

## **Analysis of relationship between claw disorders, metabolic status and milk yield.**

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The aim of the study was to evaluate the influence of fat to protein ratio (F/P ratio) as the indicator of metabolic status according to milk yield. 144 Holstein cows from 3 dairy farms between 2012 and 2016 were observed. In total 374 records of month milking were studied between 7 to 100 days in milk. Maximum 4 test-day records before functional claw trimming were observed. The average milk yield was  $38.44 \pm 9.45$  kg/day. Statistical analysis was performed by the SAS. The influence of F/P ratio to claw disorders (IDHE, DD, SU) was analysed with proc gml of SAS. The model included the fixed effect of herd, year of calving, calving season, number of lactation and the random effects of days in milk and F/P ratio. In risk of acidosis were 13.9 % of observations and 13.10 % in risk of ketosis. The effects of herd, parity, year and season of calving, days in milk and fat to protein ratio described the milk yield on 47.41 %. All the selected effects except the F/P ratio and calving season had highly significant influenced ( $P < 0.05$ ). According the subsequent functional claw trimming 29 cows were affected by IDHE, 9 cows by DD and 29 cows by SU. Observed cows in average produced  $38.44 \pm 9.45$ kg of milk. The average of F/P ratio was  $1.24 \pm 0.26$  and the average of days in milk was  $47.98 \pm 26.59$ . The models determined the presence of claw disorders from 10.72 % in case of DD resp. 23.05 % in case of IDHE. The model described the prevalence of by 16.09 %. The F/P ratio influenced significantly ( $P > 0.05$ ) the presence of IDHE by 17.10 % resp. SU by 25.07 %. It is possible to use the F/P ratio as the non-invasive method of prediction of metabolic disorders and to eliminate the negative effect on milk yield and presence of the claw disorders. Individual signals could be observed when analysing whole genome data associated with economically important traits as immunity and adaptation.

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