

# TechCare UK pilots – Integrated sheep system studies using technologies for welfare monitoring



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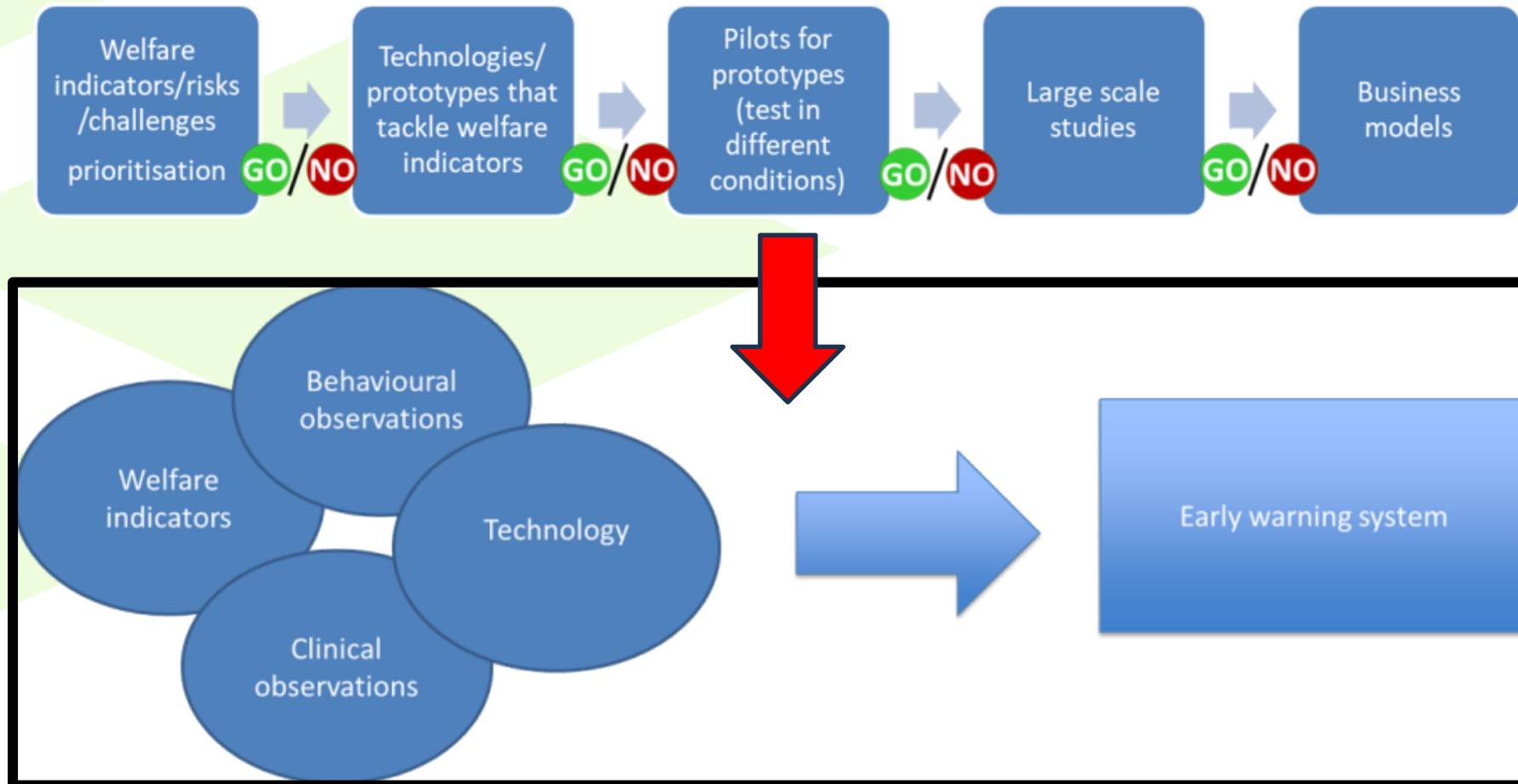
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J. Duncan, A. Barnes, C. Dwyer, F. Gimbert, J-M. Gautier, G. Tesniere & C. Morgan-Davies*

