

Nutritional management of transition cows to reduce inflammation and increase fibre digestibility

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The transition from gestation to lactation is a stressful period for the dairy cow, and it is important to help the cow fulfill her energy needs by providing a diet that can reduce inflammation and can be utilized efficiently. Therefore, the objective of this study was to measure the acute phase protein response and total tract nutrient digestibility for cows fed fresh diets differing in starch content with or without a *Saccharomyces cerevisiae* fermentation product (SCFP, NutriTek®, Diamond V Mills Inc., Cedar Rapids, IA). One hundred and seventeen Holstein cows were enrolled in the experiment 28 d before expected calving date and assigned to a controlled energy close up diet with 13% starch and 29% barley straw with or without SCFP. After calving, cows were fed high or low starch diet (27 vs. 21%) with SCFP or without SCFP. A subset of 38 cows was used to measure inflammation response and digestibility of diets. Haptoglobin is an acute phase protein, and its increase in serum means inflammation and immune system activation has occurred. Cows fed SCFP had lower serum haptoglobin concentration on d 7 after calving (0.26 vs. 0.62 g/L, $P = 0.03$), indicating that feeding SCFP decreased post-partum inflammation. Digestibility was determined week 1 and week 3 after calving. On week 1, cows fed low starch diets increased NDF digestibility (40.7 vs. 35.3%, $P = 0.01$). On week 3, there was a tendency for multiparous cows fed low starch diets to have greater NDF digestibility (40.6 vs. 35.8%, $P = 0.08$) but there was no treatment effect on primiparous cows ($P = 0.54$).

Implications: Feeding a low starch diet after calving may increase fibre digestibility, and SCFP supplementation may reduce inflammation in the early fresh period.