Undetected and Unrecognised Diseases in Dairy Cattle:

Early detection and improved management

1) Assessing behaviour and welfare associated with sub-clinical infection in dairy cows

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We are interested in identifying differences in cow behaviour, especially social behaviour and anhedonia (inability to experience pleasure), associated with sub-clinical inflammation as we have already identified similar differences in pigs. We have chosen sub-clinical mastitis as our model for inflammation, as focal cows can be selected on the basis of somatic cell counts within milk (numbers increase substantially during mastitic episodes), and we are currently selecting pairs of cows (sub-clinically mastitic and control) to collect data on this basis.

Study:
- 6 cameras fitted within the shed that focus upon the low-yielding (very pregnant) group
- 2 cameras at the milking parlour exit.
- Cows are fitted with coloured collars for direct observations and via video footage (PC on viewing platform)
- We are collecting saliva samples as a novel measure for inflammatory markers
- In collaboration with Helena Telkanranta, we are using thermography on the same cows to assess impacts upon affective state as a welfare indicator

Currently the herd has low levels of mastitis with the lowest cells counts ever recorded within the herd.

2) Chronic lameness in dairy cattle

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Study will use a mixed social and natural sciences approach to:
- identify the drivers behind the lack of recognition of, and failure to manage, chronic, severe lameness in dairy cattle
- identify and disseminate feasible, good practice solutions designed to encourage and assist farmers to address this serious welfare problem

Dairy cow lameness research at Bristol

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Dairy cows and the dairy farming industry in the UK and overseas are benefiting from strategic animal-husbandry changes and lameness-control programmes as a direct outcome from research conducted by the University of Bristol,

- This work demonstrated to policy makers that lameness was a genuine welfare concern causing pain for the animals
- Bristol devised a scoring system, the Standardised Lameness Score (SLS), which helped identify problem animals, assess problem severity and monitor treatment effectiveness
- In 2008, DairyCo, launched the DairyCo Mobility Score lameness management tool based on the SLS, and distributed this to farmers around the UK

Developing welfare assessment methods in dairy cows

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We are interested in developing a range of novel indicators of welfare in dairy cattle. These include:

- Using thermography to assess affective state and welfare in cattle and calves
- Using automated monitoring and on-farm instrumentation (e.g. accelerometry; RFID; video) coupled with computational analysis methods and computer vision to detect links between behaviour and the onset of clinical or production problems
- Developing new behavioural indicators of affective state and welfare (e.g. lateralisation of behavioural responses)

Investigating the effects of lameness, mastitis, and common husbandry procedures on welfare and productivity measures