather or environmental issues like a muddy paddock and cows getting stuck. These are very rare, one-off scenarios in the context of our scale; over four years we have grown to manage 200,000 animals, totalling 98 million days of cows being managed with Halter. We do not control every variable on farms. If we identified that Halter ever contributed to an issue, we would evaluate and improve the system to mitigate that scenario in the future.

At Halter we have a robust process for responding to a very rare scenario where Halter might be a contributing factor in an animal welfare incident. Our experienced team investigates the issue by analysing our extensive behaviour data of each cow while working closely with the farmer, veterinarians and our expert animal welfare advisers. We diagnose the problem. If necessary, we develop a solution and then we scale it to hundreds of farms, within days, via software updates and farmer communication and education. This comprehensive response to incidents is simply not possible on conventional farms where there's no monitoring, no data, and limited means to implement a new, responsive solution to benefit hundreds of farms.

3. A recent United Kingdom government report[1] identified potential risks of different dynamic grazing and herding methods, such as back fencing or virtual herding.[1] In your experience, are there methods of moving or fencing animals with virtual fencing that pose risks to animal welfare? What regulations or guidance could be put in place to mitigate these risks?

We've reviewed the UK government's report and we're familiar with their descriptions of dynamic fencing and herding methods (including moving animals forward using a 'creeping rear boundary'). We must point out that these descriptions are NOT how Halter's virtual herding operates. Halter does NOT use a 'creeping' or 'roaming' back-fence or 'goad' to move animals.

Halter's virtual herding involves all cows at the same time receiving primary sound and vibration cues signalling that it's 'time to move'. Each cow receives unique guidance cues based on its location and heading, and has ample time to choose its correct direction and to start moving in that direction. At no point does a virtual boundary slowly creep onto an animal. Virtual fencing and virtual herding with Halter are entirely safe and proven methods of stock management. For visual context, please see an example of Halter's virtual herding in the fourth video on this website page, titled: *"Animal Welfare at Halter Part 4: Break to break shifts"*.

While Halter does not use a "creeping virtual back-fence" according to the UK report's definition, Halter does enable "back fencing" with our *virtual fencing* technology but with a different meaning. "Back fencing" is a best practice method of pasture management used every day on conventional farms and Halter farms to prevent cows re-grazing previously eaten grass. Farmers set a temporary electric tape fence or virtual fence to prevent cows from overgrazing an area that was recently grazed to avoid pasture or soil damage. It is important to re-state that with Halter's back fencing there is no "virtual or dynamic herding" involved, no "roaming" virtual fence, and no unexpected low-energy pulses experienced by animals. The same terminology - "back fencing" - used in the UK report has a very different meaning.

There are methods of containing animals with virtual fencing or moving animals with virtual herding that can pose risks to animal welfare (for example, farmers could inadvertently set virtual fences for an area that is too small for the number of animals in that area). These risks are mitigated with

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[1] United Kingdom Department for Environment Food & Rural Affairs, *Independent Report: Opinion on the welfare implications of using virtual fencing systems to contain, move and monitor livestock*, accessed 10 July 2024.

sophisticated technology like Halter which has been responsibly and meticulously designed for the animals we train and includes robust safeguards that protect the welfare of the animals. For example, in the Halter app there are alerts to prevent farmers from inadvertently setting virtual breaks too small for the number of cows in that allocated area. We have invested over $150 million and 8 years developing the Halter system and we've specialised in mitigating these risks in our system.

We believe regulation or guidance can be put in place to mitigate these risks. However, we encourage any regulation to be focused on optimising for the right animal welfare outcomes, for example, that virtual fencing systems have appropriate safeguards in place to protect animal welfare. We strongly discourage regulation focused on the technology's inputs, for example, regulating how the system's cues must operate. Virtual fencing and virtual herding are sophisticated technologies involving complex electrophysics and algorithms which have advanced significantly in recent years. A view we share with our expert animal welfare advisers is that regulation focused on the *inputs* of this technology could stifle innovation and inadvertently risk causing adverse outcomes for animal welfare.

We share Halter's safeguards publicly on our [website](#) in our animal welfare charter. We care deeply about this topic and we are very willing to work with the New South Wales government to share our experience for mitigating these risks.