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Recommended Citation

Slyter, A. L.; Read, Bruce; and Swan, Ron, "Selection for Fall or Spring Lambing: Progress Report" (1995). *South Dakota Sheep Field Day Proceedings and Research Reports, 1995*. Paper 2.
http://openprairie.sdstate.edu/sd_sheepday_1995/2

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Selection for Fall or Spring Lambing: Progress Report

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SHEEP 95-2

Summary

This study was initiated to evaluate the effect of selection within a fall lambing system under two management systems on subsequent reproductive performance.

Ewe lambs produced at the Antelope Range Livestock Station in April of 1992, 1993, and 1994 form the base population for this study. Subsequent selection for reproductive performance will be accomplished within management system (range or farm) and season (spring or fall). Replacement rams and ewes will be selected from early-born multiple births. Ewes (F_1) were originally exposed in April at approximately 12 months of age in 1993, 1994, and 1995 for the 1992, 1993, and 1994 ewes, respectively. Performance data will be reported as it becomes available.

Introduction

Prior work at SDSU (see previous report SHEEP 95-1) has shown the success of fall lambing performance from mature crossbred ewes. In most cases, ewes in the previous studies were spring-born ewes that had been shifted to the fall system. Thus, direct selection of progeny for fall lambing potential was not possible. More rapid progress should be made if replacements are selected from fall lambing ewes. This study was initiated to evaluate the effectiveness of selection for fall lambing under farm and range flock management systems.

Experimental Procedure

Finn-Dorset x Targhee (FDT) F_1 ewe lambs produced from the spring lambing flock at the Antelope Range Livestock Station (Buffalo, SD) in 1992, 1993, and 1994 are the foundation

stock in this study. Approximately 200 ewe lambs entered the study each year (Table 1). These April-born ewe lambs were weaned in August-September and moved to the Brookings Station where they were grown out and exposed at approximately 12 months of age for September lambing. Ewes were flushed ($\frac{1}{2}$ lb corn/head/day) starting April 1 at which time teaser rams were placed with them for two weeks. On April 15 teaser rams were removed and intact rams were introduced for a 35-day breeding season. Hampshire rams were used in 1993 and F_1 FDT rams in 1994 and 1995. Each year the pregnant ewes from this initial exposure were randomly assigned to either the range or farm flock fall system. The remaining open ewes were randomly split among the four groups in a manner to balance numbers per group, i.e., approximately 50 ewes each year going into the fall and spring groups in the range and farm flock systems. Subsequent replacement rams and ewes will be selected based on multiple births from early lambing ewes. Female replacements will be selected within each system-season group. Rams will be selected from the fall system at both locations and used as yearlings for one year (fall and spring). Rams will be replaced annually and ewes as rapidly as possible while maintaining base flock numbers. Second generation (F_2) crossbred FDT rams will first be available for breeding in the fall of 1995. The spring lambing ewes will serve as controls. Spring farm flock ewes are exposed starting approximately September 20 at Brookings and range flock spring ewes starting approximately November 15 at the Antelope Range Livestock Station. Flushing and teasing are common management practices for all groups. Ewes will be culled for missing two consecutive lambing opportunities and for other major conditions that would impair production, i.e., bad udder, prolapse, etc.

Results and Discussion

The experimental design with expected F₁ ewe numbers is shown in Table 1. Actual numbers of ewes per group for ewes born in 1992 and 1993 averaged slightly over 49 (Table 2). Phase I fall production as shown in Table 2 does not reflect management system effects since all ewes were originally exposed as a group in Brookings and subsequently divided into groups as previously discussed in the experimental procedures section. Table 3 shows

the lambing performance for ewes mated for their second breeding season at their respective location (Phase II). Spring 1995 data for the range system were not available at press time. Ewes born in 1994 were exposed starting April 15, 1995, and will complete the entry of F₁ ewes into the study. Data presented are primarily to show numbers of ewes entering the study and the design of the study. Production data are very preliminary and should not be used to draw conclusions at this time.

Table 1. Expected ewe numbers to enter study by year of birth, lambing season, and management system

Year of birth	System			
	Farm		Range	
	Lambing season			
	Fall	Spring	Fall	Spring
1992	50	50	50	50
1993	50	50	50	50
1994	50	50	50	50

Table 2. Lambing performance by season and management system - Phase I

System	Lambing season	Ewe birth yr ^a	No. exposed	No. lambing	Percent lambing	Lambs born/ewe lambing
Range - Fall	1993	1992	47	0	0	0
	1994	1993	47	47	100.0	1.15
Farm - Fall	1993	1992	50	11	22.0	1.27
	1994	1993	57	37	64.9	1.11
Range - Spring	1994	1992	44	37	84.1	1.81
	1995	1993	55	NA ^b		
Farm - Spring	1994	1992	48	45	91.7	1.93
	1995	1993	45	41	91.1	2.15

^aSpring-born - April.

^bData not available as of publication date.

Table 3. Lambing performance by season and management system - Phase II

System	Lambing season	Ewe birth yr	No. exposed	No. lambing	Percent lambing	Lambs born/ewe lambing
Range - Fall	1994	1992	40	3	7.5	1.67
Farm - Fall	1994	1992	47	26	55.3	1.35
Range - Spring	1995	1992	36	NA ^a		
Farm - Spring	1995	1992	40	33	82.5	2.09

^aData not available as of publication date.