Lameness and activity monitoring: an introduction, status, and some future perspectives

Vivi M Thorup
INRA UMR MoSAR, AgroParisTech, 16 rue Claude Bernard, Paris, France
vivi.thorup@agroparistech.fr

Lameness is the clinical manifestation of several disorders related to the legs and feet of the cow. Approximately 30% of housed cows are clinically lame. Moreover, it has been estimated that each lame cow has severe pain for 3 months, consequently, animal welfare is severely decreased by lameness. Not only does lameness pose a major problem to the health and welfare of dairy cows worldwide, lameness is also among the top three most expensive health disorders as seen from the dairy farmer's point of view, because of treatment costs, milk loss, reduced reproduction and early culling. Lameness affects the activity of the cow by altering various aspects of cow behaviour, such as the duration and frequency of feeding, ruminating, lying, standing, and oestrus related behaviours. On farm, lameness prevalence is typically underestimated be the farmer. These reasons have inspired the use of a number of technologies for monitoring different aspects of cattle activity and lameness during the last decades, however, likely due to the large number of lameness risk factors, lameness still poses a problem to most modern dairy herds. Remote monitoring of individual cow activity also opens up the possibility of assessing cow temperament and welfare, and to perform precision phenotyping to be used in genetic selection. This presentation gives an introduction to lameness, a status of the technologies used for monitoring lameness and cow activity, paying attention in particular to the research presented at the First DairyCare Conference. Furthermore, this presentation will touch on the problem regarding the lack of a gold standard for lameness detection. Finally, it will suggest some future perspectives of monitoring cow lameness and activity.

Acknowledgements
This article is based upon work from COST Action FA1308 DairyCare, supported by COST (European Cooperation in Science and Technology, www.cost.eu). COST is a funding agency for research and innovation networks. COST Actions help connect research initiatives across Europe and enable scientists to grow their ideas by sharing them with their peers. This boosts their research, career and innovation.