1973

Effect of Breed of Sire, Level of Postweaning Nutrition and Type of Birth (Single vs. Twin) on Lambing Performance at 12 Months of Age

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Agricultural Experiment Station A.S. Series 73-4

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Progress Report

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One of the potential areas to increase efficiency of sheep production, and thereby net return, is through an increase in the reproductive efficiency of the ewe. The practice of breeding ewes as lambs and thereby getting an additional lamb crop during a ewe's lifetime offers one possibility to increase the lifetime production of the ewe. Proper growth and development of replacement ewe lambs is necessary if this practice is to become a working reality.

A study was designed and initiated in the fall of 1970 to evaluate the effect of breed of sire, level of pre- and postweaning nutrition, age at first breeding and type of birth on subsequent reproductive performance of the ewe. The lambing performance at 12 months of age for the first two sets of lambs from this study will be reported in this paper.

Experimental Procedure

Initially 250 straightbred Targhee ewes were purchased and are currently maintained at the Antelope Range Field Station for this study. Each year one-half of these ewes are mated to Targhee and one-half to Suffolk rams to produce straight and crossbred lambs. These ewes are exposed for 35 days with the lambs born in late February and March. One-half of these lambs have access to creep feed on the range until weaned at an average age of 70 to 80 days. Postweaning they are randomly assigned within previous treatment groups to a high or moderate energy level and fed in drylot for approximately 100 days on a 60% cracked corn-40% ground alfalfa hay ration. The moderate energy level group is hand-fed what they will eat, up to 2.5 pounds per head per day, and receive 3 pounds per head per day the last 30 days. The high energy group is self-fed. These two levels were designed to approximately supply the N.R.C. requirements for replacement ewe lambs vs. fattening lambs. The ration was fed in ground form in 1971 and as a pellet in 1972. Following the feeding period, they are allotted within previous treatment groups to be exposed to rams at 7 or 19 months of age. Two-thirds of the lambs are exposed for 34 days at 7 months of age and one-third are exposed for the first time when they are approximately 19 months of age. Finn crossbred ram lambs were used during the 1971 breeding season and Columbia ram lambs during the 1972 season.

Results and Discussion

Average daily feed consumption and gains for the drylot period are shown in table 1. Lambs self-fed gained faster and were heavier than those on the restricted regime in both years. Treatment differences were larger when the ration was pelleted (1972). In 1971 the lambs in the high energy group were restricted to 3 pounds per day rather than being self-fed for the last 37 days. This accounted for the lower feed intake by the high energy group in 1971 and no doubt, in part, for the smaller differences in gains between treatments in 1971 than in 1972.

Lambing performance at 12 months of age for these ewe lambs is shown in table 2. Lambs developed on the high postweaning nutrition level had a higher percentage of the ewes exposed that lambed and a higher lambing percent per ewe exposed and per ewe lambing. A greater portion (73% vs. 45%) of the crossbred ewes lambed than straightbreds and dropped more lambs per ewe lambing. Lambing performance was higher for ewes that were twins themselves than for ewes born as singles. This is evidence that twin ewe lambs are capable of equal or possibly superior production at 12 months of age when compared to singles if provided sufficient feed during the growing period. These data show most of the difference in lambing performance was in the number of ewes lambing and, although not recorded in this study, probably reflects largely a difference in the number reaching puberty and/or a difference in conception rate during a relatively short breeding season.

Subsequent lifetime performance of these ewes will be reported as it becomes available.

Table 1. Effect of High vs. Moderate Energy Levels on Postweaning Gains of Ewe Lambs

Energy level	High		Moderate	
Year	1971	1972	1971	1972
Days on feed	129	100	129	100
Average daily feed, lb.	2.9	4.0	2.5	2.6
Average daily gain, lb.	0.37	0.51	0.30	0.32
Weight end of period, lb.	96.4	116.4	89.0	96.6

Table 2. Effect of Breed of Sire, Level of Postweaning Nutrition and Type of Birth (Single vs. Twin) on Lambing Performance at 12 Months of Age[a]

	No. ewes exposed	No. ewes lambing	No. lambs born	Lambing percent per ewe exposed	Lambing percent per ewe lambing
Straightbred (T x T)[b]	77	35 (45)[c]	41	53	117
Crossbred (S x T)[d]	81	59 (73)	82	101	139
Level of nutrition, postweaning					
High	80	51 (64)	68	85	133
Moderate	78	43 (55)	55	71	128
Single born dams	78	44 (56)	57	73	130
Twin born dams	80	50 (63)	66	83	132
Total, all groups	158	94 (59)	123	78	131

[a] Lambing performance, 1972 and 1973.
[b] Targhee sire x Targhee dam.
[c] Numbers in parenthesis are percentages.
[d] Suffolk sire x Targhee dam.