

Relationship Among Locomotion Score of Dairy Cows and Their Feed Intake and Milk Production and Fertility

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The aim of this study was to investigate a relationship among the degree of dairy cows' locomotion score (LS) and their feed intake and milk production and fertility. The daily monitoring of the frequency and the time of feed intake, the amount of feed intake, live weight and milk yield was performed in the group of 30 dairy cows consisted of 23 Holstein cows and 7 cows of the Czech Fleckvieh breed. The locomotion score was evaluated once a week. Fertility traits (interval to the 1st service after calving and open days) were also evaluated. Average LS of cows was mostly affected by their parity. Cows with higher lactation number had more problems with walking (higher LS) the longer time of feed intake, less number of manger visits. The number of visits at the mangers and the time of feed intake decreased with the higher LS, but amount of consumed feed was not significantly affected by LS. Cows with higher LS had a longer interval to 1st service and produced more milk per lactation.

The periparturient management of dairy cows is aimed at stimulating them to intake as much feed as possible. The depressed feed intake and occurrence of negative energy balance after calving are the main causes of reproduction and health diseases (Mazumder and Kumagai, 2006, Motyčka et al., 2005). The feed intake is affected by many factors, both internal (breed, breeding value, milk yield, number of lactation, days in milk, body condition score, live weight and health condition) and external factors (first of all nutrition and management of keeping and housing – size, structure and stability of groups, concentration of animals, feed pushing frequency, impact of heat stress, etc.). González et al. (2008) found that the acute locomotion disease caused the decreasing of daily feed intake (1.57 kg), shortening the time spent at manger (19 min) and daily acceleration in feed intake (21,6 g/min). The degree locomotion, or the style or abnormality of walking, respectively, is being evaluated subjectively with the use of three point (Sprecher et al., 1997) of five point (Robinson, 2000) scale.

Material a Methods

The experiment was performed in the experimental stable equipped with automatic tensiometric mangers (Insentec, Marknesse, the Netherlands) which provide the accurate observation of feed intake. The group of 30 cows consisted of 23 Holstein and 7 Czech Fleckvieh cows calved in the period from July to September 2008. The frequency and time of feed intake, amount of ingested feed and milk production were recorded daily. The style of cows' walking – Locomotion Score (LS) was evaluated once a week by the same person with the use of five-point scale (Robinson, 2000), where 1 point means regular walking without problems and 5 means the cow walks “without one leg”. The live weight was measured twice a day at the automatic through scale at the parlour exit. Milk yield parameters in the whole lactation and fertility traits such as an interval to the 1st service after calving and open days period were taken from Milk and AI official recording. The data were evaluated using of SAS GLM and CORR procedures. The linear model with fixed effects of a breed, parity and days in milk was used for ANOVA of recorded data and the effect of LS was evaluated by a model with fixed effect of a breed, parity, and average LS.

Results

The breed of cows had a significant effect on daily milk yield or milk production in 100 and 305 days lactation, and on cows' live weight. The parity of cows affected number of manger visits, time of feed intake and average locomotion score. The older cows visited manger more frequently, spent less time for feed intake, and had more problems with walking. The number of lactations had no effect on a daily feed intake. The number of visits at the mangers and the time of a feed intake decreased with the higher LS, but amount of consumed feed was not significantly affected by LS. Cows with higher LS had a longer interval to 1st service and produced more milk per lactation.

Conclusion

The locomotion score didn't affect the feed intake. However there are depressed the frequency of manger visits and the time spent there in limping cows. There can be concluded that the older cows with more severe walking problems have the shorter time of feed intake. Therefore it is more suitable to provide enough of space at manger for these cows and keep the ratio of cows' number and manger places' number up to 1:1.

References

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