Australian Government
Department of Agriculture and Water Resources




Subprogram 4: Using virtual herding technology to better manage sheep.

Why is this project being undertaken?

There is limited work on the application of virtual herding (VH) technology on sheep. This subproject is being undertaken to determine the optimum collar cues (audio and electrical stimulus level) that will successfully manage sheep and optimise pasture use without adversely affecting the health and welfare of the animals. This will ensure VH technology is sustainable long-term without increasing animal stress and decreasing productivity.

Who are the main partners?

The majority of the animal studies will be conducted on site at CSIRO, Armidale, NSW, using naïve sheep selected from the CSIRO Chiswick farm flock.

The research scientists working on the project are Dr Danila Marini and Dr Fran Cowley from University of New England (UNE) and Dr Caroline Lee from CSIRO with support from Dr David Lamb and Dr Mitchell Welch (UNE) and CSIRO technical staff, led by Sue Belson.

What will the project achieve?

This subproject will identify appropriate non-aversive (audio) and aversive (electric stimuli) cues that would allow the training of sheep to avoid exclusion zones, while not compromising their behaviour and welfare.

To ensure that animal welfare is not compromised whilst using a VH system, the animal must be able to associate the non-aversive audio cue with the more aversive stimulus. The sheep will then learn that altering its behaviour in response to the audio cue will enable it to avoid receiving the aversive stimulus.

A major component of this subprogram is determining the ability to control individual and group movements of sheep using the VH system and assess the impact on animal welfare.

How is the research being done?

CSIRO and UNE will conduct experiments both at Chiswick and at the university farm in Armidale to:

- Determine the appropriate level and duration of electrical stimulation and audio cues to sheep to enable sufficient control without compromising sheep welfare.
- Determine the individual variation and group dynamics in sheep after application of VH technology.
- Determine the effectiveness of VH technology to restrict movement of sheep to improve pasture utilisation, including detailed assessment of any effects on the animal welfare status of the animals.
- Determine the effectiveness of VH technology to encourage movement of sheep in practices such as mustering, including detailed assessment of any effects on animal welfare status of the animals.

Subprogram 4 Contacts

Dr Danila Marini; dmarini2@une.edu.au

Dr Fran Cowley; fcowley@une.edu.au

Dr Caroline Lee; Caroline.Lee@csiro.au

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