Outline

• Background
  • Silent Herdsman Platform
• Detection of the onset of Illness
  • Results from commercial deployments
• Conclusions
Background
Smart Collar

- Sensor X, Y, Z Axis
- Ultra low power Processor
- Flash Memory
- Ultra low Radio Interface
- Battery
- Location for Collar Sensor
- Weight
Unique Feature Set

- only patent protected head mounted 3-axis accelerometer product providing multiple conditions (currently THREE);
  - activity profiles
  - eating periods
  - rumination periods
- platform provides both ‘oestrus’ and ‘health’ alerts based on these conditions
- ‘oestrus’ accuracy enhanced through consideration of eating and rumination behaviours
- cloud base services offered
  - off-line functionality guaranteed
mySilent Herdsman

• on-line ensures customer service and strategic data opportunities
Detecting Illness; Results
Detecting Illness with Collar?

- Activity
  - sick cows tend to be less active
- Eating
  - sick cows tend to eat less
- Rumination
  - sick cows tend to ruminate less
Normal Dry Cow
Oestrus
Rumination Drop in Heat
Sick Cow

Activity Level

Cow: 4893 (UK961331048931), Group: high, Collar SHR84138

Heat Observed on 31 August 2015

Due on Heat | Labels... | No label filter

Key: Heat Observed | Report...
Lameness

Normalised Eating/Rumination
Flagged when out of bounds (green shade)
Calving Cow

Normalised Eating/Rumination
Flagged when out of bounds (green shade)
Illness
Mastitis (then culled)

Normalised Eating/Rumination
Flagged when out of bounds (green shade)
Injured back, receiving treatment

- Normalised Eating/Rumination
- Flagged when out of bounds (green shade)
Clinical Mastitis
Pneumonia
Correlation between Eating Time and Intake

measurement of time in feed and weight of feed consumed
Feed Intake as a function of Time?

![Graph showing feed intake as a function of time at HOKO Feeder, with data points for different groups indicated by various symbols.]
Summary

• *activity* an *excellent* indicator for the onset of *oestrus*

• *activity* on its own is a *poor* indicator of the onset of *illness*

• *rumination plus activity* enhances the accuracy of *oestrus* detection

• *eating and rumination* is an *excellent* indicator of the onset of *illness*
THANK YOU!