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A. L. Slyter  
*South Dakota State University*

Nasir Iman

Ron Swan

Bruce Read

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# Effect of breed of ewe and management system on lamb and wool production (progress report)

A.L. Slyter, Nasir Iman, Ron Swan, and Bruce Read  
Department of Animal and Range Sciences

SHEEP 93-1

## Summary

Production data are being collected to evaluate lifetime performance of Finn-Dorset x Targhee (FDT) ewes compared to straightbred Targhee (T) ewes under two management systems, range and farm flock. Preliminary results for the 1991 and 1992 production years are presented. Crossbred ewes excelled in lambing traits and straightbred Targhee ewes excelled in wool traits under both management systems. The differential between the ewe types may be narrowing for lamb production while expanding for wool traits. Lifetime (5 lamb crops) production data will be summarized as it becomes available.

**Key Words:** Sheep, Lamb, Wool, Lifetime production, Breed, Management system

## Introduction

The number of lambs marketed per ewe per year has been shown in a number of studies to be the most important single factor in determining total productivity of the ewe flock. Crossbred ewes are reported to have higher reproductive performance and superior maternal characteristics. Combining ewe breeds that have specific desirable strengths should result in a more productive crossbred ewe. Three breeds were chosen for their respective breed strengths: the Dorset for its long breeding season and milking ability, the Finn for its prolificacy, and the Targhee for its hardiness and wool quality. The combination used in this study resulted in ewes

that are 1/4 Finn-1/4 Dorset x 1/2 Targhee (FDT). This combination results in a white-faced ewe of moderate frame size with a medium quality fleece. This study was designed to evaluate lifetime productivity of the FDT ewe compared to the straightbred Targhee ewe under range and farm flock conditions found in South Dakota.

## Experimental Procedure

April-born Targhee (T) and 1/4 Finn-1/4 Dorset x 1/2 Targhee (FDT) ewe lambs born in 1984 through 1987 at the Antelope Range Livestock Research Station, Buffalo, SD, are the ewes evaluated in this study. These lambs grazed with their dams on native range until weaning in August when they were moved to the Sheep Research and Teaching Unit at Brookings, SD. Upon arrival, they were started on a growing ration, shorn, and treated for internal and external parasites. The growing ration was composed of approximately 50% alfalfa hay and 50% concentrate (mostly corn). The lambs remained on this ration until approximately 1 year of age, at which time they were randomly allotted within breed groups to either the farm or range management system. Each year, approximately June 1, ewes allotted to the range system were returned to the Antelope Range Livestock Station where they are maintained for subsequent lifetime production.

Management practices common to both systems include use of Hampshire rams as terminal sires, a 35-day breeding season, shearing 30 to 60 days prior to lambing, and

shed lambing with lambing jugs. Routine baby lamb care management practices include ear tagging, dipping of the navel, docking, and assistance in receiving colostrum from ewes. Ewes are culled from the flock as a result of failure to lamb in two consecutive opportunities or for severe functional problems such as prolapse or damaged udders. Usually, no ewe is allowed to nurse more than two lambs. Lambs in excess of two and lambs that appeared to be doing poorly in the opinion of the shepherd were classified as "bums" and sold. Credit is given in the lambing data for these lambs, but they are excluded from weaning data.

Management practices at the Antelope (range) location include late fall breeding beginning in November, reliance on grazing and limited feed supplementation starting 2 to 3 weeks before breeding through gestation, spring lambing and summer grazing of ewe and lamb pairs. At lambing, ewe and lamb pairs are placed in individual jugs for 1 to 3 days. Ewes and lambs are grouped in small mixing pens with shelter for 1 to 7 days and then returned to

native range and supplemented according to range conditions. Shelter is available for storm protection for approximately 3 weeks following birth. Male lambs are castrated and no lambs receive creep feed.

The farm flock is maintained at the Brookings Sheep Research unit. The breeding season begins in October and is preceded by 2 weeks of flushing. Lambing practices consistent with typical farm flock procedures include use of drop pens for those ewes close to lambing, individual lambing pens after lambing, and grouping pens when the lambs are 2 to 3 days old. Male lambs were castrated in 1991 and 1992. Lambs have access to creep ration shortly after birth and are switched gradually to a grower ration prior to weaning at approximately 65 days.

