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ground milo to a bean straw-based diet fed to goats resulted in minimal differences in digestibility.

Item	A	B	C	D	SEM	P
Intake, g/d						
DM	805	950	870	929	77.7	.13
OM	721	851	779	832	69.7	.13
Apparent ruminal digestion, %						
OM	46.0	48.6	45.0	45.5	6.1	.85
NDF	56.0	57.2	47.8	51.8	4.1	.06
ADF	58.9	59.4	52.4	53.6	2.4	.01
Apparent total tract digestion, %						
OM	58.7	65.1	62.1	64.6	4.8	.32
NDF	58.4	61.7	56.0	58.5	5.2	.54
ADF	58.0	60.8	50.8	57.6	4.7	.09
N Intake, g/d						
	4.8	8.3	8.4	8.6	.48	.01
Microbial-N flow, g/d						
	5.0	4.6	4.3	7.5	.37	.001
Microbial efficiency ^a						
	9.1	7.5	7.4	11.5	.35	.78

^a g bacteria-N/kg OM truly dig. in rumen.

Key Words: Goats, Bean Straw, Digestibility

542 Effect of whole cottonseed on intake, apparent digestibility and rate of passage in goats. Y. Smoot*, S. Solaïman, and Q. McCrary, *Tuskegee University, Tuskegee, AL.*

Four mature Nubian crossbred wethers were fed diets containing 0, 15, 30, and 45% whole cottonseed (WCS) in a 4 x 4 Latin square design to determine intake, digestion and passage as affected by WCS. Each diet consisted of 50% bermudagrass hay (BGH) with or without WCS supplement mixes. Periods were 21 d with 16 d of adjustment followed by 5 d of total collection of feces & urine. Ytterbium- (Yb) labeled BGH was pulse dosed on d 1 of each collection period. Feed and feces samples were analyzed for DM, CP, EE, NDF, ADF and ash to determine DMI and digestion of different nutrients. Fecal samples were analyzed for Yb to estimate passage rate. The BW were recorded at the end of each adjustment period. There were no differences ($P > .05$) in BW among animals fed the different diets. Goats fed the 15% WCS diet showed higher ($P < .05$) DMI (16.2 g/kg BW) when compared to goats fed the 30% WCS (14.0 g/kg BW) and 45% WCS (12.2 g/kg BW) diets; however, they had similar ($P > .05$) DMI than goats receiving 0% WCS (15.7 g/kg BW). Dry matter digestibility (DMD) was similar ($P > .05$) for 0 and 15% WCS diets but decreased ($P < .05$) with 30% and 45% WCS diets, mainly due to a depression ($P < .05$) in digestibility of fiber components (NDF and ADF). Ether extract digested (g/kg BW) was higher ($P < .05$) and N excreted in urine was lower ($P < .05$) for animals fed WCS. Passage kinetics associated with BGH were similar ($P > .05$) among diets. Addition of 15% WCS to the diet of these goats did not affect DMI, DMD and passage of BGH, improved EE utilization and lowered urinary N loss.

Key Words: Whole Cottonseed, Digestion and Passage, Goat

543 Broiler litter and urea-treated wheat straw as feedstuffs for Alpine doelings. G. Animut*¹, R.C. Merkel², G. Abebe³, T. Sahl², and A.L. Goetsch², ¹*Alemaya University of Agriculture, Dire Dawa, Ethiopia*, ²*E (Kika) de la Garza Institute for Goat Research, Langston University, Langston, OK*, ³*Awassa College of Agriculture, Awassa, Ethiopia.*

Thirty-two Alpine doelings (15 wk of age, 12 ± 2.05 kg) were randomly allocated to four treatments to evaluate the use of deep-stacked broiler litter (BL) and urea-treated wheat straw (UWS) as feedstuffs. In all treatments, UWS or untreated wheat straw (WS) was fed for ad libitum consumption along with a concentrate supplement fed at a prescribed percentage of BW. Treatments were: U a corn-based concentrate (1.3% N) fed at 1.5% BW with UWS (2.1% N); S a corn:soybean meal concentrate (3.2% N) fed at 1.9% BW with WS (.5% N); LL a corn:BL concentrate (2.3% N, BL at .8% BW) fed at 2.2% BW with WS; and HL a corn:BL concentrate (2.7% N, BL at 1.6% BW) fed at 3.0% BW

with WS. Animals were housed individually and fed once daily. Body weights were determined at 2-wk intervals prior to daily feeding during the 12-wk trial and ADG was calculated by regression. HL doelings consumed a greater amount of DM ($P < .05$) throughout the trial than LL, S and U animals (54.7, 45.0, 35.9, and 36.4 kg, respectively, SE = 11.64). The ADG did not vary among treatments ($P > .05$) and was 66, 63, 70, and 61 g/d (SE = 7.1) for HL, LL, S, and U, respectively. Feed efficiency was lower ($P < .05$) for HL and LL than for S doelings, whereas U doelings had a feed efficiency similar to S and LL but greater ($P < .05$) than HL (170, 145, 122, and 103 g gain/kg DMI for S, U, LL, and HL, respectively; SE = 11.6). Results indicate that both BL and UWS can be used as feedstuffs for replacement Alpine doeling growth during the early post-weaning period. The possibility of using modified crop residues and animal by-products as feedstuffs for goats is very important in countries such as Ethiopia where the availability and use of more conventional feedstuffs is limited.

