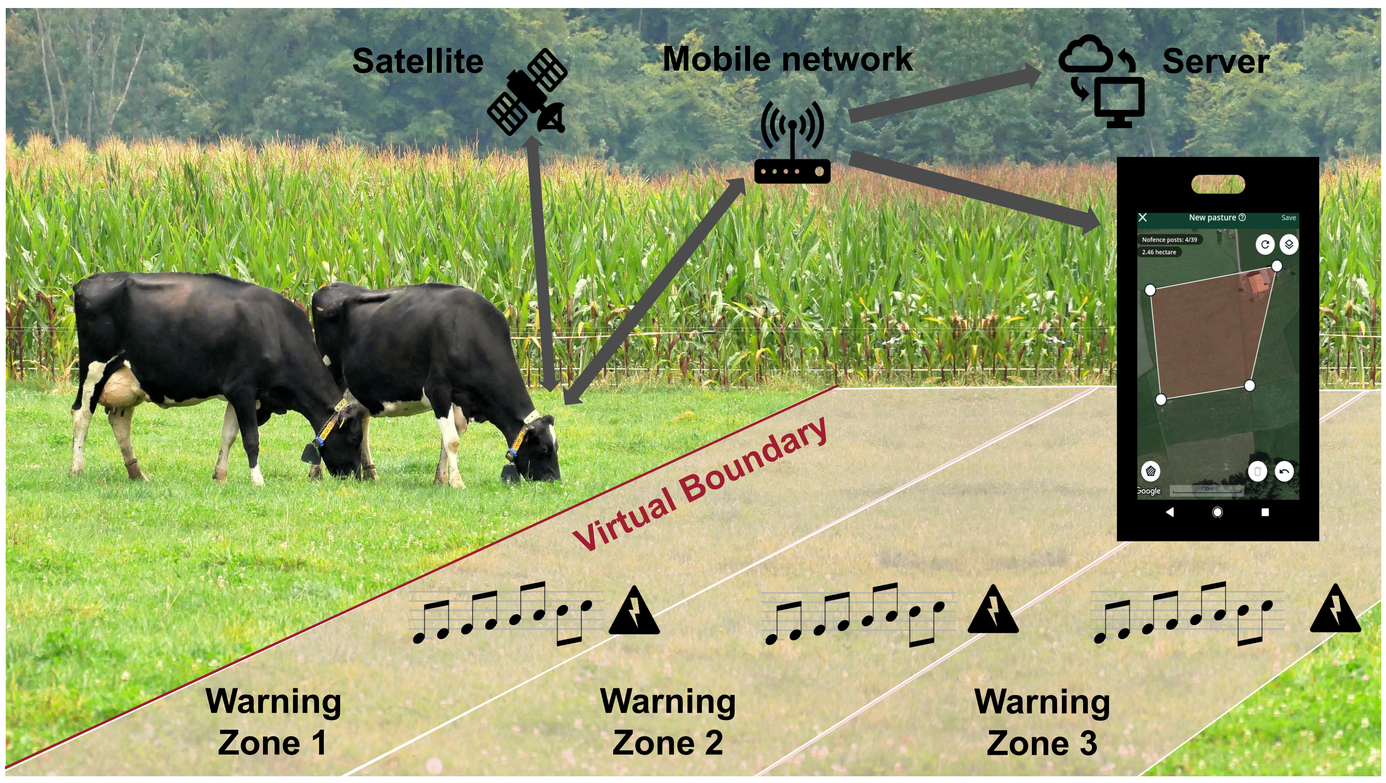
Learning behavior and milk cortisol levels of dairy cows managed under a rotational grazing system with virtual fencing

P. Fuchs[1,2], J. Stachowicz[1], M. Schneider[1], M. Probo[1], R. Bruckmaier[2] and C. Umstätter[3]

[1] Agroscope, Switzerland, [2] University of Bern, Switzerland, [3] Thünen-Institute, Germany



