

# 2005 Hair Sheep Workshop @ Virginia State University

## Hair Sheep Production in the Tropics: A Caribbean Perspective

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### Introduction

Hair sheep production in the Caribbean is limited to the production of animals for meat. The predominant breed is the St. Croix White with smaller numbers of Barbados Blackbelly and various crosses of these two breeds. Traits that make these breeds well suited to the tropics include a lack of wool, the ability to breed at all times of the year, tolerance of intestinal parasites and the ability to produce and raise multiple lambs. The cost of importing concentrate feed is prohibitive for most livestock farmers in the U.S. Virgin Islands, and other islands of the Caribbean, so the vast majority of small ruminant production is based on a system that relies on forages as the major source of nutrients for the animals.



The animals either graze in pastures or the forage is brought to the animals in a cut and carry system. The environment on St. Croix is considered to be semi-arid (annual rainfall = 45 inches) with seasonal precipitation that leads to a seasonal pattern of forage production with the forage quantity being maximal during the rainy season. The dry period lasts from January through April, and September through December is the wettest time of the year.

To evaluate hair sheep productivity under these conditions, production records collected during 1993-2003 from the research flock at the University of the Virgin Islands Agricultural Experiment Station were analyzed.

### Animal Management

Hair sheep, St. Croix White and Barbados Blackbelly, were kept on guinea grass (*Panicum maximum*) pastures in a rotational grazing system. Ewes were stocked at a rate of 4-5 ewes/acre of pasture. Pastures were managed using rotational grazing and ewes were moved every 7-21 days depending on forage availability. Ewes were bred using single sire matings (ram:ewe < 1:20) with the ewes exposed to the ram for 35 days. The accelerated lambing system was based on an 8 month cycle resulting in three lamb crops every two years.

Ewes gave birth on pasture and within 24 hours of birth lambs were weighed, tattooed, and ear tagged. At 7 and 11 weeks of age, lambs were given a *clostridium*/tetanus toxoid vaccine and dewormed. Ewes raised their lambs in guinea grass pastures with no supplementation. Lambs were weaned at  $63 \pm 4$  days of age and weighed. Selection of replacement animals from the lamb crop was conducted around 3-4 weeks after weaning. Initial selection of ewe and ram replacement lambs was based on type of birth,

breed characteristics, body conformation, and adjusted weaning weight using a selection index. Subsequent evaluations of growth and conformation were conducted as the lambs aged. After weaning lambs were fed a concentrate diet and guinea grass hay until they were marketed (65 lbs) or placed into the breeding flock (7 to 11 months of age).

