EVALUATION OF KATAHDIN HAIR SHEEP: THEIR USE IN NORTH DAKOTA MANAGEMENT SCHEMES

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Objectives

1. Evaluate production parameters of hair sheep under North Dakota management systems
   a. growth
   b. feedlot gains and efficiency
   c. carcass traits

2. Reproductive performance
   a. lambing percent
   b. lamb livability
   c. out of season (fall) lambing

3. Economics of "no wool"
   a. shearing
   b. wool sales
   c. pelt credits (slaughter lambs)

Justification

Interest in hair sheep continues to be high. Summary figures indicate that Katahdins currently rank fourth in total registrations among all sheep breed registry associations in the United States. Even though wool prices are reported to be at a thirteen-year high (USDA, 2003), there is still concern about the infrastructure of the wool processing industry. It is not expected that interest in hair sheep will decline; in many cases because of the apparent assets that they may bring to the sheep industry.

Perceived "assets" of Katahdin Hair Sheep

1. Single purpose, meat production

2. Low labor
   a. no shearing
   b. no docking
   c. low management, minimal supervision required

3. Hardiness, adaptability, mothering ability
   a. prolific
   b. excellent mothers, easy lambers
   c. vigorous lambs at birth
   d. high survivability

e. versatile – climate and environment adaptable, tolerance to heat or cold

4. Resistances
   a. parasites
   b. foot rot
   c. disease

5. Non-seasonal breeding capabilities

6. Low maintenance, easy keepers

There are still a number of questions that are being asked:

1. Are they as easy to take care of as advertised?

2. Will they work in programs for someone who knows very little about sheep and, frankly, doesn't like them very much?

3. What about their growth rates?

4. Are the carcasses acceptable?

5. What about "no wool" and the pelt credits on slaughter lambs?

Procedures

Katahdin and Wiltshire Horn rams were first bred to a group of commercial white faced and speckled faced ewes in the fall of 1999. Summaries of the growth, feed efficiency, and carcass data have been reported in previous Sheep Day Reports (Moore, et. al. 2001, 2002). The initial goal of this project has been to increase the percentage of "hair" breeding in this commercial ewe flock and continue to evaluate them in several different production parameters from conception to end product. Comparisons have been made to a population of commercial sheep that had no "hair" breeding in them, first to lambs that were Hampshire and Columbia sired and currently to Columbia sired lambs. Although the lambs sired by the Wiltshire Horn ram performed satisfactorily, the unavailability of these sheep made it difficult to secure additional rams. Thus, the use of the Wiltshire Horn was discontinued and attention was directed to the Katahdin breed.

Ewes were bred to lamb in February and creep fed. All male lambs were placed on a 16 percent protein finishing ration, slaughtered, and carcass data gathered. This constitutes the third summary of the feedlot gain, efficiency, and carcass data of the varying percentages of Katahdin breeding in these lambs.

Results

Results of the three years of finishing trials are listed in the following tables.

Feedlot Gains and Efficiency Data

2000 Summary

Trial 1

	Controls	½ Katahdin
ADG	0.863	0.718
Feed/Gain	5.75	5.24
Feed intake /day	4.96	3.76

Trial 2

	Controls	½ Katahdin
ADG	0.644	0.673
Feed/Gain	4.94	4.71
Feed intake /day	3.18	3.17

2001 Summary

	Controls	½ Katahdin
ADG	0.670	0.542
Feed/Gain	6.19	7.72
Feed intake /day	4.15	4.19

2003 Summary

	Controls	½,¼ K	¾ K
ADG	0.757	0.706	0.604
Feed/Gain	5.31	5.38	5.42
Feed intake /day	4.01	3.79	3.39

Summary- 3 yrs. Data

	Controls	½,¼K	¾K
ADG	0.743	0.660	0.604
Feed/Gain	5.55	5.76	5.42
Feed intake /day	4.08	3.73	3.39

Carcass Data 2000

Trial 1

	Controls	½Katahdin
Hot Carc.Wt.	63.13	59.98
REA (in.^{2})	2.46	2.43
Conf. Score*	10.67	10.56
Fat (in.)	0.18	0.13

*Ch^- = 10, Ch^0 = 11, Ch^+ = 12

Trial 2

	Controls	½ Katahdin
Hot Carc.Wt.	65.68	63.57
REA (in.^{2})	2.55	2.65
Conf. Score	10.85	11.40
Fat (in.)	0.18	0.13

Carcass Data 2001

	Controls	½ Katahdin
Hot Carc.Wt.	61.00	60.13
REA (in.^{2})	2.33	2.26
Conf. Score	10.26	10.07
Fat (in.)	0.16	0.16

Carcass Data 2003

	Controls	½,¼K	¾K
Hot Carc.Wt.	61.88	59.86	56.48
REA (in.^{2})	2.28	2.37	2.23
Conf. Score	11.03	11.50	11.04
Fat (in.)	0.163	0.188	0.189

Summary – 3 yrs. Data

	Controls	½,¼K	¾K	
Hot Carc.Wt.	62.87	60.89	56.48	
REA (in.^{2})	2.40	2.43		2.23
Conf. Score	10.70	10.88	11.04	
Fat (in.)	0.171	0.152	0.189	

Conclusions

Increasing percentages of Katahdin breeding in these commercial lambs decreased average daily gains when compared to control lambs sired by Columbia and Hampshire rams. At the same time, the Katahdin sired lambs ate less per day and appeared to be slightly more efficient in their use of feed than the controls. Additional numbers of higher percentage Katahdin lambs are needed to confirm this.

Additional numbers are necessary to see if higher percentage Katahdins do have a decrease in percent retail product when compared to controls, as the trend seems to indicate. The higher percentage (75 percent) Katahdin lambs still yielded carcasses that were considered to be very acceptable by the industry. As of yet, there were also no pelt discounts at slaughter time on these higher percentage lambs.

Observations

1. Katahdin sired lambs are exemplary in their vigor at birth.

2. Crossbred ewes have demonstrated that they are easy lambers, excellent mothers, and excellent milkers.

3. Crossbred ewes maintain themselves and their body condition extremely well.

4. Although difficult to measure under North Dakota conditions, there seems to be some additional parasite resistance in the Katahdin sired ewes. The Katahdin Hair Sheep International has outlined a procedure to test genetic resistance to parasites and develop an Expected Progeny Difference (EPD) for this trait. The heritability for parasite resistance is said to be .20 (Morgan, 2003).

5. NDSU's fall (September) lambing purebred Katahdin ewes lambed 49 lambs, 48 of them alive from 25 ewes in a period of three weeks without the use of teaser rams or any hormone or light treatment.

Progress and Future Plans

1. Numbers in the commercial higher percentage Katahdin flock will be stabilized.

2. More detailed information on maternal traits will be gathered.

3. Information on feedlot performance and carcass data will continue to be assembled.

4. Purebred flock
   a. Numbers will be stabilized.
   b. Sires for the commercial flock will come from this source.
   c. Two sires from the flock were recognized as "Trait Leaders" in the

National Sheep Improvement Program (NSIP). This ranks these sires in the top 15 in North America in their respective traits.

d. The purebred Katahdin flock at NDSU is the first flock in North Dakota to be enrolled in the Verified Scrapie Flock Certification Program (VSFCP).

e. Currently, arrangements are being made to ship 16 head from this flock to Cuba. This will be the first major shipment of sheep to that country since the full embargo was enacted in 1963.

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