

# Short Dry Period Management to Improve Feed Efficiency in Early Lactation

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Conventional dry period management (60 to 65 d) requires frequent ration changes over a short period of time. Cows go from an end of lactation diet to a dry-off diet (mostly based on dry hay) until 21 d before calving, are then transferred to the pre-calving ration until parturition, when they are fed the early lactation diet (high energy and protein). It is known that ruminal adaptation to a new diet takes 3 to 4 weeks. A short dry period management (35 d) would reduce the number and intensity of dietary changes and could therefore improve ruminal adaptation. The objective of the present study was to compare the effects of two dry period management practices (65 vs. 35 d dry) on intake, ruminal fermentation and energy balance from 65 d pre- to 60 d post-calving. Twelve Holstein cows were blocked according to parity, previous milk production and calving date. They were randomly assigned to either a conventional (**CDP**: 63.2 ± 2.0 d) or a short (**SDP**: 35.2 ± 2.0 d) dry period management. CDP cows were fed a dry-off diet until 28 d before calving, followed by a pre-calving diet until parturition. SDP cows received the pre-calving diet for the whole duration of their dry period. After calving, both groups were fed the same lactation diet. During the pre-calving weeks, dry period management had no effect on DMI, plasma non-esterified fatty acids (**NEFA**), beta-hydroxybutyrate (**BHBA**) and glucose, ruminal pH and ruminal concentrations of total volatile fatty acids (**VFA**). After calving, DMI was higher for SDP cows during the first 21 d of lactation (19.6 vs. 16.9 ± 0.9 kg/d), as well as total VFA concentration. There was no treatment effect on ruminal pH, plasma glucose and urea, milk production (SDP=38.9; CDP=37.7 ± 1.49 kg/d) and component yields. Milk fat content was lower in SDP cows (3.40 vs. 3.79 ± 0.12%). Plasma NEFA and BHBA concentrations were both lower in SDP than CDP cows, suggesting lower mobilization rate of body reserves. The decrease in milk fat content and plasma NEFA and BHBA concentrations in cows managed with a short dry period without effect on milk yield suggest a better energy balance, likely due to the increased DMI.

**Implications:** Present results suggest that reducing the stress associated with dietary changes during the dry period could facilitate ruminal adaptation and improve energy balance in early lactation.