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Hair Sheep Production in Eastern Farm Flocks

Niki C. Whitley

University of Maryland Eastern Shore
Princess Anne, Maryland

Stephan Wildeus

Virginia State University
Petersburg, Virginia

Sheep farming in the Eastern U.S. generally takes place in small farm flocks, and under forage-based production systems. High rainfall and hot-humid summers in parts of this region result in stressful production conditions and are conducive to gastrointestinal parasitism. However, many of the potential markets for lambs, especially ethnic and specialty markets, are located in the population centers in this region.

Hair sheep have production characteristics that make them suited for the production environment of the eastern U.S. while producing smaller and leaner carcasses that are acceptable to the growing ethnic markets. This review summarizes performance of purebred hair sheep and hair x wool crosses in research locations in Maryland and Virginia.

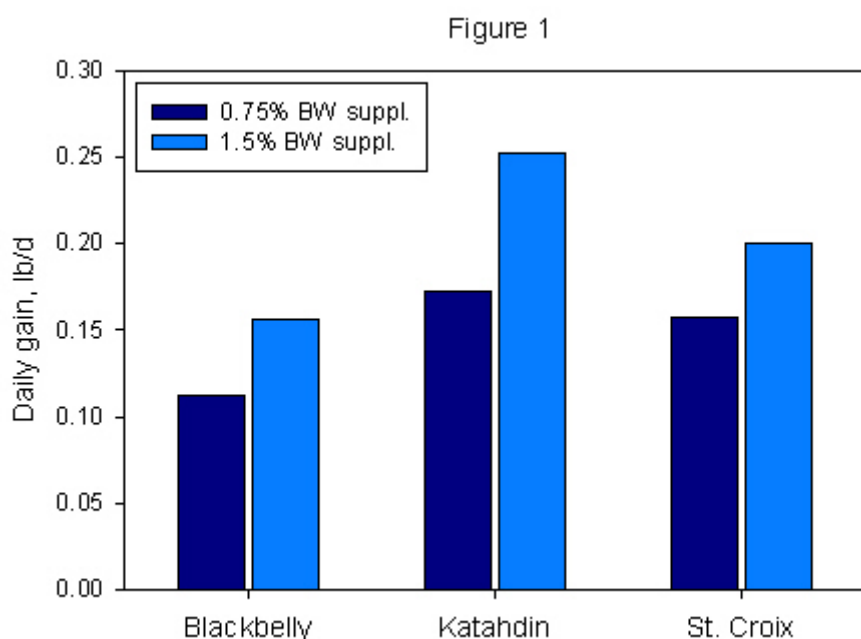


Producers of purebred hair sheep lambs often compete in similar ethnic markets with goats, and the two species need to be evaluated in pasture-based production systems. In comparing pasture-based finishing system for the two species, hair lambs performed well. In Virginia, mixed breed groups of hair sheep lambs (Barbados Blackbelly, Katahdin and St. Croix) pen-fed grass hay diets and corn/soybean meal based concentrate supplement at 2% of body weight had a higher daily gain (0.320 to 0.324 lbs/day) than mixed breed groups of meat goats (Boer cross, Spanish, Myotonic; 0.194 to 0.236 lbs/day; **Table 1**). In doing so, the hair sheep lambs consumed more forage dry matter than the goat kids (1.49 vs. 1.36% of body weight).

Lambs had a greater dressing percentage, as well as greater ribeye and backfat than kids, however, differences in ribeye and backfat were mostly the result of the heavier carcass weights of the lambs. Growth rates for both species increased as hay quality (alfalfa) improved (0.401 and 0.271 lbs/day, respectively), but the species differences were maintained. In Maryland, Katahdin lambs on pasture with no grain supplementation grew 1.5 times faster than Boer cross goats (**Table 1**), as did Katahdin x wool crossbred lambs compared to Boer cross goats fed a commercial pelleted ration in a feedlot.

Diet and location	Breeds	Lambs	Kids
Grass hay plus concentrate at 2% of body weight (Virginia trial 1)	Sheep: Barbados Blackbelly, Katahdin, St. Croix Goats: Boer cross, Myotonic, Spanish	0.320	0.236
Grass hay plus concentrate at 2% of body weight (Virginia trial 2)	Sheep: Barbados Blackbelly, Katahdin, St. Croix Goats: Boer cross, Myotonic, Spanish	0.324	0.194
Pasture (Maryland)	Sheep: Katahdin Goats: Boer cross	0.582	0.311
Feed lot (Maryland) Commerical pelleted ration	Sheep: hair x wool cross Goats: Boer cross	0.826	0.313

