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Effect of Type of Birth, Breed of Sire and Postweaning Nutrition
on Ewe Lambs. II. Production at 12 Months of Age

A. L. Slyter, D. Morris and D. G. Levis

The practice of breeding ewes to lamb at 12 months of age has not been widely accepted by commercial operators, even though previous research has indicated that it can be done successfully in some management systems. One reason for this might be that long-term effects on lifetime productivity have not been evaluated. This paper summarizes production performance during the first year of a lifetime study currently in progress. Data from 382 Suffolk-Targhee and Targhee ewes born in 1971-1975 and developed under two different nutritional levels are included in this report. Subsequent lifetime production for these ewes will be reported when available.

Experimental Procedure

The preceding paper covers the general procedures of this experiment and results of the growth phase of this study. Following the postweaning feeding period, the ewes were allotted within the previous postweaning nutritional treatment groups with two-thirds of the lambs being exposed to rams at 7 months of age and one-third exposed at 19 months of age. A 34-day breeding season starting in late September or early October was used. Finn crossbred ram lambs were used during the 1971, 1973, 1974 and 1975 breeding seasons. Columbia ram lambs were used for the 1972 breeding season. Following the 34-day breeding season all groups within year were combined and managed as a single flock with the following exception: Those ewes that lambed at 12 months of age received supplemental grain prior to and following lambing. All ewes lambing at 12 months of age were lambed at the University Sheep Unit. Lambs were weaned from these ewes at approximately 60 days of age.

Production data for this period are summarized in this paper. Subsequent lifetime production data are being collected and will be reported as available.

Results and Discussion

Numbers and percent ewes lambing at 12 months of age are shown in table 1. Slightly more (3.7%) twin-born than single-born ewes lambed. Approximately 24% more crossbred Suffolk x Targhee ewes lambed than straightbred Targhee ewes. Developing ewe lambs on a high nutritional program postweaning up until breeding at 7 months of age resulted in 8% more lambing than those developed on the moderate level of nutrition. A more detailed breakdown of percent of ewes lambing is shown in table 2. Postweaning nutritional level, high vs moderate, resulted in a greater difference in percent lambing for Targhee ewes than for

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Suffolk x Targhee ewes. Percent of the Suffolk x Targhee ewes lambing exceeded 60% regardless of type of birth or postweaning level of nutrition. Of the Targhee ewes only single-born ewes on the high postweaning nutrition level exceeded a 60% lambing rate.

Suffolk x Targhee ewes had .42 more (P<.05) lambs born per ewe exposed and .22 more (P<.05) lambs per ewe lambing than Targhee ewes (table 3). Crossbred ewes also weaned a higher (P<.05) number of lambs on a per ewe exposed and per ewe lambing basis than straightbred ewes. Ewes developed on the high postweaning level of nutrition weaned .20 more lambs per ewe lambing than those developed on the moderate feed level. Table 4 reports least squares means for wool weight, pounds of lamb weaned, lambing date and ewe weight and height. Type of birth, breed of ewe and postweaning treatment all resulted in differences in wool weight. Single-born ewes were heavier (P<.05) than twin-born ewes at weaning of their first lamb crop, although the difference (6.1 lb) was less than at prebreeding time (10.5 lb). Crossbred ewes were 6.8 lb heavier (P<.05) than straightbred ewes when their first lamb crop was weaned. Although not significantly (P>.05) different, crossbred ewes weaned 5.8 lb more lambs per ewe lambing.

No significant (P<.05) interactions (all possible two factor interactions considered) were found for the variables studied.

Summary and Conclusions

Suffolk x Targhee crossbred ewes outperformed straightbred Targhee ewes in most parameters studied for production traits related to lambing at 12 months of age. This included percent ewes lambing, number of lambs born per ewe exposed or lambing and number of lambs weaned per ewe lambing. A higher percent of ewe lambs developed on the high level of postweaning nutrition lambing at 12 months of age than those developed on the moderate level. They also weaned more lambs per ewe lambing.

The following conclusions appear justified based on the data reported:

1. A higher percentage (70% or better) of Suffolk x Targhee crossbred ewe lambs can be expected to lamb at 12 months of age.
2. Postweaning nutritional level appears more critical for straightbred Targhee than for Suffolk x Targhee ewe lambs when attempting to lamb at 12 months of age.
3. Twin-born ewes perform equally as well as single-born ewes in terms of lamb production at 12 months of age.

Table 1. Number and Percent Ewes Lambing at 12 Months of Age

Variable	No. (% ^a)
Type of birth of ewes	
Singles	79/139 (56.8)
Twins	147/243 (60.5)
Breed of ewe	
Targhee	92/194 (47.4)
Suffolk x Targhee	134/188 (71.3)
Postweaning treatment	
High	122/193 (63.2)
Moderate	104/189 (55.0)

^a Percent lambing significantly different (P<.01).

Table 2. Effect of Breed of Ewe, Type of Birth and Postweaning Treatment on Number and Percent of Ewes Lambing

Postweaning treatment Type of birth	High				Moderate			
	Single		Twin		Single		Twin	
	No.	%	No.	%	No.	%	No.	%
Breed of ewe								
Targhee	25/40	62.5	31/57	54.4	14/41	34.2	22/56	39.3
Suffolk x Targhee	17/28	60.7	49/68	72.1	23/30	76.7	45/62	72.6

Table 3. Least Squares Means for Number of Lambs Born and Weaned

Variable	Per ewe exposed No.	Per ewe lambing No.
<u>Lambs born</u>		
Type of birth		
Single	.72	1.22
Twin	.78	1.29
Breed of ewe		
Targhee	.54 ^a	1.14 ^a
Suffolk x Targhee	.96 ^b	1.36 ^b
Postweaning treatment		
High	.80	1.27
Moderate	.70	1.24
<u>Lambs weaned</u>		
Type of birth		
Single	.49	.83
Twin	.55	.89
Breed of ewe		
Targhee	.37 ^a	.77 ^a
Suffolk x Targhee	.67 ^b	.94 ^b
Postweaning treatment		
High	.61	.96 ^a
Moderate	.43	.76 ^b

a,b Means within columns and within type of birth, breed of ewe and postweaning treatment groups with different superscripts differ significantly (P<.05).

Table 4. Least Squares Means for Wool Weight, Pounds of Lamb Weaned, Lambing Date, Ewe Weight and Ewe Wither Height

Variable	Wool wt. lb	Lamb weaned per ewe lambing lb	Date of lambing- days after Jan. 1	Ewe weight at weaning lb	Wither height at weaning of lamb inches
Type of birth					
Single	7.3 ^a	28.7	72.7	110.0 ^a	26.0
Twin	6.8 ^b	27.1	74.7	103.9 ^b	25.7
Breed of ewe					
Targhee	7.4 ^a	25.0	75.1	103.6 ^a	26.0
Suffolk x Targhee	6.8 ^b	30.8	72.3	110.4 ^b	25.7
Postweaning treatment					
High	7.3 ^a	28.9	72.0	107.2	25.8
Moderate	6.8 ^b	26.9	75.4	106.8	25.9

a,b Means within columns and within type of birth, breed of ewe and postweaning treatment groups with different superscripts differ significantly (P<.05).