

## **Long-term measurement of rumen pH in dairy cows by an indwelling and wireless data transmitting unit**

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Subacute rumen acidosis (SARA) is a significant production disease of dairy cattle. The objective of this study was the continuous and long term measurement of the ruminal pH in high yielding dairy cows under practical conditions. Therefore, an indwelling system for monitoring ruminal pH and temperature, already described and evaluated by Gasteiner et al. (2009), *Veterinary Medicine Austria* 96, 188-194, was applied on 4 dairy farms. Data were collected in an internal memory chip and sent via radio transmission to an external receiver. The indwelling system was orally given to 16 dairy cows out of 4 herds. Ruminal pH was measured every 600 sec over a period of 80 days starting 7 d prior to calving date. Daily mean, nadir and time ruminal pH below 6.3; 6.0; 5.8 and 5.5 were calculated. Milk production, feeding conditions and ration composition in terms of roughage and concentrate sources were determined and nutrient components were known. Statistical analysis was conducted using GLM (Statgraphic Plus 5.1).

Radio transmission of data (twice daily) was functioning without any difficulties. Mean ruminal pH for all cows in all herds was 6.6, ranging from pH 6.7 during dry period to pH 6.1 on day 80 of lactation. A significant decline of ruminal pH was seen immediately after parturition, explainable by an increasing dry matter intake, and a second decline occurred 25 to 30 days postpartum due to the increasing amount of fed concentrates. There was also a significant relationship between roughage composition (ratio grass silage : corn silage ranging from 30:60 to 60:30) and ruminal acid-base status. Ruminal pH continuously decreased from pH 6.8 to pH 6.4 with an increasing percentage of corn silage in the ration.

Results were significantly influenced by the ration composition, by the day of lactation and by the milk yield, and show that the presented method is a very useful and proper tool for both scientific and practical applications.