

## Effect of different levels of non-fiber carbohydrate and particle size on intake, digestibility, chewing activity and performance of Holstein dairy cow

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Abstract

Eight primiparous lactating dairy cows were used in a feeding study to assess effects of different levels of Non-Fiber Carbohydrate (NFC) and Particle Size (PS) on production, ruminal, and plasma measures of Holstein dairy cattle in cross over design with 14 days preliminary period and four 21 days treatment periods. Samples and data were collected in the last 7 days of each period. Feed sources that differed in NFC profile were ground corn (higher NFC), ground barley (lower NFC). Dietary particle size was altered by two size of alfalfa hay coarse and chopped. Reduction of particle size increased DMI, OM, Ash, daily NDF intake (kg), but decreased the proportion of physically effective factor and physically effective NDF in the ingested rations.

Digestibility of ether extract and NDF affected with NFC reduction and coarse particle size respectively. Blood urea and BUN affected with PS and cows fed the low NFC diet tended to LDL. Increasing was fed coarse alfalfa hay increase rumen pH. Chewing activity increase with coarse Alfalfa hay and tended to decrease with high NFC. Cows consuming high NFC had the highest milk yield, FCM, milk fat, protein, lactose and solid non-fat yield per kilogram. Milk protein percentage, tended to significant, but milk fat percentage, solid non-fat yield per kilogram did not differ across treatments.

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This work is previously presented on

3rd International Conference and Exhibition on Obesity & Weight  
Management

Volume 9 • Issue 3