

## Impact of Dietary Rumen Protected Choline on Transition Dairy Cows' Productive Performance

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**Abstract :** The effects of a dietary supplement of rumen-protected choline on feed intake, milk yield, milk composition and some blood metabolites were evaluated in transition dairy cows. Forty multiparous cows were blocked into 20 pairs and then randomly allocated to either one of 2 treatments. The treatments were supplementation either with or without (control) rumen-protected choline. Treatments were applied from 2 weeks before and until 8 weeks after calving. Both groups received the same basal diet as total mixed ration. Additionally, 50 g of a rumen-protected choline supplement (25% rumen protected choline chloride) was added individually in the feed. Individual feed intake, milk yield, and body weight were recorded daily. Milk samples were analyzed weekly for fat, protein, and lactose content. Blood was sampled at week 2 before calving, d 1, d 4, d 7, d 10, week 2, week 3, and week 8 after calving. Glucose, triglycerids, nonesterified fatty acids, and  $\beta$ -hydroxybutyric acid in blood were analysed. The results revealed that choline supplementation increased DM intake from 16.5 to 18.0 kg/d and, hence, net energy intake from 99.2 to 120.5 MJ/d at the intercept of the lactation curve at 1 day in milk. Choline supplementation had no effect on milk yield, milk fat yield, or lactose yield. Milk protein yield was increased from 1.11 to 1.22 kg/d at the intercept of the lactation curve. Choline supplementation was associated with decreased milk fat concentration at the intercept of the lactation curve at 1 day in milking, but the effect of choline on milk fat concentration gradually decreased as lactation progressed. Choline supplementation decreased the concentration of blood triglycerids during the first 4 wk after parturition. Choline supplementation had no effect on energy-corrected milk yield, energy balance, body weight and body condition score. Results from this study suggest that fat metabolism in periparturient dairy cows is improved by choline supplementation during the transition period and this may potentially decrease the risk for metabolic disorders in the periparturient dairy cow.

**Keywords :** choline, dairy cattle, transition cow, triglycerids

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