### Results and Discussion

Lambing performance and wool production results are shown in Table 1 for 1991 and in Table 2 in 1992. In both years, a higher

Table 1. Lambing performance and wool production of Targhee and Finn-Dorset x Targhee ewes - 1991 Lambing

Item	Farm flock		Range flock	
	Breed of ewe			
	Targhee	Finn-Dorset x Targhee	Targhee	Finn-Dorset x Targhee
No. ewes exposed	31	132	62	123
Ewes lost, breeding to lambing	1	10	2	3
No. ewes lambing	24	110	55	114
Percentage lambing (EL/EE)	77.4	83.3	88.7	92.68
Lambs born/ewe exposed	1.58	1.70	1.55	1.90
Lambs born/ewe lambing	2.04	2.05	1.75	2.05
Lambs weaned/ewe lambing <sup>a</sup>	1.25	1.49	1.36	1.56
Bum lambs sold/ewe lambing	.33	.25	.22	.33
Average weaning wt (lb) <sup>a</sup>	68.1	68.9	76.5	71.70
Wt weaned/ewe lambing (lb) <sup>a</sup>	87.6	102.21	104.0	111.85
Grease fleece wt (lb)	10.92	8.76	10.0	7.20
Spinning count (micron)	60 (24.42)	54 (28.29)	60 (24.84)	56 (27.72)
Clean wool fibers present (%)	55.6	61.6	54.7	59.80

<sup>a</sup> Based on number weaned June 5, 1991, Brookings ( $\bar{x}$  age 92 days) and number weighed July 17, 1991, Antelope ( $\bar{x}$  age 96 days).

Table 2. Lambing performance and wool production of Targhee and Finn-Dorset x Targhee ewes - 1992 Lambing

Item	Farm flock		Range flock	
	Breed of ewe			
	Targhee	Finn-Dorset x Targhee	Targhee	Finn-Dorset x Targhee
No. ewes exposed	15	81	24	85
Ewes lost, breeding to lambing	0	3	3	4
No. ewes lambing	13	74	20	76
Percentage lambing (EL/EE)	86.67	91.36	83.33	89.41
Lambs born/ewe exposed	1.73	1.86	1.50	1.94
Lambs born/ewe lambing	2.00	2.04	1.80	2.17
Lambs weaned/ewe exposed <sup>a</sup>	1.47	1.48	1.08	1.32
Lambs weaned/ewe lambing <sup>a</sup>	1.69	1.62	1.30	1.47
Bum lambs sold/ewe lambing	.15	.18	.35	.47
Average weaning wt (lb) <sup>a</sup>	53.64	54.01	47.35	43.16
Wt weaned/ewe exposed (lb) <sup>a</sup>	78.67	80.01	51.29	56.87
Wt weaned/ewe lambing (lb) <sup>a</sup>	90.77	87.58	61.55	63.61
Grease fleece wt (lb)	9.12	7.44	11.35	7.13

<sup>a</sup> Based on number weaned May 7, 1992, Brookings ( $\bar{x}$  age 71 days) and number weighed June 23, 1992, Antelope ( $\bar{x}$  age 67 days).

percentage of crossbred ewes lambing than straightbred ewes in both management systems. Crossbred ewes also had an advantage in lambs born per ewe exposed in both systems. In both management systems, crossbred ewes equaled or exceeded straightbred Targhee ewes in the number of lambs weaned per ewe lambing. In general, more lambs were sold as bums per ewe lambing for FDT ewes than for T ewes due to higher prolificacy rates for FDT ewes. Targhee ewes produced 2 to 4 lb more wool of a higher spinning count than FDT ewes. With increasing

age of ewes in this study, it appears that prolificacy of FDT ewes may have leveled off while it has continued to increase for Targhee ewes. Thus, the differential is narrowing. The reverse may be true for wool production. Lifetime production (5 lamb crops) information on a portion of these ewes is presented in a subsequent paper (SHEEP 93-2). Data will be complete for this study with weaning of the 1993 lamb crop. Final results and subsequent conclusions will be published later.