

INFLUENCE OF DIGITAL DERMATITIS AND SOLE ULCER ON DAIRY COW BEHAVIOUR AND MILK COMPOSITION

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ABSTRACT

The aim of this study was to investigate whether digital dermatitis (DD) and sole ulcer (SU) in high producing dairy cows were associated with behavioural changes, other health problems, milk production and milk composition. The study was carried out on a research dairy farm with about 300 milking cows of Swedish Red and Swedish Holstein breed. Lactating cows were kept in a cubicle system with scraped alleys and were mostly in their first and second lactation. Clinical examination of the claws of all cows was made at claw trimming. Cows scored for mild or medium degree of DD or SU were listed, and ten cows suffering from each claw disorder were selected for the study. For each diseased cow a paired healthy control cow was selected blocked on breed, age, parity and lactation stage. General clinical examination of each cow used in the study was performed before the first observation period started. A second clinical examination of the claws was performed between the second and third observation period. Behavioural observations were made on paired cows (one with DD or SU and one healthy cow) during four periods with the 0–1 sampling method. Control milking results were collected monthly from February to April and milk production records once per six days. For statistical analyses Generalised Linear Models (Proc GENMOD) in SAS Version 9.1 were used.

The study showed that cows with DD were lying significantly less than healthy cows during period one ($p < 0.05$) but not during the other periods. Cows with SU were lying down significantly less than healthy cows during the first period ($p < 0.01$). Cows with SU walked significantly more than healthy cows during period one ($p < 0.05$) and they walked significantly less than healthy cows during period three ($p < 0.001$). Healthy cows stood and ruminated significantly less during period one than cows with SU ($p < 0.05$) and DD ($p < 0.05$). During the second period healthy cows had a tendency to stand and ruminate less than cows with DD ($p = 0.0731$).

During the study cows with DD sent significantly less ($p < 0.05$) and cows with SU received significantly less social licking than healthy cows ($p < 0.01$). During the study cows with SU sent significantly less butting and pushing than healthy cows ($p < 0.01$) and also received significantly less butting and pushing ($p < 0.01$).

In period one and two cows with DD produced significantly less kg of energy corrected milk (ECM) than healthy cows ($p < 0.05$). They had a tendency to produce less ECM than healthy cows during the fourth period ($p = 0.0731$). Cows with SU had a tendency to produce less ECM than

healthy cows during the second period ($P=0.0561$). Cows with SU had a tendency to have higher milk fat percentage during the third period ($p=0.0954$). In period two and three cows with SU had significantly higher somatic cell count than healthy cows ($p<0.05$, $p<0.01$) and cows with DD had a tendency to have lower cell count than healthy cows in period four ($p=0.0543$).

It was concluded that DD and SU have an influence on behaviour and milk yield in high producing dairy cows. The study emphasizes the benefit of early detection and treatment of claw diseases as well as the importance of prevention measures in order to minimize the influence on behaviour and production.