Non-invasive sensors for cattle farming in agro-ecological conditions

Miklos BISZKUP
Hungarian Research Institute of Organic Agriculture
HUNGARY
MNVH PROJECT

SESSION 6: AGROECOLOGY AND DIGITALISATION

#AEEUForum2023
BACKGROUND

Várvolgy, Zala county, Hungary

• Experiment started spring 2021

• Living Lab (On-Farm) Research

• Large number of animals
  (120 cows, 100 calves, breeding bulls)

• 180 hectares Natura 2000 pasture

• Sensors for cattle are available mainly for intensively kept dairy

• The main goal is to promote digital tools in extensive meat cattle farming
METHODS

Sensors

- All sensors are NON INVASIVE
- 6 types, 700 pieces altogether
- Allflex-MSD neck and ear transponders
- ENGS pedometers
- Moonsyst rumen boluses
- Moovement GPS
Data collecting
METHODS

Data collecting
The algorithm of the sensors have to learn the actual animal.
RESULTS
Example on animal health

- Morning report
- J0003 not ruminating
- Found on pasture sick, rounded up
- Diagnosed: Rumen function stopped
- Received treatment: rumen starter medicine
- Ability to follow the recovery
THANK YOU

For your attention

- More results from Petra
The importance of using digital technologies in pasture-based beef cattle farming

Petra BALOGH
Hungarian Research Institute of Organic Agriculture
HUNGARY
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RESULTS

Knowledge of pasture condition

• Transponder rumination data

• Individual/Herd level observation

• Optimal: 400-600 minutes/day

• Information on the quantity of grass

• The need to change pastures

• Maintaining good condition

*Pc = Pasture change
**RESULTS**

**Indication of heat stress**

- Alarm when the *panting* of the herd reach 10%
- 8-9% of the herd were panting at May
- Pasture maintenance
- Closed, woody and bushy areas

TH Index value in the examined grazing season was under 75
Weak medium heat stress factor
Feedback of meteorological effects

• Increased rumination after rainy period
  Precipitation increases grass production

• Decreased rumination during rainy weather and in the periods of drought
  Lower fiber content

Advisable to use supplementary fibre feeding for grazing herds during these periods
RESULTS

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CONCLUSION

Using of digital tools in pasture based systems

Overall, sensors help "make the invisible visible."

The rumination is a very good indicator for monitoring the health status -> animal welfare!

Sensors help to plan grazing more correctly and help to optimise the use of rotational grazing -> environmental protection of grasslands (Natura 2000)

The use of sensors supports decision-making in pasture management
THANK YOU
For your attention!

Petra BALOGH
petra.balogh@biokutatas.hu

Miklós BISZKUP
miklos.biszkup@biokutatas.hu

https://www.biokutatas.hu/en