

**W186 Digestibility of fresh sugarcane-based diets with slow-release non protein nitrogen addition for limit-fed dairy heifers in the tropics.** G. J. Lascano\*<sup>1</sup>, M. Velez<sup>2</sup>, J. M. Tricarico<sup>3</sup>, and A. J. Heinrichs<sup>1</sup>, <sup>1</sup>The Pennsylvania State University, University Park, <sup>2</sup>Zamorano University, El Zamorano, Honduras, <sup>3</sup>Alltech Inc., Nicholasville, KY.

Sugarcane presents interesting characteristics for feeding ruminants in the tropics, such as perennial growth, reduced harvesting requirements, and peak yield and nutritive value that coincide with dry periods when forage is scarce. An experiment was conducted to determine the effect of replacing soybean protein (SBM) with non-protein N in limit-fed dairy heifers in the tropics. Eight Holstein heifers (237.6 ± 5.45 kg BW) were allocated to 2 dietary treatments in a cross over design. Treatments were control (C; 23% SBM) and O (Optigen, fed at 3% of DMI; Alltech Inc.). The forage to concentrate ratio was 50:50 (DM-basis) and fresh chopped sugarcane the sole source of forage. Each experimental period (2) lasted 15 d with 4 d of total feces and urine collection. Diets provided similar intakes of ME, allowed for 800 g/d of ADG, and chemical composition was held constant across all diets. Data were analyzed using a mixed-effects model with repeated measures. Compared to O, diet C tended to have greater total tract apparent digestibility (TAD) of DM (71.2 vs. 68.6 ± 0.63%; *P* = 0.06) and ash (47.4 vs 38.3 ± 3.81%; *P* = 0.08). Total tract apparent digestibility values in C-fed were greater than in O-fed heifers for OM (73.9 vs. 71.3 ± 0.64%; *P* < 0.01), CP (76.9 vs. 75.2 ± 0.72%; *P* = 0.04), hemicellulose (50.5 vs. 43.3 ± 1.89%; *P* < 0.01), and starch (98.6 vs. 97.2 ± 0.48%; *P* = 0.03). However, TAD of NDF was similar (44.9 ± 1.93%; *P* = 0.26) and TAD of ADF was lower (*P* = 0.03) in C (27.7 ± 2.15%) than in O heifers (33.3 ± 2.15%). Excretion of urine, wet and dry feces, and water intake were similar between treatments. Retained N was similar between treatments (65.5 ± 3.53%; *P* = 0.47), and thus no differences were found in N dynamics. We conclude that when O replaced SBM it tended to decrease DM and decreased OM, CP, hemicellulose, and starch TAD, but did not affect NDF and increased TAD of ADF. Even though control diets were more digestible overall, individual nutrient digestibility was not greatly affected, suggesting that replacing SBM with slow-release non-protein N is possible in sugarcane-based diets in the tropics.

**Key Words:** sugarcane, tropics, limit-feeding, dairy heifer