

803 Ammoniation and protein supplementation of corn cobs. M.L. Nelson*, T.J. Klopfenstein, R.A. Britton and S.R. Lowry. University of Nebraska, Lincoln.

Six fistulated steers (trial 1 abomasally, trial 2 ruminally fistulated) were assigned to 6 x 6 Latin Squares with a 2 x 3 factorial arrangement of dietary treatments. Main effects were level of supplemental protein from a bloodmeal-corn gluten meal mixture and ammoniation of corn cobs. Diets were 90% corn cobs and 10% supplement. Markers were PEG and indigestible ADF in trial 1 and CoLiEDTA and chromium mordanted fiber in trial 2.

	Main Effect of Supplemental Protein, % of NRC		Main Effect of Ammonia g NH ₃ /100 g corn cob DM		
			Trial 1		
	0	50	0	2	4
DM Intake, kg/d	4.8	5.3	4.7	5.1	5.3
Rumen OM Dig, %	56.7	53.4	48.8 ^a	49.3 ^a	67.1 ^b
Total tract OM Dig, %	62.9	65.1	57.0 ^a	58.0 ^a	76.9 ^b
Total N flow, g/d	59.7 ^a	93.3 ^b	64.2 ^a	82.7 ^b	82.6 ^b
			Trial 2		
DM Intake, kg/d	7.1	7.3	6.8	7.3	7.5
Fluid passage rate, %/hr	5.2	5.2	5.1	5.2	5.4
Particulate passage rate, %/hr	3.1	3.6	3.3	3.1	3.8

^{ab}L.S. means with different superscripts are significantly different (P < .05).

NH₃ treatment increased rumen and total tract OM digestibilities. Both protein supplementation and NH₃ treatment increased N flow from the rumen.

KEY WORDS: Crop residue, ammoniation, protein supplementation, digestibility, nitrogen flow, rate, steers.

804 Protein supplementation and ammoniation of wheat straw for growing steers. M.L. Nelson*, I.G. Rush and T.J. Klopfenstein. University of Nebraska, Lincoln.

Two growth trials were conducted investigating ammoniation and protein supplementation of wheat straw for growing steers. Trial 1, conducted from December 17, 1980 to May 15, 1981, utilized a 2 x 2 factorial arrangement of dietary treatments. Main effects were level of alfalfa haylage (50 or 66.7%) and ammoniation level of straw (0 or 4 g NH₃/100 g DM). Steers in trial 1 grazed a common pasture from May 16, 1981 to September 21, 1981. In trial 2, initiated on December 18, 1981, steers were fed diets composed of 45% corn silage, 45% straw and 10% supplement. A 2 x 3 factorial arrangement of treatments was used. The main effects were ammoniation of wheat straw (0 or 4 g/100 g DM) and source of supplemental protein (soybean meal, blood meal or blood meal plus urea). Data shown from trial 2 is from the first 56 days.

	Trial 1				Trial 2					
	Wheat Straw		NH ₃ Straw		Wheat Straw			NH ₃ Straw		
	Level of Haylage, %				SBM	BM-urea	BM	SBM	BM-urea	BM
Winter ADG ^b , kg/d	.12	.17	.23	.24	.26	.31	.10	.46	.32	.36
DM Intake ^{bc} , kg/d	4.60	5.12	4.96	5.61	4.57	4.03	3.90	4.47	4.67	4.78
Gain/Feed ^d	.026	.032	.046	.043	.057	.077	.026	.103	.069	.075
Grazing ADG, kg/d	.74	.72	.69	.68						

^bSignificant (P < .05) increase due to main effect of ammoniation.

^cSignificant (P < .05) increase due to main effect of alfalfa haylage level.

Ammoniation increased ADG, DM intake and gain/feed in trial 1. Increasing the level of alfalfa haylage increased only DM intake in trial 1.

KEY WORDS:

Ammoniation, wheat straw, protein supplementation, steers.

805 Partial substitution of cottonseed meal by "Mata Pasto" (*Cassia sericea*) hay in rations for lambs in Northeast Brazil. Ederlon O. de Oliveira*, Nelson Barros, T. W. Robb, W. L. Johnson and Luis Vale, EMBRAPA National Goat Research Center, Sobral, Ceará, Brazil, and North Carolina State University, Raleigh

Twenty-four Morada Nova lambs 6 to 7 months old and weighing an average of 20.0 kg were individually housed and fed four different rations in which the cottonseed meal of the first