EAAP Session 39 – 29<sup>th</sup> August 2023

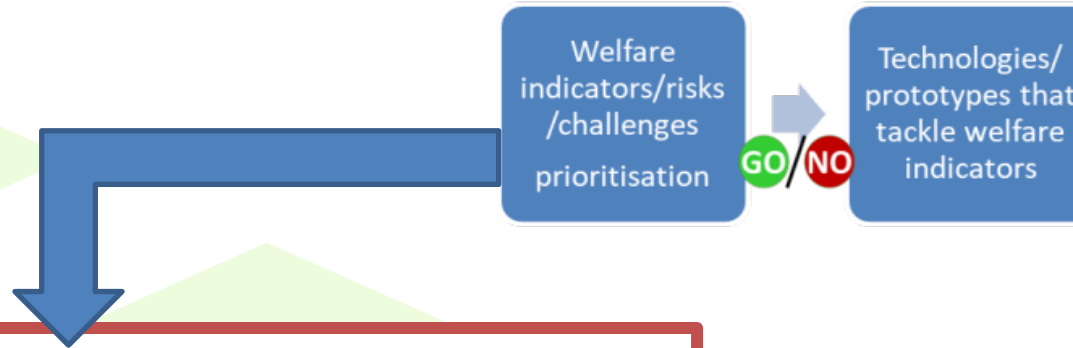
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# Overview

- UK (Meat sheep, outdoors)

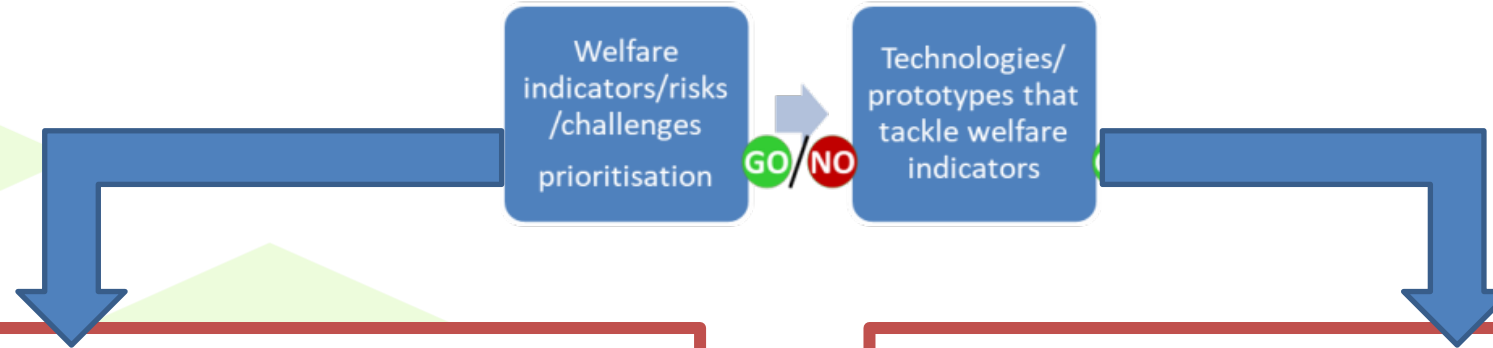


# Welfare priorities



- UK stakeholder events highlighted the following topics in terms of welfare prioritisation
  - Gastrointestinal parasites
  - Nutritional issues (e.g. undernutrition)
  - Lameness
  - Mastitis
  - Ectoparasites
  - Mismothering

