Sensor technology in sheep on range pastures to monitor health and welfare

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Photo: Anita Iand (NORSØK)

Background

Loss of sheep on range and mountain pastures is a serious animal welfare problem and causes of loss is commonly undocumented.

In Norway:

- > 2 million lambs and ewes graze on unimproved rough grazing lands
- 125 000 (6-7%) are lost on such pastures every year
- predator attacks, disease and accidents are the most common suspected causes of loss
- sheep losses must be significantly reduced to ensure animal welfare, sustainability and profitability in Norwegian sheep farming.

Supervisjon of range animals:

- telemetry technology is available for real-time monitoring
- sensor technology to monitor physiological parameters, such as body temperature (T) and heart rate (HR) is available
- potential for automatic real-time notification of irregularities of animals on range pasture
- technology can enable early detection of diseases or predator attach
- Technology can facilitate medical treatment or other intervention on animals on range pastures

Material and method

Sensors:
Temperature (T) and heartrate (HR) sensors (StarOddi, Iceland) are implanted in:

- 20 lambs in a tick-borne fever (TBF) risk area
- 20 lambs and their 10 mothers in a predatory risk area

Telemetry system:
The Telespor telemetry system provides accelerometer information and real-time GPS positioning data.

Observations:

- Predator test with behaviour observations spring and autumn
- Regular health monitoring
- Behaviour observations on range pasture

Photo: Lise Grøva (NIBIO)

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Goal

- to test sensors that measure body temperature and heart rate
- to assess the sensors' precision and suitability as a monitoring and warning tool for diseases and predator attacks in sheep farming.

Future aim:

- to develop a monitoring system that enables the early detection of diseases and predator attacks at the individual animal level, also for free-range livestock farming

Project information
Project title: Forvaltningsteknologi: Teknologi for bedre forvaltning og sikring av utmarksressursen som et fremtidig næringsgrunnlag (2016 – 2018)

Future aim: To develop a system for automatick real-time monitoring of physiological health indicators of farm animals to ensure and improve individual health and welfare and productivity.

Main objective of current project: To evaluate if sensors that measure temperatur and heartrate can be used for early detecction of disease and predatory attack.

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