# BestWool/BestLamb – Drones for monitoring sheep

Boort Group, July 2020

*Boort BestWool/BestLamb Group, Greg & Jo Bear's property, Loddon Vale, April 2020*

**Coordinator** – Erica Schelfhorst, Agriculture Victoria

**Group** – Boort

- 13 businesses, covering approximately 20,000 ha and with 22,700 sheep.

**Enterprise mix**

- Mixed farming, crop, wool, lamb.

## Drone trial for monitoring sheep welfare at lambing

"What is the value of drones in a farming system?" This question, raised by the Boort BestWool/BestLamb Group, has led the group to trial the use of drones to monitor ewe and lamb welfare during lambing and other activities during summer. The trial has enabled them to test drive a drone on their own farm and help determine if drones are indeed of value in their farming systems.

Early in 2019 group coordinator Erica Schelfhorst progressed the group's interest in trialling the drones as part of an on-farm demonstration supported by MLA. To measure the drones usefulness, the group chose to investigate the value of a drone for monitoring sheep welfare at lambing. Several factors are being examined – identify if the drone disturbed the ewes and lambs and to what level, determine if the drone could pick up any welfare issues and measure the time taken to check the flock.

Drones are being used more frequently in agriculture, mostly for monitoring crops and pastures. There's even one used to lift and transfer hay bales. However, Erica found there was little available information about their use for checking livestock.

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Five producers from the Boort group are directly involved in the trial. With lambing times varying across the properties, from autumn through to spring, the drone was moved from one farm to the next according to the lambing schedule. To enable the sheep to become accustomed to the drone, the plan was to introduce it to the flock prior to lambing.

A GoPro drone was used during the first year of the trial. It was manually controlled and had a range of one kilometre with a battery life of about 20 minutes, allowing for flight altitude and speed to be recorded on the video footage.

When the video footage was analysed, it clearly shows whether sheep are standing still or moving in response to the drone, and at what height or speed this occurred. If any of the trial farmers noted the drone was impacting negatively on their ewes or lambs, they immediately removed the device.

It was observed that sheep stayed calm when the drone was at a distance or when the drone was overhead above 30 metres and travelling slowly or hovering. Sheep flight response was triggered when the drone was at a lower height (less than 30 m) or was travelling at speed at any height. The group considered this could be due to the sound of the drone being louder.

The next question related to time, and whether using a drone would allow for more frequent sheep welfare monitoring and offer any savings in labour. While the distance and battery limitations of the GoPro drone made multiple monitoring checks difficult, one member found the drone very useful for checking whether any sheep were stuck in an irrigation channel.

Another member used the drone to check water troughs over summer. By measuring the drone's time and distance travelled from the video footage, it was found that the drone was quicker to undertake this task compared to the normal practice of driving. The farmer could also see that one water trough needed repair.

Given the cost of a recent model drone starts around $1500, the Boort group members can weigh that against the costs of remote sensors or cameras on troughs. While drones may be more versatile, there is still the time and cost involved in learning how 'to drive' them as well as costs for maintenance and charging.

There is also the need to consider the CASA (Civil Aviation Safety Authority) regulations. Flying over your own land has safety and record keeping requirements, for presentation to CASA if requested.

- **www.casa.gov.au/drones/rules/flying-over-your-own-land**

The next stage of the trial will further examine whether drones can enable more frequent sheep welfare checks. Erica is looking into options for obtaining a number of different types of drones. Newer drones have an increased battery life (which would be an advantage for multiple monitoring checks) and can travel up to 10 kilometres. It is however a CASA requirement that the operator must always have 'visual line-of-sight' of their device.

While the drone used for the first stage of this trial has a short battery life, it does have a 'homing instinct'. When the battery is getting low, it heads back to the operator – a very useful feature for any type of farm machinery.

For further information on the drone trial refer to:

- **agriculture.vic.gov.au/support-and-resources/funds-grants-programs/farming-systems-demonstrations-program**

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