Key Words: Broiler Litter, Wheat Straw, Goats

544 Intake, growth and body composition changes in Spanish and Tennessee Stiff-legged goats. C. O. Smith*¹, J. M. Dzakuma¹, E. Risch¹, P. M. Johnson¹, and H. D. Blackburn², ¹*Prairie View A&M University, Prairie View, TX.*, ²*USDA/ARS/National Animal Germplasm Program, Fort Collins, CO.*

The objective of this study was to perform growth curve analyses on different goat genotypes under varying nutritional regimes. Two breeds of goats, Spanish (SP) and Tennessee Stiff-legged (TS), were fed three levels (100% or *ad libitum*, 85% and 70%) of the same ration containing approximately 18% CP. These goats were classified as intermediate (SP) or small (TS) in size. They were individually penned and fed. Feed intake amounts, excreta, and bi-weekly weights were collected. After weaning at 70 d of age, 24 kids (12M,12F) from each breed were divided into three groups of 8, by sex, and put on the ration. Twenty four goats (4M, 4F from each dietary level) were slaughtered at 6 mo of age and carcass data collected. The other 24 goats were slaughtered at 12 mo of age. All weights are expressed in kilograms. Feed intake amounts, respectively, for SP and TS goats were virtually the same (51.3 and 50.5) from weaning to 6 mo, and (67.7 and 66.7) from 9 to 12 mo, even though SP breed is a heavier breed compared to TS breed. Growth weights differed ($P < .01$) for SP and TS breeds, respectively, at birth (3.2 vs 2.5) and weaning (12.8 vs 10.1); however, not at 6 mo (19.1 vs 18.6) nor 12 mo (25.8 vs 25.9). The growth weights of these breeds were fitted to the Brody (1945) growth equation, using average mature weights of 47.5 for SP and 36.8 for TS. The same maturing rate (.00268) was obtained for SP as well as TS breed. Significant differences ($P < .01$) were observed in weight of goats at the 3 dietary levels (100%, 85%, 70%) at 6 mo (21.0, 18.3, 17.2) and at 12 mo (28.5, 23.4, 25.7). Goats fed the 100% level of the diet were also heavier ($P < .05$) for SP and TS (5.3 vs 4.4), respectively, but did not differ at 12 mo (7.6 vs 7.4). Fat weights for the two breeds at 6 mo and 12 mo were not statistically significant. Sex means indicated that at 12 mo, males were heavier ($P < .01$) than females in body weight (27.9 vs 23.8) and contained more lean mass (8.3 vs 6.7); however, males deposited less fat ($P < .05$) than females (1.7 vs 2.2).

Key Words: Spanish Goat, Tennessee Stiff-legged Goat, Maturing rate

545 Effect of live weight at slaughter on goat kid meat quality. A. Arguello*¹, A. Marichal¹, N. Castro¹, R. Gines¹, J.L. Lopez¹, and S. Solomon², ¹*Animal Production Unit, Las Palmas de Gran Canaria University, Arucas, Las Palmas, Spain*, ²*USDA, Agricultural Research Service, Beltsville, MD.*

In Mediterranean countries live weight at slaughter (LWS) for kid goats is lower than in Arabian or African countries. Logically, increasing LWS could increase a farmer's profit margin. For that purpose, 20 twin, male Canary goat kids were slaughtered at 6 (n = 10) and 25 kg (n = 10). Carcasses were chilled (4°C) for 24 h post-slaughter at which time triceps brachii (TB) and longissimus (LM) muscles were removed from each carcass. pH, color (L, a*, chroma and hue), shear force (WBSF), water holding capacity (WHC), chemical composition (moisture, protein, fat, ash, collagen solubility), and muscle fiber morphology was measured. pH ($P < .05$), L ($P < .001$), hue ($P < .001$), WHC ($P < .001$), moisture ($P < .01$), ash ($P = .056$) and type IIA fiber percentages ($P < .05$) were less in 25 than 6 kg LWS kids. The LWS did not affect fat, collagen solubility or type I fiber percentages. The a* value ($P < .001$),