Dairy Cattle Mobility Steering Group

Position statement on the use of automated detection methods for lameness

The GB Dairy Cow Lameness Manifesto

This position statement has been put together by the Dairy Cattle Mobility Steering Group to provide some guidance and support in relation to the use of automated lameness detection methods, particularly in the context of use as an alternative method to visual assessment.

Background

Automated lameness detection methods provide objective measures of cow mobility utilising data generated by, for example, cameras or sensors. A range of automated lameness detection methods and systems are commercially available. Automated systems have the potential to offer several advantages over visual assessment, including high frequency of data collection, timeliness and consistency. However, when considering adoption of an automated detection system, the accuracy, reliability, accessibility of data, and training and support of the system should also be considered. Lameness has major welfare impacts and it is therefore vital that automatic lameness detection systems are utilised to aid in the early identification of 'cows likely to benefit from treatment' caused by lesions, with sufficient sensitivity and specificity. An inability to achieve this could contribute to worsening of the welfare of dairy cattle due to lameness progression.

Position statement

Automated lameness detection methods should be validated against both **mobility score data and lesion data**. The Dairy Cattle Mobility Steering Group recommends that automated detection methods are:

1. Independently validated, with validation published in reputable, peer-reviewed scientific journals for both mobility score and lesion presence (at a minimum infectious and non-infectious lesions). It is preferable that validation work is conducted on a number of different farms including farms that were not used for algorithm training. Publication of validation data should be within two years of commercialisation, during which visual and lesion assessment should be run concurrently.
2. Capable of regular calibration, ensuring that accuracy is maintained, and that comparable estimates of herd-level lameness and severe lameness is available between farms for the purposes of benchmarking or quality assurance.
3. Able to offer the farmer a system of prioritisation through adjustment of sensitivity and specificity when creating individual-cow action lists, appropriate to the individual farm's circumstances and needs.
4. Refined and developed over time, to enhance algorithmic identification of animals with the greatest benefit of attention.
5. Used as part of a structured lameness programme such as the AHDB Healthy Feet or Healthy Feet Lite programme or similar with the aim of reducing lameness prevalence.

Following introduction of an automated lameness detection (ALD) system, it is recommended visual assessment and lesion evaluation should be used alongside ALD to ensure that the technology is working appropriately on that particular farm. This should be done alongside daily inspection of the animals by their owners/keepers, as required by law to ensure the health and welfare of their animals.