Figure 2

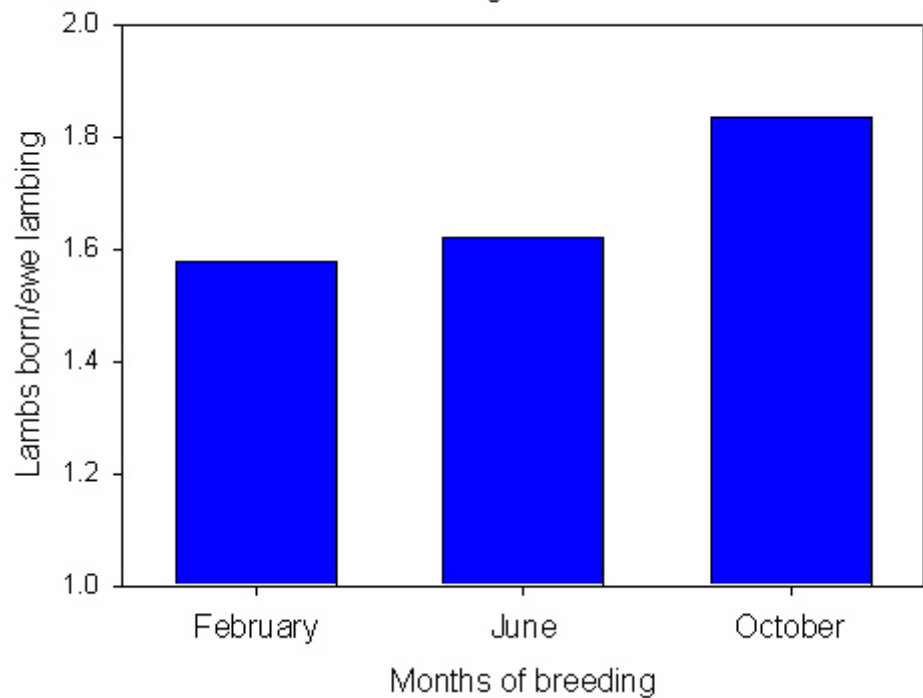
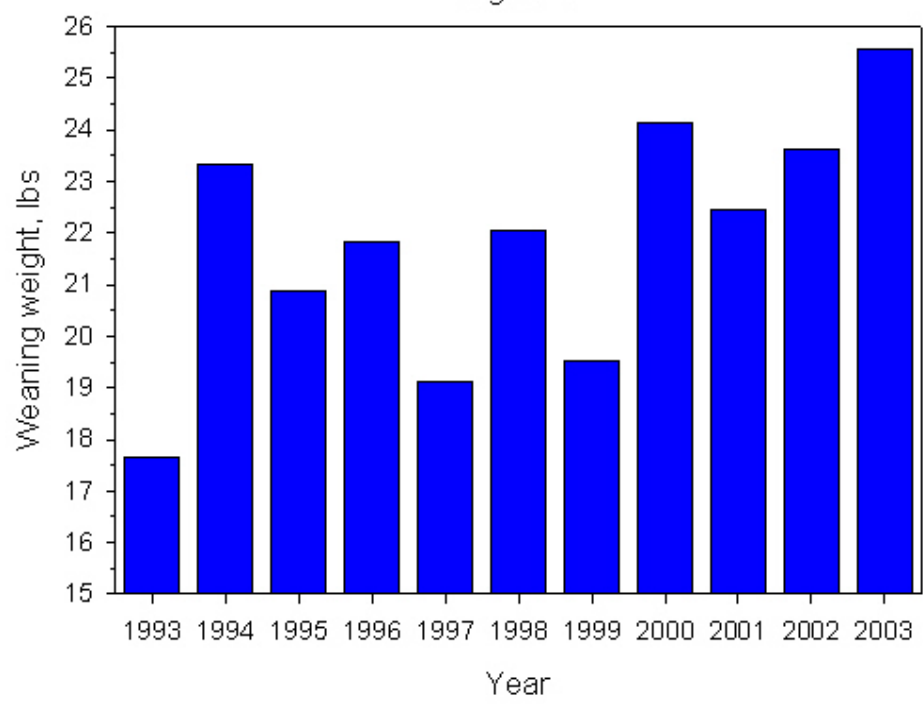


Figure 3



### Ewe Productivity

The percentage of ewes exposed to the ram that produced lambs ranged between 84 and 93 % during the 10 year period. The number of lambs born per ewe lambing averaged 1.8 with a high of 2.1 when there was a high number of triplet litters in the flock. Even though hair sheep in the tropics do not exhibit a strong seasonal pattern to their reproductive cycles like sheep breeds in temperate areas do, there was an effect of time of year on the number of lambs born. Ewes that were bred during October had higher prolificacy than ewes bred during either February or June (Figure 2). Even though the daylength on St Croix only varies between 11 and 13 hours, it is apparently enough of a difference to have an influence on the reproductive rate of ewes. The ratio of litter weaning weight to ewe body weight increased from 0.4 to a high of 0.6. This was a result of ewes weaning more and heavier lambs.

### Lamb Production

The percentage of lambs born alive or surviving for the first 2 days averaged 95 %. During 2001 and 2002 this dropped to below 90% and was attributed to long term impact of an extreme predator attack that occurred just prior to the March 2000 lambing. During the subsequent lambing there was a high incidence of stillborn lambs and ewes that displayed poor mothering traits, and both of these factors contributed to the poor lambs survival rate. During 2002, there was a high incidence of triplet births in the flock, with 34 % of all lambs being born in litters of triplets. Under our extensive management system, less than 80 % of triplet lambs were alive by 2 days after birth. In contrast to lamb mortality at birth, lamb survival to weaning increased from less than 80 % to more than 90 % over time.

Lamb birth weight averaged 6.2 lbs over the time period with little fluctuation, but weaning weight increased 45 % from 17.6 to 25.5 lbs. during that time (Figure 3). The increase in lamb survival to weaning and lamb weaning weight are probably related. The heavier weaning weights are an indirect indicator of enhanced lamb vigor, which would lead to a higher survival rate as well. The increase in weaning weight may also be an indicator of increased milk production of the ewes or it may be a response to the heavy selection pressure put on weaning weight during the replacement animal selection process.

### Conclusion

Hair sheep can be successfully managed using an accelerated lambing system and extensive management under conditions found in the tropics. Because the sheep can breed all year round, they are more suitable to an accelerated lambing system that results in 3 lambs crops in a 2-year period. By using defined breeding periods, lambs will be born during specified periods that further add to the management of the flock. By using selection pressure for growth traits of lambs such as weaning weight, advances can be made in producing larger lambs at weaning and will result in those lambs achieving market or breeding weight sooner.