Performance of different hair sheep breeds varies and is affected by management and feeding regiment. In the hay-based feeding trials described above, growth of Katahdin lambs was not significantly different (0.377 lbs/day) from St. Croix (0.364 lbs/day) and Barbados Blackbelly (0.350 lbs/day), though Katahdin lambs had weaned heavier and were heavier at the onset of the feeding trial. All three breeds received similar live grades at the end of the feeding period. Under pasture grazing with limited concentrate supplementation (0.75% of body weight), growth rates were moderate (Figure 1), but higher in Katahdin (0.172 lbs/day) and St. Croix (0.158 lbs/day) than Barbados Blackbelly (0.112 lbs/day) lambs. When concentrate supplementation was increased to 1.5% of body weight, Katahdin lambs had significantly higher growth rates (0.252 lbs/day) than both St. Croix (0.200 lbs/day) and Barbados Blackbelly (0.156 lbs/day). Contemporary lambs maintained in pens on grass hay-based diets had similar growth rates to the lambs grazing pasture, but higher growth rates when alfalfa hay was fed. All three hair sheep breeds responded similarly to this change in forage base.



An evaluation of the carcasses of these forage-finished lambs showed no differences in dressing percentage between the three breeds (0.75% supplementation: 48%; 1.5% supplementation: 45%), but backfat, ribeye area and quality grade was consistently higher in Katahdin than St. Croix and Barbados Blackbelly lambs. However, after adjustment for carcass weight rib eye area was higher in Barbados Blackbelly lambs in both trials.

A trial that evaluated forage intake and utilization in Barbados Blackbelly, Katahdin and St. Croix lambs fed an alfalfa hay diet with no supplement showed a higher dry matter intake (3.31% of body weight /day) in Barbados Blackbelly compared to Katahdin (2.93%) with St. Croix intermediate. The feed to gain ratio was not significantly

different between the breeds, but Katahdin lambs appeared to utilize the nitrogen in the diet more efficiently. Daily gain in this trial was higher in Katahdin (0.288 lbs/day) and St. Croix (0.258 lbs/day) than in Barbados Blackbelly (0.191 lbs/day).

Crossbreeding projects with hair sheep have focused on their prolificacy and environmental adaptation to farm flock production conditions. Research in Maryland used Katahdin ewes mated to three sire breeds (Texel, Suffolk and White Dorper) to produce pasture-finished market lambs with parasite resistance similar to that of the Katahdin. These crossbred lambs had low fecal egg counts, with few animals needing deworming regardless of sire breed. In the first trial, growth was influenced by sire breed, with a lower daily gain in Texel-sired (0.324 lbs/day) than in Suffolk-sired lambs (0.450 lbs/day), while Dorper-sired lambs were intermediate (**Table 2, 2003 data**). Five lambs from each breed type were slaughtered at approximately 180 days of age (average backfat at least 0.15 inches). Suffolk-sired lambs had longer carcasses, whereas conformation scores and quality grades were higher in Texel- and Dorper-sired lambs. In a follow-up trial that also included purebred Katahdin lambs, post-weaning daily gains were lower (0.260 to 0.284 lbs/day) than in the first trial, and not different between the breed types (**Table 2, 2004 data**).

Year	Sire Breed		
	Dorper	Suffolk	Texel
2003	0.363	0.450	0.324
2004	0.260	0.271	0.284

Other research in Virginia evaluated the use of Dorper as a sire breed (Notter et al., 2004). Crossbred white-faced wool ewes were mated to Dorper or Dorset rams, and crossbred lambs maintained on pasture with concentrate supplementation until 4 months of age, when they were finished with a concentrate ration in a dry lot. In the 3-year project there was considerable year to year variation, but no effect of sire breed on growth of crossbred lambs either during summer grazing (0.412 lbs/day) or in the drylot (0.320 lbs/day). The carcasses of the Dorper-sired lambs tended to be fatter with a greater body wall thickness and more desirable leg score.

In general, purebred hair sheep lambs raised on forage-based diets with limited supplementation exceed the growth rate of meat goats, and should compete well in ethnic and niche markets, but would not be well suited for traditional lamb markets. Considerable differences existed in the performance of different hair sheep breeds, and these differences were influenced by the production system and feeding management. Improved hair sheep breeds such as Dorper and Katahdin can be successfully integrated into hair x wool and wool x hair crossbreeding systems to produce lamb for more traditional markets.

Literature Cited

Notter, D. R., S. P. Greiner, and M. L. Wahlberg. 2004. Growth and carcass characteristics of lambs sired by Dorper and Dorset rams. *J. Anim. Sci.* 82:1323-1328.