

Use of routinely collected herd data to classify dairy herds for claw health associated welfare

Henriëtte Brouwer¹, Thomas Dijkstra¹, Heleen Worm¹, Yvonne Van Der Vorst² and Gerdien Van Schaik¹

¹GD Animal Health, the Netherlands, ²Friesland Campina, the Netherlands;

h.brouwer@gdanimalhealth.com

Claw health is an important indicator for dairy cattle welfare. The claw health status of a herd can be assessed by clinical observation of individual cows, which is time consuming and a challenge to obtain uniformity between observers. The objective of the study was to develop an empirical model on routinely collected herd data that could classify herds with a below or above average claw health. Two hundred dairy herds were visited to determine the proportion of lame cows, cows with visible hock or knee lesions and an overall grade for claw health. Routinely collected herd data were converted into cattle health parameters. Principal component analysis was used to combine claw health parameters into an observed claw health score. The dataset was randomly divided in a test group of 150 herds to develop a predictive model and a group of 50 herds for validation. Multivariable linear regression with a backward elimination procedure was carried out on routine herd data of the test group to find the best predictive model for the observed claw health score. With the final predictive model, the claw health status of the 50 validation herds was estimated. Herds were classified as below or above average for claw health. Agreement between the predicted relative to observed claw health score was obtained and sensitivity and specificity of the model were determined using the veterinary observations during the herd visits as golden standard. The final model explained 27% of the variance in the observed claw health score. The model correctly classified claw health for 72% of the validation herds with a sensitivity of 77% (95% CI 46-95%) and specificity of 76% (95% CI 57-90%). The study showed that routinely collected data can be used to classify herds for claw health, but was not sensitive enough to achieve multilevel classification.