156 Phosphorus and other nutrient disappearance from plants containing condensed tannins using the mobile nylon bag technique. S. Pagán-Riestra*[1,2], J. P. Muir[1,2], B. D. Lambert[2], L. O. Tedeschi[1], and L. Redmon[3], [1]*Texas A&M University, College Station*, [2]*Texas AgriLife Research, Stephenville, TX*, [3]*Texas AgriLife Extension, College Station, TX*.

A study was designed to evaluate the nutrient disappearance from three Texas browse species containing condensed tannins (CT; *Acacia angustissima* var. *hirta*, *Desmodium paniculatum*, *Smilax bona-nox*, and *Medicago sativa* as control) using the mobile nylon bag technique. Two ruminally or duodenally cannulated steers were fed a basal diet of *Sorghum bicolor* × *S. sudanense* hay. Sixty nylon bags per plant material were incubated in the rumen (24hrs), pepsin/HCl, and duodenum. Twenty bags per plant material were selected to determine the nutrient disappearance at specific incubation sites. The proportion of nutrient that disappeared during rumen, pepsin/HCl, or duodenum incubation differed among plant species and nutrient evaluated (P<0.05) and did not appear to be directly related to relative CT concentrations. *Medicago sativa* had greater nutrient disappearance (P<0.05) for all the nutrients evaluated in every incubation site. Dry matter (DM), inorganic matter (IM), and organic matter (OM) disappearance was greater (P<0.05) during rumen incubation than at other stages for all plants evaluated. Of the plants containing CT evaluated in this study, *A. angustissima* demonstrated the greatest overall disappearance of DM, CP, P, and OM. A greater proportion of *A. angustissima* and *D. paniculatum* crude protein (CP) and phosphorus disappearance (PD) occurred in the duodenum compared to *S. bona-nox* and *M. sativa*. The presence of CT appears to reduce total PD and shift disappearance from the rumen to the duodenum.

Key Words: phosphorus, condensed tannins, mobile nylon bag

157 Effect of feeding supplemental rumen-protected Niacin (Niashure™) on milk yield, and milk composition in early lactation Holstein cows. D. J. Vanderwende*[1], B. A. Hopkins[1], S. M. Emanuele[2], S. Davidson[1], G. W. Smith[1], and L. W. Whitlow[1], [1]*North Carolina State University, Raleigh*, [2]*Balchem Corporation, New Hampton, NY*.

Eighty-six multiparous Holstein cows were assigned to one of three treatments to investigate the effects of 0, 6 and 12 g/d supplemental rumen-protected niacin (Niashure™) from 35 to 142 DIM. Cows received a corn silage based total mixed ration fed *ad libitum* twice daily through individual Calan® feeding stations. At the morning feeding all cows received 21 g/d of a topdress composed of a bentonite carrier blended with treatments of 0, 6, or 12 g/d Niashure™. Feed intakes were recorded daily. Analysis of weekly feed samples composited monthly indicated that diet DM contained 18.3% CP and 21.5% ADF. Milk yields were recorded at each milking (2x/d). Weekly milk samples composited from consecutive a.m. and p.m. milkings were analyzed for fat, protein, urea nitrogen, and lactose. High and low ambient temperatures and humidity levels in the free-stall barn were recorded daily. Skin temperatures were measured at the rear udder attachment five days per week at the p.m. milking using an infrared thermometer. Body weights and body condition scores were measured weekly. Data were analyzed using the mixed procedure of SAS® and significance was declared at $P < 0.05$. There were no significant treatment effects on skin temperatures, body weights, or body condition scores. Milk yield (kg/d), fat (%), protein (%), lactose (%), MUN (mg/dL), and DMI (kg/d) were (38.4, 4.0, 2.9, 4.8, 21.1, 24.9), (40.2, 3.9, 2.8, 4.7, 21.3, 24.9), and (40.0, 4.0, 2.9, 4.8, 21.3, 24.5), for treatments of 0, 6, and 12 g/d Niashure™, respectively, with no significant treatment effects. In comparison to control, Niashure™ supplementation of 12 g/d tended to improve feed efficiency (kg milk / kg DMI) from 1.58 to 1.65 ($P < 0.08$). In comparison to control, supplementation of 6 g/d Niashure™ significantly improved feed efficiency from 1.58 to 1.69 ($P < 0.02$).

Key Words: niacin, dairy, milk

158 Effect of probiotics and yeast culture on rumen development and growth of dairy calves. J. M. Laborde*, C. C. Williams, C. Leonardi, C. F. Hutchison, B. F. Jenny, B. L. Fisher, and A. H. Dolejsiova, *Louisiana State University AgCenter*, *Baton Rouge*.

To determine effects of probiotics and yeast culture on rumen development and growth, 48 Holstein calves were randomly assigned to 1 of 4 treatments which included calf starter containing no additive (C); the yeast culture *Saccharomyces cerevisiae* (YC); the probiotics *Bacillus lichenformis* and *Bacillus subtilis* (P); and yeast culture and probiotics (YCP). Calves were fed treatments from d 2 to 56. Body weights, hip heights and wither heights were measured weekly. Feed and water intake and fecal scores were recorded twice daily. Rumen fluid was collected on d 14, 28, 42, and 56 for analysis of pH, volatile fatty acids (VFA), and ammonia (NH3). Blood was collected on d 28, 42, and 56 for analysis of β-hydroxybutyrate (BHBA). There was a sex*treatment interaction (P < 0.05) for starter intake. Males receiving P consumed less than other calves. Females consuming no additive ate less than males on the same diet. Females consuming YC ate more than males on YC. Calves receiving YC tended (P = 0.06) to eat more than calves not fed YC. Calves consuming P drank less water than all other calves (P < 0.05). Calves consuming YC had higher (P < 0.05) average daily gain (ADG) than calves with no YC. There was a treatment*week interaction for ADG (P < 0.05). Females consuming no additives and males consuming P had lower ADG. There were no differences among treatments for hip and wither height (P > 0.1). Calves consuming YC had higher fecal scores than those with no YC (P < 0.05). However, fecal scores were within normal ranges for healthy calves. There were no differences among treatments for NH3, BHBA, butyrate, and propionate (P > 0.1). Calves consuming P tended (P = 0.08) to have higher total VFA concentrations than calves not consuming P. A significant sex*treatment*week interaction occurred for acetate concentrations (P < 0.05). Calves consuming P had increased acetate, with females showing a greater increase over males. There was a sex*probiotic*week interaction (P < 0.05) for pH. Male calves consuming P had lower rumen pH at d 56 than all other calves. Incorporating YC into starter may result in an increase in growth in neonatal calves.

Key Words: probiotics, yeast culture, calf starter