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Improvement of the reproduction rate of range ewes is of the utmost importance to the range sheep producer. Good grazing management and proper supplementation have been shown to be important. Flushing range ewes has given conflicting results. Gonadotrophic hormones have been used to increase ovualtion rates but have been less successful with yearlings than with older ewes.

Procedure

In October, 1969 300 yearling ewes of Columbia type of two origin were permanently allotted by restricted randomization to four summer grazing treatments (heavy, moderate, and light continuous grazing and a moderate rest rotation grazing system) and to three fall treatments (control, flush, and gonadotrophic hormone injection). The ewes were treated with thiobenzole and grazed as a band on deferred winter range from early October. Green forage was available and the ewes gained rapidly during October. Estrus was synchronized in the hormone treated lot with intravaginal pessaries. Pessaries were installed in 100 ewes in October 14 and were removed from half of these on October 27 and from the other half on November 4. Ten cc of pregnant mare's serum (500 I.U.'s gonadotropin) obtained from the Colorado Serum Co. was injected 2 days and again 16 days after the pessaries were removed. Suffolk rams were turned into the band on November 12, the day that the first group of ewes for which the pessaries were removed received their second injection of PMS. Rams will be removed after 8 weeks.

Flushed ewes consumed about 1 1/3 lb. barley and 1/4 lb. dehydrated alfalfa pellets per head every other day from November 1 through November 21. Forage samples were collected with esophageal fistulated ewes at weekly intervals during this period and will be analyzed for protein and *in vitro* cellulose digestibility. All ewes were weighed with an overnight shrink at the beginning and at the end of the flushing period.

Laparotomies were performed on five ewes from each lot on each of two dates. At the first date the hormone treated ewes were chosed from the early group and at the second date from the later group. The operations were made on November 26 and December 2, 14 and 20 days respectively, after the rams were turned in. The ewes were placed on a laparotomy table, an incision made on the midline of the abdomen just in front of the udder, the ovaries were exteriorized and the number of ovualtions, large and small follices, and corpora lutea counted on both ovaries. Ewes were sutured, kept in for 2 to 3 days and returned to the band.

Results and Discussion

No differences were observed in the number of ovulations among the different treatments (table 1). There appeared to be a slight increase in the number of large and small follicles due to the hormone treatments at the second examination date.

Response to flushing may have been obscured by the excellent forage obtained and the good weight gains made by all of the ewes. Greater response to the gonadotropin may be obtained when the ewes are older. Lambing data will be collected in the spring and ewes will be summer-grazed on range pastures on each of four grazing management regimes. The same ewes will be treated next fall and different ewes from each treatment chosen for ovulation counts.

Summary

Yearling Columbia-type range ewes were permanently allotted to four summer grazing treatments and to three fall treatments. The fall treatments were grazing only, grazing plus 2/3 lb. barley and 1/8 lb. dehydrated alfalfa pellets per head daily, grazing plus 2 injections of 10 cc. (500I.U.) of pregnant mare's serum given 2 and 16 days, respectively, after vaginal pessaries were removed in order to synchronize estrus. Laparotomies were performed on 10 ewes from each treatment 12 to 14 days after the lost injection of PMS. No differences in ovulation rate were observed, possibly because the ewes were only yearlings.

Table 1. Total Number of Ovulations, Follicles, and Corpora Lutea Counted on Both Ovaries of Five Ewes from Each Treatment.

Date Examined	Treatment	Ovulations	Follicles		C.L.
			Large ≥ 4mm	Small ≤ 3mm	
Nov. 26,1969	Control	7	0	24	10
	Flush	6	1	23	13
	PMS	7	0	22	8
Dec. 2, 1969	Control	7	3	27	15
	Flush	6	5	13	16
	PMS	7	7	34	12
Both Dates	Control	14	3	51	25
	Flush	12	6	36	29
	PMS	14	7	56	20