

Effects of Supplemental Dietary Starch on Productivity and Reproductive Performance in Postpartum Dairy Cows

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The early lactation dairy cow typically is in negative energy balance for several weeks after calving. This energy deficit is associated with an increased incidence of metabolic disorders and depression in reproductive performance. Increasing the energy density of the diet is one method of reducing the extent of negative energy balance. We hypothesized that supplementing the diet with purified starch would supply the cow with more available energy which might then be used to support milk production and improve reproductive function.

One of three diets was fed to lactating Holstein cows (13 per diet) from calving until 70 days in milk to evaluate the effects of forage type and supplemental starch. Two of the diets contained 45% concentrate, either 45% barley silage or alfalfa silage, and 10% alfalfa hay. The third diet contained 45% concentrate, 41% barley silage, 10% alfalfa hay, and 4% corn starch.

Supplemental dietary starch had no effect on milk yield, dry matter intake or energy balance, however, starch-fed cows gained weight more rapidly than cows fed the other two diets. Milk lactose content was about 4% lower in cows fed high starch while milk urea nitrogen was approximately 21% higher in cows fed the barley silage diet without supplemental starch, relative to the other diets. Cows fed the high starch diet resumed reproductive cycles 13 days faster than those fed the alfalfa diet, however, pregnancy to first service (overall average of 36%) did not differ among the three dietary treatments.

Take Home Message: Dietary supplementation of starch in early lactation increased body weight and reduced the interval from calving to first ovulation without affecting milk production or energy balance.