

P. Gregoritsch, A. Steinwider, J. Gasteiner, L. Podstatzky and W. Zollitsch (2018): **Assessment of energy supply of dairy cows in early lactation via indicators measured in blood and milk and their relationship with reproductive performance** (in German). Züchtungskunde, 90, (5), 331-352.

Summary

In early lactation, the energy requirement of the dairy cow often cannot be covered due to a limited feed intake. The resulting energy deficit can have a negative influence on the health and fertility of the cow. The energy balance can be calculated directly from energy requirement and energy intake, but the collection of the necessary information is challenging under on-farm conditions. Alternatively, the energy balance can also be predicted from blood and milk variables. The result of this research should answer the question, whether the content of β -hydroxy-butyric acid (BHB) and non-esterified fatty acids from blood samples collected at certain points in the lactation phase can describe the energy balance better than average weekly milk variables, i.e. fat content, protein content and fat to protein ratio (FEQ). The aim of this study was also to characterize the effects of the number of lactation and the BCS at calving on these variables and, furthermore, the effects of energy balance, blood variables and milk solids contents on the fertility of the dairy cow. A dataset was compiled from four studies, consisting of 240 lactations from 138 dairy cows, and statistically analysed. The results showed that the milk variables had stronger relations with the measured energy balance data than the blood variables. The number of lactations had an influence on the milk protein content and the BCS at calving showed significant effects on the BHB and the milk fat contents. Cows with a more positive energy balance showed better reproductive performance. In conclusion, the observation of the milk variables will help to estimate the energy balance, but it is also important to consider other effects such as BCS at calving and lactation number. The results of this research also emphasize the importance of a monitoring of the energy balance, as an energy deficit leads to a decline in reproductive performance.

Keywords: early lactation, energy balance, milk variables, β -hydroxy-butyric acid, non-esterified fatty acids, reproduction

Zitat (Deutsch):

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