# Technologies of interest



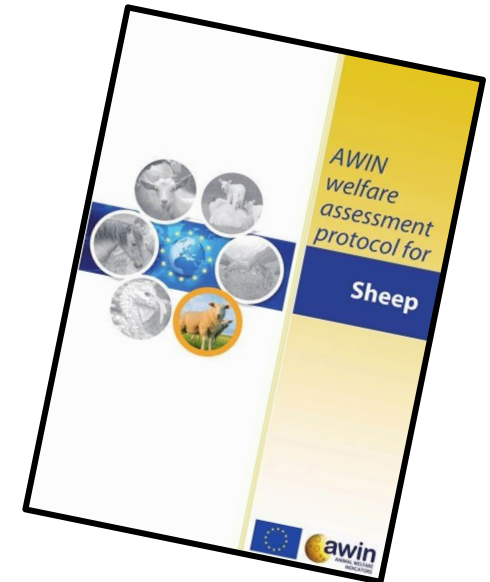
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- Technologies available for testing
  - EID weigh crate & EID tags
  - Proximity loggers & GPS
  - Ultra-high frequency (UHF) tags
  - Accelerometers
  - TST (Targeted Selective Treatment)
  - Weather stations

# Pilot farm goals



- Goals of the pilot farms
  - Validate the robustness of the technology (including prototype or near-market)
    - Test in different environments
      - Breeds/species
      - Climatic/environmental conditions
      - Topography
      - Production systems
  - Monitor animal welfare (using the AWIN scoring system)
  - Fine tune the application of the technologies to be used as an early warning system





# UK Pilot Farms



- SRUC's Kirkton & Auchtertyre Farms ●
  - West Highlands
  - 2225ha, 1300 ewes
  - Main sheep breeds: Scottish Blackface & Lleyn
- Moredun's Firth Mains Farm ●
  - Midlothian
  - 82ha, 300 ewes
  - Main sheep breed: Scotch Mule - Texel



# Data collection

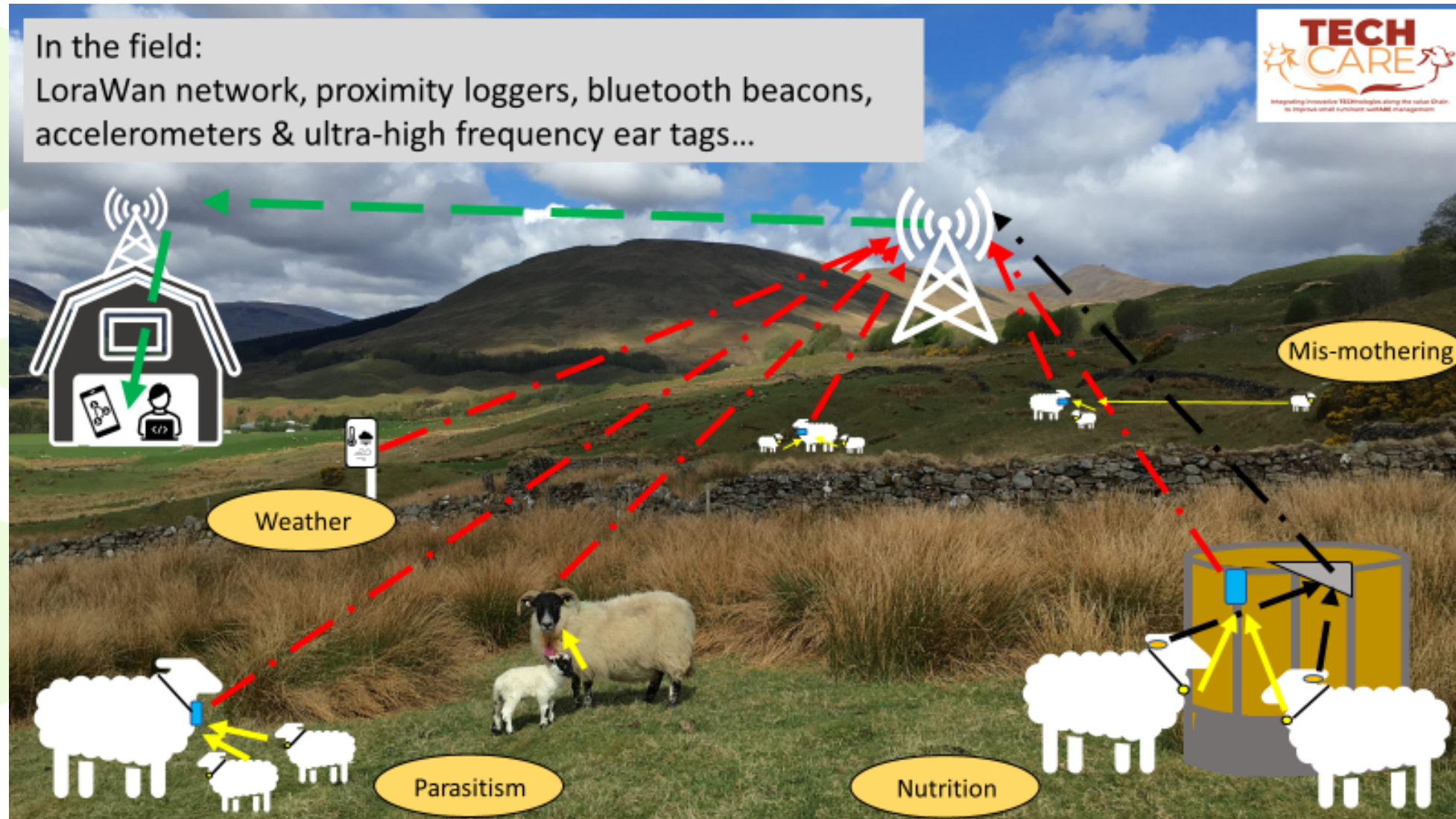
- Live weights
- Body Condition Scores
- AWIN scores
  - lameness
  - dagginess
  - fleece
  - udder...
- In-field behaviour and welfare observations
- Clinical measurements
  - Faecal Egg Counts
  - Somatic Cell Counts





