



#### EFFECT OF REDUCING PARTICLE SIZE OF LUCERNE HAY ON PHYSICAL AND CHEMICAL COMPOSITION, PHYSICALLY EFFECTIVE FIBER AND PERFORMANCE OF HOLSTEIN DAIRY COWS

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In a change over design 8 Holstein cows averaging 539 kg BW and 28 DIM were assigned to 4 dietary treatments in 4 periods of 15 days. Diets were similar in energy content and chemical composition. Four particle sizes of 5, 10, 15 and 20 mm were prepared by using an experimental fodder chopper and the standard ASAE sieves. The geometric mean length of lucerne hay decreased with particle size reduction. Physically effective factor (pef) of lucerne hay decreased significantly in accordance with decreasing the particle size. DM and NDF intakes were not affected by the particle size reduction. Dry matter digestibility decreased significantly with reduction in particle size. The time spent eating and rumination was not influenced by the applied treatments. Daily milk production and composition were similar for all treatments. It was concluded that although the particle size of diet influences pef, other factors might be investigated practically in further studies.

Keywords: Particle size, Lucerne hay, Effective fiber, Lactating cows

#### THE EFFECT OF REDUCING PARTICLE SIZES OF ALFALFA HAY AND BARLEY GRAIN ON CHEWING ACTIVITIES, DRY MATTER INTAKE AND MILK PRODUCTION IN DAIRY COW

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Eight Holstein dairy cows in early lactation were assigned to 4 treatments in a completely randomized design with the factorial arrangement of 2x2. Two particle sizes of 20 and 5 mm for alfalfa hay and 1.5 and 2.5 for barley grain were used. All cows were fed by a TMR diet containing 1.55 Mcal Nel/kgDM and 16.65% CP. The dry matter intake was reduced following reduction in alfalfa hay particle sizes but the effect of barley grain particle size was not significant. Milk production by the experimental cows was not affected by the applied treatments. Time spent eating and rumination was reduced following the reduction in particle sizes. Milk fat percentage and yield reduced following the reduction in particle sizes but, the protein yield and percentage showed a reverse direction. NDF and ADF apparent digestibility reduced by lowering the particle sizes. However the NFC digestibility was increased by using the finer particle sizes.

Keywords: Particle size, Holstein dairy cow