Does social transmission occur in sheep trained to use a virtual fence

Per Peetz Nielsen and Lotten Wahlund
RISE Research Institute of Sweden, Division of Bioeconomy and health, Department of Agriculture and Food, Sweden

CONCLUSION

THE RESULTS CONCLUDE THAT SHEEP LEARN TO USE A VIRTUAL FENCE AND THEY GET BETTER OVER TIME.
SOCIAL TRANSMISSION OCCUR WHEN SHEEP ARE BEING TRAINED TO USE A VIRTUAL FENCE TOGETHER WITH ALREADY TRAINED SHEEP.

What is a virtual fence and how does it work?
Virtual fences have been developed over the last 20 years with focusing enabling an easy and flexible pasture management for goats, sheep, and cattle. The focus on research have been on the animal’s ability to learn to associate an audio cue with a future electrical stimulus and their ability to learn a correct avoiding behaviour in response to the audio cue.

Method and animals
Fifteen, one year old sheep, where divided into two groups of five (group 1) and ten (group 2). Additional five sheep of the same age, that had been trained on virtual fence two months before, was included in group 1. One day 1 the sheep was moved to two rectangular pastures with 40 meters from the back of the fence line to the virtual fence line. On day 3 the virtual fence line was move additional 30 meter to simulate strip pasture. Number of audio and electrical stimuli was collected by the system.

A success rate was calculated as:
((#audio cues – #electrical stimuli)/ #audio cues)

This is a measure of how well the animal have learnt to react correctly to the audio cues.

Result
Day affected average number of sound cues, with an increasing number of sound cues from day 1 to day 5 (2.95 vs 8.25 ± 1.2, P<0.05).
Furthermore, Group 1 had a higher success rate than Group 2 (0.94 ± 0.05 vs 0.75 ± 0.04, P<0.05). No other significant effects were found.

Gotland sheep wearing the Nofence collar.

Virtual fence collar for sheep and goats. The collar used in this project is from the Norwegian manufacturer Nofence.