# Example sensor data

In the field:  
LoRaWan network, proximity loggers, bluetooth beacons,  
accelerometers & ultra-high frequency ear tags...

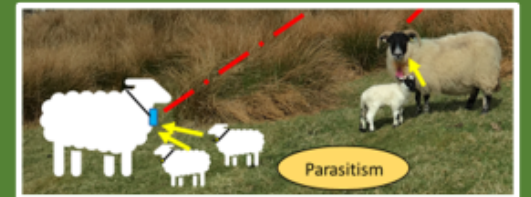
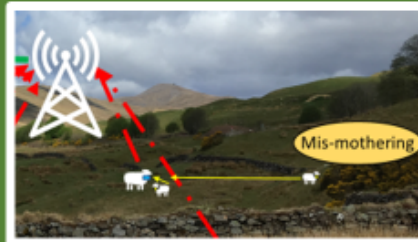




# Data collection

- Proximity sensors
  - Distance between ewe & lamb
- Accelerometers
  - Changes in behaviour due to parasitism

## Mis-mothering & Parasitism



# Data collection

- UHF & Proximity Sensors
  - Presence/absence
    - Visits to food resource measured
  - Animal order
    - e.g. through a gate
- Proximity sensors
  - Distance between ewe & lamb
- Accelerometers
  - Changes in behaviour

## Health issues (mastitis, lameness etc.)



# Data collection

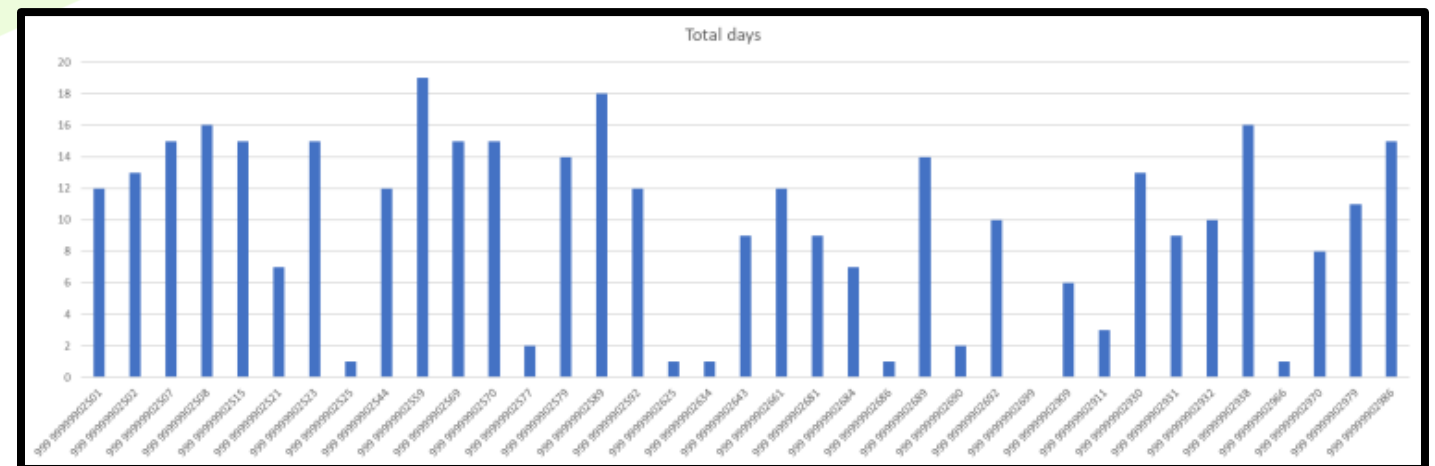
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  - Presence/absence
    - Visits to food resource measured





