Impact of increasing grass hay inclusion level on weaned dairy calf growth and metabolism.

L. K. Mitchell* and A. J. Heinrichs, Pennsylvania State University, University Park, PA.

The objective was to determine effects of increasing grass hay (GH) inclusion level on weaned dairy calf growth and metabolism. Holstein calves (n = 45) were randomly assigned to 1 of 3 total mixed rations (TMR) with increasing GH (10%, 17.5%, or 25% on a dry matter (DM) basis; LGH, MGH, or HGH respectively). Calves were weaned at 6 wk of age, housed individually, and studied from 7 to 16 wk of age. Rations, consisting of texturized calf starter (20% crude protein) and chopped GH, were offered ad libitum as separate components from 7 to 9 wk of age. After 9 wk, feed was offered ad libitum as a TMR containing the assigned level of GH. Initial 9-wk body weight (BW) was 81.6 ± 9 kg. Intake and growth were measured weekly. Blood samples were collected at 9, 10, 12, 14, and 16 wk of age. Total fecal collection (12 calves) was conducted for 4 d at 11 and 15 wk of age. Feeds and feces were evaluated for DM, neutral detergent fiber, acid detergent fiber, and starch to estimate total-tract digestibility. The statistical model included initial 9-wk BW as a covariate, fixed effect of TMR, random effects of calf, week of study, and sex, and repeated effects of age. Linear and quadratic responses were tested using orthogonal polynomial contrasts. Final BW decreased linearly with increased GH (P < 0.01), but frame measurements did not vary between groups. Intake and weight gain were analyzed from 7 to 9 wk and 9 to 16 wk, representing pretreatment and treatment periods. There were no differences between groups from 7 to 9 wk. However, differences were found from 9 to 16 wk. Average daily gain, DM intake, and metabolizable energy intake all decreased linearly with increased GH (P < 0.01). Plasma β-hydroxybutyrate tended to decrease with increased GH (P = 0.07). There were no differences in DM or starch digestibility, but neutral detergent fiber and acid detergent fiber digestibility increased linearly with increased GH (P < 0.01 and P = 0.06 respectively). Levels of GH > 10% may reduce intake and growth before 16 wk.

Key Words: digestibility, grass hay inclusion, weaned calf

Effects of YANG (multi-strain yeast) supplementation on health and performance in male Holstein calves.

D. Cavallini*, M. Pollesel1, M. Gauthier2, and M. Tassinari1, 1DIMEVET, Dipartimento di Scienze Mediche Veterinarie, Università di Bologna, Bologna, Italy, 2Lallemand SAS, Blagnac, France.

The objective of this study was investigate the effects of a multi-strain yeast (Saccharomyces cerevisiae and Cyberlindnera jadinii) fraction product, YANG, on the health and performance of young male dairy calves (17 ± 3d). At a commercial farm, 158 veal calves were enrolled and divided in 2 groups: a control group (CTR) 57 animals (no supplementation) and a treated one (TRT) 101 animals (YANG supplementation), both balanced for live weight. TRT received YANG through the milk replacer: 5g/h/d during the first 30d, then 3g/h/d until d90. From d90 to 190 (slaughter) the diet was the same for both groups. For all animals, individual carcass weights, mortality and morbidity (veterinary treatments) were collected. Blood parameters (Hg, RDW, MCV; d30, 73, 115, 150) and electrophoresis for blood protein characterization (d47, 118) were analyzed in 23 randomly selected animals (12 CTR and 11 TRT). On sampled animals, body weights were measured (d0, 47, 82). No differences were observed on carcass weights at slaughter and carcass classification between the 2 groups. However, sampled animals’ ADG was affected. ADG from d0 to 47 and 47 to 82 was 263g/d and 321g/d higher, in TRT than in CTR (0.47kg/d, P = 0.01; 1.01kg/d, P < 0.01 respectively). No difference was observed in mortality; however, health of calves was improved. Morbidity was reduced from 56% in CTR to 38% in TRT (P = 0.02), with a reduction of number of chronic animals (≥2 treatments per animal) by 50% (P = 0.03). Numerically, the reduction of veterinary treatments was mainly due to reduction of enteric treatments in TRT (~25.6%). TRT animals showed higher content of total proteins (P < 0.01), with higher percentage of γ-globulins (P < 0.01) and higher percentage of α1-globulins (P < 0.01). These analyses are in favor of a better activated immune system of veal calves in TRT. No differences were observed on RDW and MCV. No differences in Hg average concentration, but more homogeneity in TRT. This study demonstrates that the health of veal calves was improved during their whole lifecycle with the addition of YANG in the milk replacer during the first 90d. These results are in line with reduction in use of antimicrobial treatments in farms.