intake (DMI), organic matter (OM) intake and neutral detergent fiber (NDF) intake did not differ (P>0.05) among the diets. Higher intake of ether extract (EE) (P<0.05) was found for the corn silage based diet compared to the sugar–cane based diets. There was detected difference in the total carbohydrate (CHO) intake and in the non–fiber carbohydrate (NFC) intake between the corn silage diet and the sugar–cane based diets supplemented with 1.3 and 2 kg of concentrate. The heifers fed the sugar–cane diet supplemented with 2.0 kg of concentrate had the lowest TDN intake (2.89 kg/d) whereas the animals fed the corn silage diet had the highest (3.62 kg of TDN/d). Dry matter, organic matter and non–fiber carbohydrates digestibilities were not different (P>0.05) among diets. The digestibility of the crude protein (CP) of the corn silage diet was lower (P<0.05) than the CP digestibility of the three sugar–cane based diets (62.93 vs 75.10 %). No significant difference was detected (P>0.05) for total weight gain (TWG, kg) and average daily gain (ADG, kg/d) between the corn silage based diet and the sugar–cane diet supplemented with 2.7 kg of concentrate, with mean values of 71.22 kg and 0.847 kg/d. The other two sugar–cane based diets provided the lowest ADG (0.629 kg/d). Rumen pH, measured at 0 and 3 hours after feeding, did not differ (P>0.05) among the experimental diets. N-NH_3 , measured three hours after feeding, was lower (P<0.05) for the animals fed corn silage based diet compared to those fed sugar–cane based diets.

Key Words: Dairy Heifers, Rumen, Sugar-Cane

W291 Use of NutriDense corn variety for corn and corn silage in diets fed to high producing dairy cows. J. Sampson and J. Spain*, *University of Missouri*, *Columbia*.

This study evaluated a hybrid corn variety for corn silage and corn grain fed to high producing dairy cattle. Sixty-three lactating Holsteins were paired based on parity, stage of lactation, milk production, and body weight and randomly assigned to one of three dietary treatments. Control (CC) cows received total mixed ration (TMR) containing control corn silage (CS) and control corn grain. Group NDC received TMR containing NutriDense (ND) CS and control corn grain. Group NDND received TMR containing ND CS and ND corn grain. All three dietary treatments were formulated to meet NRC requirements for a 636 kg cow producing 41 kg milk/day containing 3.75% fat. Cows were fed twice daily with weights and feed refusals recorded. Cows were fed using electronic feeding gates (Calan Gates, American Calan, Inc.). Cows were fed assigned diets for 50d. Cows were milked twice a day and milk samples were taken weekly and submitted to DHIA to measure fat, protein, MUN and SCC. Body weights and condition scores were measured and recorded weekly. Blood samples were collected weekly to measure plasma glucose and urea nitrogen (PUN). A second experiment was conducted to evaluate ruminal fermentation of dietary treatments. Diets were subjected to digestion using standard in situ and in vitro techniques. Data collected were ruminal pH, optical density, and NH3-N concentrations as well as dry matter and nitrogen disappearance. Data were analyzed by Proc Mixed procedures of SAS. Average daily DMI was different (P=0.05; 22.03, 21.02, and 20.22 kg for CC, NDC, and NDND, respectively). FCM, milk fat, protein and SCC were not different (P=0.36, P=0.70, P=0.26, P=0.40, respectively). MUN and PUN were different by treatment (P=0.01, P<0.05, respectively) and by treatment over time (P=0.1, P<0.05, respectively). In situ N disappearance was also different due to treatment (P=0.0383), with higher values for NDND than CC or NDC (73.3%, 71.4%, and 71.9%, respectively). Ruminal NH3 concentrations were higher (P=0.02) for NDND than CC or NDC with values of 6.6, 5.9, and 6.2, respectively. Milk production efficiency was improved by ND hybrid.

Key Words: Corn Silage, Hybrid, Milk Production Efficiency

W292 Comparative effects of wild-type, *bmr*-6, *bmr*-12 and stacked sorghum: Sorghum stover digestibility. H. M. Dann*[1], A. M. DiCerbo[1], J. F. Pedersen[2], and R. J. Grant[1], [1]*William H. Miner Agricultural Research Institute*, *Chazy, NY*, [2]*USDA, ARS, NPA Wheat, Sorghum and Forage Research, University of Nebraska*, *Lincoln*.

Samples of wild-type 'Atlas' and its brown midrib near-isolines containing *bmr*-6, *bmr*-12, and stacked *bmr*-6 and *bmr*-12 genes were used to assess the effect of *bmr* mutations on in situ digestion kinetics of sorghum stover. Forage sorghum was grown in 2004 at Mead, Nebraska. Panicles were removed from sorghum before harvest. Wild-type, *bmr*-6, *bmr*-12, and stacked sorghum stovers had a neutral detergent fiber (NDF) content of 52.7, 53.1, 50.9, and 53.9%, respectively and a lignin content of 5.3, 3.8, 3.6, and 3.6%, respectively. Ruminal in situ digestion kinetics of dry matter (DM) and NDF of sorghum stover were determined with 4 ruminally cannulated multiparous lactating Holstein cows used in a 4×4 Latin square design. Samples of sorghum stover were incubated in N-free polyester in situ bags (5 g sample/bag) for 0, 6, 12, 24, 48, and 96 h and removed simultaneously at 0 h. Residues were analyzed for DM and NDF with residual ash (using α-amylase and without sodium sulfite). Digestion kinetics [lag, fractional rate of digestion (k_d), and potential extent of digestion (PED)] for DM and NDF were calculated. Data were analyzed by ANOVA. Dry matter lag (2.0 h), DM k_d (0.036 h_{-1}), NDF lag (2.8 h), and NDF k_d (0.036 h_{-1}) were similar ($P > 0.10$) among sorghum stovers. The PED of DM and NDF differed ($P < 0.05$) among sorghum stovers. The PED of DM was 52.1, 55.6, 64.3, and 73.2% and the PED of NDF was 53.1, 54.7, 65.3, and 74.1% for wild-type, *bmr*-6, *bmr*-12, and stacked sorghum stovers, respectively. Digestibility of NDF (% of NDF) was higher for stacked than wild-type sorghum stover at 24 h ($P < 0.10$; 49.0 vs. 39.1%) and 48 h ($P < 0.05$; 65.0 vs. 52.8%). In summary, there was more digestible DM and NDF in *bmr*-6, *bmr*-12, and stacked sorghum stovers than wild-type sorghum stover. The stacked *bmr*-6 and *bmr*-12 mutations had the greatest positive impact on digestibility.

Key Words: Sorghum, *bmr*, Digestibility

W293 Impact of the brown midrib (BMR) mutant gene on the nutritive value of sudangrass fed as forage to lactating dairy cows. D. N. Ledgerwood*, E. J. DePeters, P. H. Robinson, S. J. Taylor, and J. M. Heguy, *University of California*, *Davis*.

The BMR gene causes changes in lignin concentration and composition that have been demonstrated to increase fiber digestion in ruminants. Our objective was to assess potential benefits of the BMR mutant of Sudangrass, compared to the Piper variety, on production performance and digestibility in lactating dairy cows. The total mixed rations (TMR) contained 18% shredded Sudangrass hay, 18% sliced alfalfa hay with the remaining 64% representing the concentrate portion. The proportion of Piper to BMR in the TMR was varied as: 100:0, 66:34,