# Example trial - UHF

- Preliminary data
- Outside/extensive conditions
- Differences observed between ewes as to how often they visited the feed block
- Ewes that visited less – potential welfare issue?

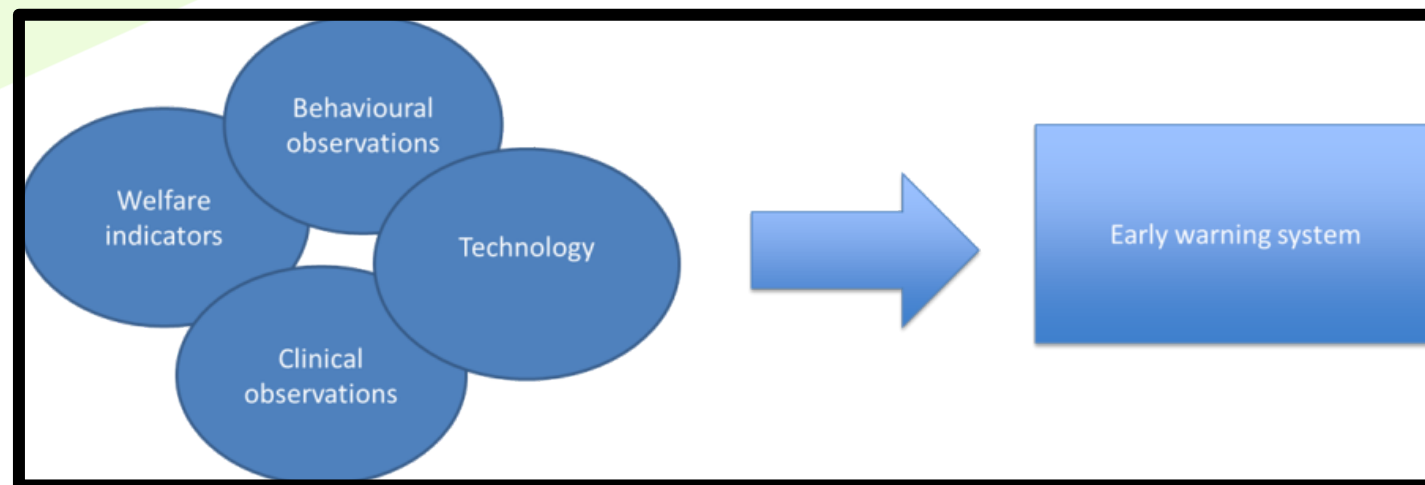


# To date

- Data has been collected:
  - from each technology used
  - on animal performance
  - on welfare – in field & AWIN protocols



Now we need to  
bring everything  
together!



# Next steps

- Analyse data and identify possible early warning systems.
- Identify technologies suitable for going on to the large-scale farms
- Identify protocols for technology use on the large-scale farms





# Acknowledgements

- Many thanks to all technical and farm staff involved in the data collection.



**This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 862050**



Scottish Government  
Riaghaltas na h-Alba  
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