(51% ground corn fodder, 28% cottonseed meal, 20% ground corn grain and 1% plain salt) ration was partially substituted by 5, 10 and 15% of "Mata Pasto" (*Cassia sericea*, an annual legume) ground hay. This trial was carried out during the final months of the dry season in Northeast Brazil; six lambs of equivalent age and weight were maintained under grazing for comparison. The feeding period lasted 70 days, after which all 30 lambs were slaughtered. After 70 days the animals on pasture had lost 11 g/day while the animals on treatments 1 to 4 gained 95, 106, 103 and 93 g/day, respectively; the confined group means were significantly different ($P < .05$) from the pasture group. Feed consumption did not differ for the four groups in confinement, being 90, 95 and 94 g/kg $W^{.75}$ for treatments 1 to 4, respectively. Feed conversion also did not differ among the four groups and was 10.6, 9.6, 9.9 and 11.0 for groups 1 to 4, respectively. Mean carcass yield was 46.5% for all treatments and did not vary significantly among the five groups; however, the animals kept on pasture were generally inferior to the confined groups in all other carcass parameters considered. The results indicate that feedlot confinement of lambs using rations based on corn fodder can be used with success during the driest months in Northeast Brazil and that "Mata Pasto" hay can be used as a protein source in these rations, at least up to 15% of total DM.

KEY WORDS: Lambs, Confinement feeding, Semiarid tropics, Maize crop residue, Tropical legume hay

806 Treatment of wheat straw with different alkalis; E. Owen*, T.J. Klopfenstein, R.A. Britton, K. Rump and M.L. McDonnell. University of Nebraska, Lincoln.

Ground wheat straw (0.94 cm screen) was ensiled [60% dry matter (DM)] for at least 14 days with solutions of NaOH (60 g NaOH/kg straw DM), $\text{Ca}(\text{OH})_2$ (60 g) or a mixture of NaOH and $\text{Ca}(\text{OH})_2$ (45 g NaOH, 15 g $\text{Ca}(\text{OH})_2$). Ground straw was also mixed with NH_4OH solution (70 g NH_4OH /kg straw DM, 60% DM after treatment) and then heated (70°C) for 14 hr and fed 4-5 days later. Thirty yearling lambs (33 kg) fitted with fecal collection harnesses were used to determine digestibility, intake and rate of passage of diets containing 85% (DM basis) straw and 15% supplement. With restricted feeding (518 g DM/d), diet organic matter (OM) digestibilities (%) were: 57.5, untreated; 70.7, NaOH; 59.9 $\text{Ca}(\text{OH})_2$; 70.6, NaOH + $\text{Ca}(\text{OH})_2$; 67.8, NH_4OH ; ± 0.47 (SE). With ad libitum feeding, diet OM intake (g/d) and DM digestibility (%) respectively were: 803, 52.1, untreated; 1080, 62.3, NaOH; 883, 50.7, $\text{Ca}(\text{OH})_2$; 1166, 60.7, NaOH + $\text{Ca}(\text{OH})_2$; 969, 59.3, NH_4OH ; ± 33.0 , ± 0.65 . Six rumen-fistulated sheep were restricted-fed the untreated, NaOH and NH_4OH diets in a double 3 x 2 Latin Square trial. Rate of solka floc NDF disappearance from dacron bags in rumen (%/hr) was not significantly ($P < .05$) affected by diet. Rate of PEG disappearance from rumen (%/hr) was affected ($P < .05$) by diet; 2.74, untreated; 4.53, NaOH; 3.54, NH_4OH ; ± 0.391 . Rate of particulate disappearance (chromium-mordanted untreated straw) from the rumen was not affected by diet, but variability was high (48.7% coefficient of variation). Rate of passage, measured by appearance of chromium in feces following ingestion of Cr-mordanted straw, was not affected by treatment at restricted intake.

KEY WORDS: Wheat straw, chemical treatment, rate of passage, digestibility

807 Salinomycin levels for feedlot steers. F. N. Owens, D. R. Gill, D. C. Weakley* and D. M. Lucas, Oklahoma State University, Stillwater and A. H. Robins, Inc., 1121 Sherwood Ave., Richmond, VA.

A new ionophore, salinomycin, was fed to 140 finishing steers (initial weight of 358 kg) for 110 days. Salinomycin was fed at 0, 5.5, 11, 22 and 33 ppm of an 89% whole shelled corn, 5% cottonseed hull diet. Averaged across salinomycin levels, gain was increased 9.4% and efficiency of feed by 7.8%. Feed intake was increased a mean of 1% by salinomycin. At the optimum drug level in this trial, 11 ppm, gain and feed efficiency were increased by 12.9 and 9.5%. Feces tended to be drier and contain more starch when the drug was fed. Carcass measurements were not changed by salinomycin feeding. This drug shows excellent promise for improving efficiency and rate of gain of feedlot steers.