

P88 Forage NDF source effects on milk production in mid-lactation Holstein cows. J.S. Jonker*, D.G. Fox, D.J.R. Cherney, J.H. Cherney, and L.E. Chase, Cornell University, Ithaca, NY.

Grass forages have typically been underutilized in dairy rations. Our objective was to determine if grass based dairy rations could give similar production results as alfalfa based rations. Twelve mature Holstein cows in mid-lactation were used to study the effects of forage NDF source on milk production and composition. Twelve cows were randomly assigned in a 3 x 3 Latin square design, replicated four times, to one of three diets. Each diet provided NDF equal to 0.95 % of BW from the forage, and was balanced for NE_L (1.65 Mcal/kg) and CP (16.96 %) with corn meal and soybean meal. The forages studied were early bloom alfalfa (NDF = 43.3 %), early bloom orchard grass (NDF = 54.3 %), and late bloom orchard grass (NDF = 66.5%). A one week data collection period was preceded by a two week adjustment period for each cycle. Cows were milked twice daily with milk weights recorded at each milking. Daily milkfat, protein, and milk urea nitrogen (MUN) were composited for the collection week and analyzed by the Northeast Dairy Herd Improvement Association Milk Laboratory. Milk production was highest for the late bloom orchard grass diet (32.6 ± 3.2 kg/d), followed by the early bloom orchard grass diet (30.1 ± 5.5 kg/d), then the early bloom alfalfa diet (29.2 ± 4.8 kg/d). Forage to concentrate ratio was highest in the late bloom orchard grass diet. The late bloom orchard grass diet tended to have lower milkfat composition (3.06 ± 0.22 %) than the alfalfa diet (3.16 ± 0.43 %). Milk protein composition did not vary across diets (3.07 ± 0.20 %). Treatments did not vary also in MUN ($16.3 + 2.7$ mg %). Orchard grass based dairy rations can give similar milk production results compared to alfalfa based dairy rations when feeding the same quantity of NDF from forage.

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2 Dry matter intake and nitrogen balance in mid-lactation Holstein cows as influenced by forage NDF source. J. S. Jonker*, D. G. Fox, D. J. R. Cherney, J. H. Cherney, and L. E. Chase, Cornell University, Ithaca, NY.

Our objective was to determine if lactating dairy cows consuming grass based dairy rations would have similar DMI and N balance as cows consuming alfalfa based rations. Twelve cows were randomly assigned in a 3 x 3 Latin square design, replicated four times, to one of three diets. Nine cows were used for the N balance study. Each diet was formulated to provide forage NDF equal to 0.95 % of BW, and was balanced for NE_L (1.65 Mcal/kg) and CP (17.0%) with corn meal and soybean meal. Forages studied were early bloom alfalfa (NDF=43.3%), early bloom orchard grass (NDF=54.3%), and late bloom orchard grass (NDF=66.5%). A two week adjustment period was followed by a one week collection period for each cycle. Diets were fed as a TMR to cows *ad libitum*. Daily feed intake and refusals were sampled and recorded. The N balance was determined with the following equation: consumed N - (milk N + feces N + urine N) = N balance (g/d). The DMI was highest for the late grass diet (24.4 ± 1.9 kg/d) and lowest for the early grass diet (21.9 ± 2.4 kg/d). The DMI was higher for both the alfalfa diet ($P < 0.05$) and the late grass diet ($P < 0.01$) compared to the early grass diet. Dry matter intake as a percent of BW was highest for the late grass diet ($4.07 \pm 43\%$) and was higher than the early grass diet ($P < 0.05$). Treatments did not vary in NDF intake as a percentage of BW. Consumed N was highest for the late grass diet and lowest for the early grass diet. Urine N was highest for the late grass diet ($P < 0.01$) compared to other diets. Milk N was highest for the late grass diet ($P < 0.01$) compared to other diets. Higher consumed N resulted in higher milk N and urine N, but did not effect overall N balance. Both feces N and N balance were unresponsive to diet treatment. Orchard grass based dairy rations can give similar intake and N balance results compared to alfalfa based dairy rations when feeding the same quantity of NDF from forage.

Key Words: Grass, NDF, Digestibility

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