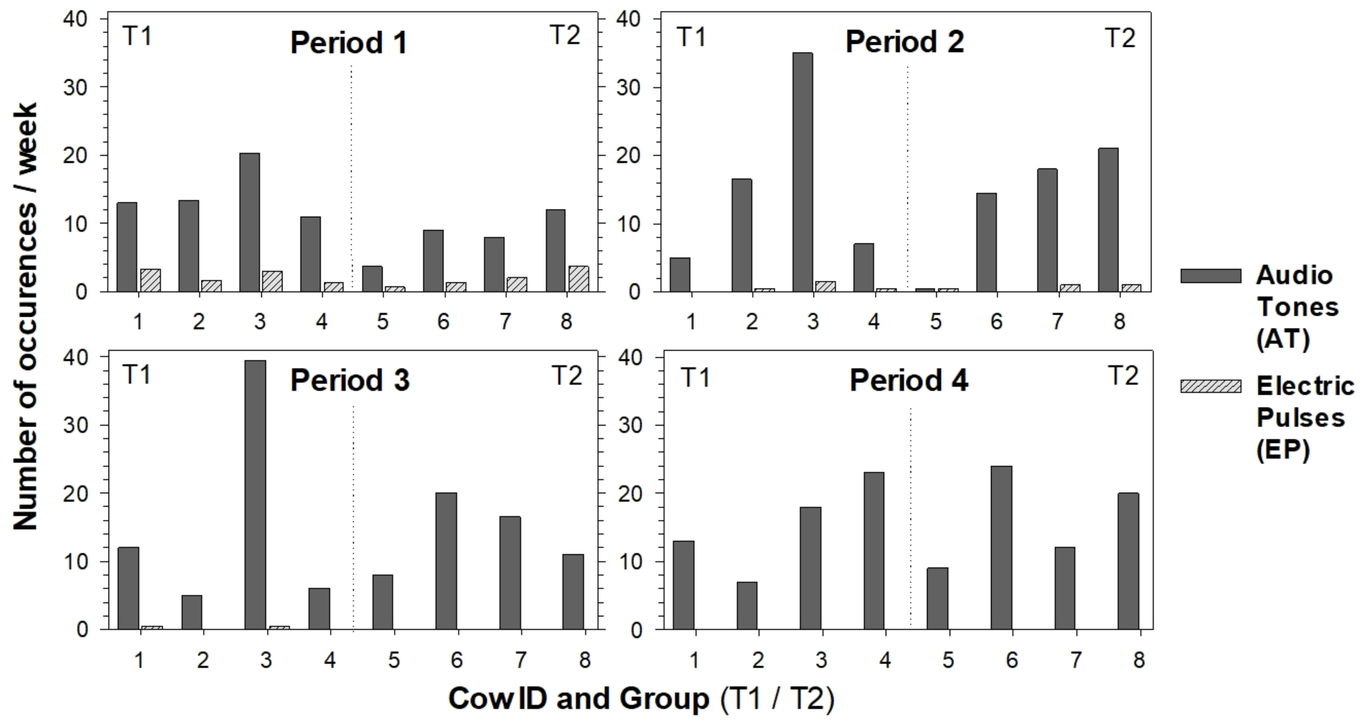
Remote grazing management using Virtual Fencing (VF):

- Less workload → use of land potential
- High flexibility → adapted feeding
- Lower risk of injury → wildlife protection

