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AUXILIARY TRAITS FOR LAMENESS IN AUSTRIAN FLECKVIEH COWS

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This study was part of the project D4Dairy, which aimed to investigate the potential of sensor data and other farm and cow-specific data for disease prediction and genetic improvement of metabolic, udder and claw health. The specific objective of this study was to estimate genetic parameters for lameness and potential auxiliary traits (e.g. claw position score, sensor data). Lameness was scored for each animal at each milk recording according to the scoring system of Sprecher et al. (1997) with 1 = normal, 2 = slightly lame, 3 = moderately lame, 4 = lame, and 5 = severely lame. Derived from visual assessment, the claw-position score was evaluated for each animal at each milk recording by visual scoring of the position of both hind-legs (angle formed by the line of interdigital space of each claw-pair) to the mid-line of the cow´s body (line along the vertebral column). The higher the heel height of the lateral claw, the higher is the score, and the higher is the presumed risk for development of a clinical lameness. Data from 32 farms equipped with sensors measuring activity, rumination and feeding time for each individual cow were available. Daily mean, median, and standard deviation (SD) were calculated for the sensor parameters. The frequency of lame cows was 11.6% (lameness score $\geq$ 3). The estimated heritability for lameness was 0.10. Heritability for claw-position score was 0.07, and the genetic correlation with lameness was 0.80. For sensor data, heritability was highest for feeding behaviour (0.11-0.44) followed by rumination (0.04-0.30) and activity (0.07-0.18). Low correlations were found between lameness and sensor derived traits, but further work is required before information from sensor data can be used.