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## REDUCING BREEDING SEASONALITY IN THE EWE (Progress Report)

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SHEEP 89-2

### Summary

The effect of an oral progestin with or without PMSG was studied in yearling ewes in an attempt to induce April-May conception. Seven of 25 ewes given PMSG lambed compared to zero of 26 untreated ewes. Melatonin implants given to ewes at weaning (May) of spring-born lambs did not improve reproductive performance. Fourteen percent of the Columbia ewes lambed to May ram exposure compared to 1.2% for the Hampshire ewes. These data indicate that certain individuals will conceive to spring mating. Additional work needs to be conducted to identify these individuals and management systems to capitalize on their potential.

(Key Words: Ewe, Seasonality, Lambing Performance.)

### Introduction

Seasonality of breeding is a major obstacle to providing a stable market supply of lamb for the consumer. Seasonality of breeding was listed as the number one research priority by the Western Sheep Task Force and adopted as the number one objective of the recently approved NC-111 Regional Research Project. Reducing breeding seasonality, expanding the fertile breeding season, offers a wide array of potential benefits to the sheep industry and ultimately the consumer. The consumer

will benefit by a more stably supply that is more readily available at a more competitive price. Previous experiments at SDSU indicate the potential to develop breeding stock and(or) management systems to achieve fall lambing. The objectives of the following preliminary studies are to develop management systems and ewe stock selected for fall lambing.

### Experimental Procedure

Trial 1. Virgin yearling purebred Hampshire (n=28) and Columbia (n=23) ewes were fed .30 mg of an orally active progestin (melengestrol acetate) from March 28, 1988, through April 13, 1988. One-half of each breed group within sire assignment group were given 750 IU of PMSG<sup>1</sup> on April 13 when rams were introduced. Rams were removed on May 13, 1988. Date and type of lambing were recorded for ewes lambing from this exposure.

Trial 2. Registered Hampshire (n=77) and Columbia (n=72) ewes were removed from their lambs on May 5, 1988, and randomly allotted to one of two treatments. One-half received a melatonin ear implant (Regulin<sup>2</sup>) on May 5, 1988, and the remaining one-half served as untreated controls. Rams were introduced for a 30-day exposure starting May 13, 1988. Lambing information recorded included date and type of birth.

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<sup>1</sup>Pregnant Mare Serum Gonatrophin, Nelson Laboratory, Sioux Falls, SD.

<sup>2</sup>Regulin®, Gene Link Australia, Inc.

## Results and Discussion

Trial 1. Results are summarized in table 1.

None of the control ewes lambled compared to 18% of the Columbia and 36% of the Hampshire ewes treated with PMSG. Lambs born per ewe lambing ( $\bar{x} = 1.45$ ) was

slightly below the normal spring lambing rate for similar ewes in this flock. Some difficulty was encountered in getting the ewes to eat the feed containing the progestin which may have had a negative effect on reproduction. Additional work is needed before conclusions should be drawn.

TABLE 1. FALL LAMBING PERFORMANCE  
OF YEARLING PUREBRED EWES

Breed of ewe/treatment	Total no.	No. lambing	Percent lambing	Lambs per ewe lambing	Avg lambing date
Columbia					
PMSG	11	2	18.1	1.5	Sept. 9
Control	12	0	0	-	
Hampshire					
PMSG	14	5	35.7	1.4	Sept. 6
Control	14	0	0	-	

Trial 2. Results of trial 2 are reported in table 2. Implanting ewes with melatonin at weaning of spring-born lambs did not improve reproductive performance. Contrary to what might be expected, a higher percentage of the Columbia ewes

lambled than Hampshire ewes, 13.8% vs 1.2%, respectively. Too few ewes lambled to make any statement concerning lambing rate per ewe lambing. Conclusions should not be drawn on this single preliminary study.

TABLE 2. EFFECT OF MELATONIN ON LAMBING PERFORMANCE  
OF MATURE HAMPSHIRE AND COLUMBIA EWES

Breed of ewe/treatment	No.	Lambing		Lambs per ewe lambing	Avg lambing date
		No.	%		
Columbia					
Implanted	36	4	11.1	1.5	Nov. 2
Nonimplanted	36	6	16.6	1.2	Nov. 4
Hampshire					
Implanted	39	0	-	-	
Nonimplanted	38	1	2.6	1.0	Oct. 26