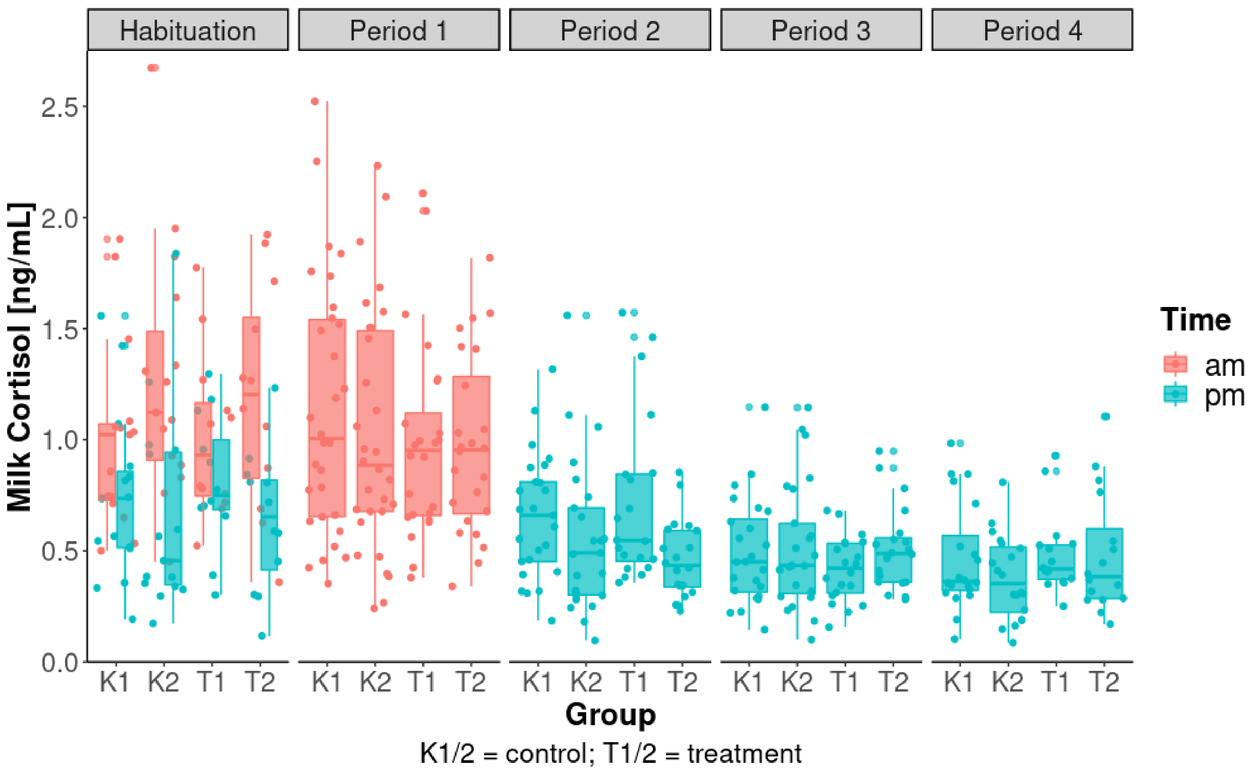
Research Questions

Q1: Are cows able to learn VF in rotational grazing management?
Q2: Does VF affect animal welfare related to milk cortisol levels?

Number of VF stimuli per cow & period



Milk cortisol levels per group & period related to time of sampling



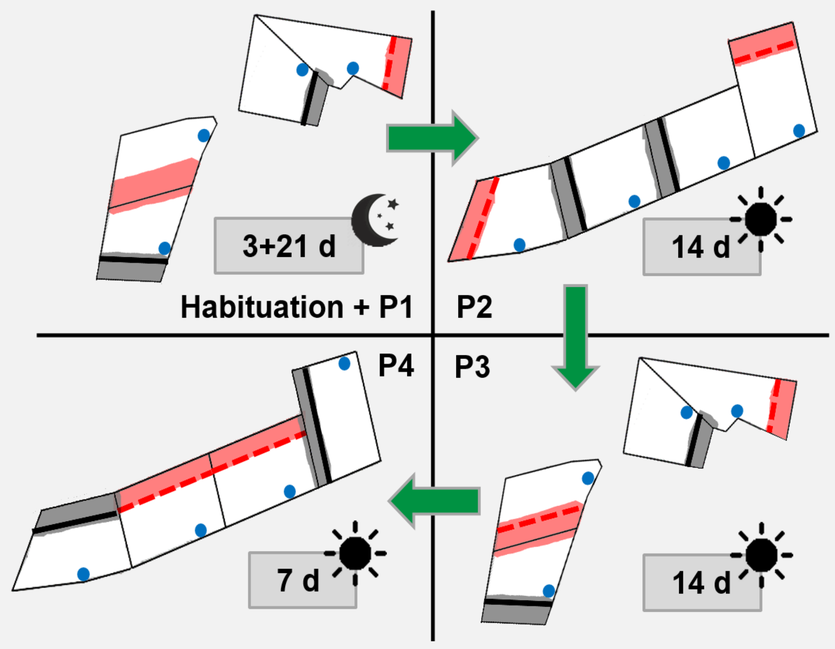
Grazing experiment

Animals

- 20 lactating cows, Holstein Friesian
- 4 groups (à 5 cows): K1/2 and T1/2
- Used to daily grazing, naive to VF

Methods

- Rotational grazing management
- 4 periods (P1-4)
- 4 paddocks (2x control, 2x VF treatment)



Measurements

- Stimuli (by VF collar)
  → each per cow of group T1/2
- Cortisol concentration (by milk sampling)
  → each day of Habituation
  → start, middle, end of P1-4

Conclusions

- All cows learned Virtual Fencing in rotational grazing management.
- Milk cortisol levels did not indicate increased stress to the cows.
- Individual learning must be considered for appropriate use of Virtual Fencing.

Agroscope good food, healthy environment

Nofence Grazing technology

THÜNEN

UNIVERSITÄT BERN

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs, Education and Research EAER
Agroscope