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INFLUENCE OF NUTRITION DURING THE POSTWEANING - PREFLUSHING  
PERIOD ON EWE PERFORMANCE

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Many sheep producers follow the practice of flushing ewes prior to and during breeding season for the purpose of improving reproductive performance. Many experimental trials designed to evaluate the effectiveness of flushing have shown that ewes which are flushed drop a higher per cent lamb crop. However, some trials have shown no beneficial effect from flushing. One of the explanations frequently offered for a lack of response to the flushing treatment is that the ewes were too fat prior to flushing.

Many western South Dakota sheep operators who formerly lambbed late on the range have acquired lambing sheds and are lambing earlier. Since lambs are dropped earlier in the year they are often weaned earlier. This schedule allows the dry ewe, to graze for a longer period during the normal growing season. This schedule under favorable pasture conditions may allow the dry ewe to become fatter than necessary before flushing and rebreeding.

Pasture costs per ewe during the summer are considerably higher than those which were common a few years ago. Present monthly pasture charges of \$0.60 to \$1.00 per ewe are common.

The objective of this experiment was to study the feasibility of maintaining ewes in drylot on a limited ration during the postweaning - pre-flushing period. The cost of treatment and resulting ewe performance were used to evaluate the feasibility.

Procedure

One hundred twenty-four ewes of mixed ages and mixed breeding, primarily Rambouillet, Corriedale and Columbia, were assigned to this trial on August 8, 1964. The ewes averaged 125 pounds at the time the trial was initiated which was approximately 7 weeks after their previous lambs were weaned. The ewes were stratified by age with 75 ewes assigned to a drylot treatment and the remaining 49 ewes allowed to graze fair to good condition pastures at the Newell station. The treatment period was 54 days in length with the ewes in the drylot receiving approximately 2 pounds of fair to poor quality prairie hay per head per day. It was estimated that this daily allowance of hay would provide approximately two-thirds of the total digestible nutrient requirement recommended by the National Research Council for maintaining the body weight of a 120 pound dry ewe. At the conclusion of the treatment period the two groups of ewes were weighed and recombined to receive the same flushing, breeding and wintering treatment.

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No supplements other than minerals were fed to either group of ewes during the trial. A mixture of trace-mineralized salt and steamed bonemeal was available on a free-choice basis to the drylot ewes. The pasture ewes had access to trace-mineralized salt.

Following the trial period both groups of ewes grazed the same pasture and received 3/4 to 1 pound of rolled barley per head daily as the flushing treatment. The flushing period started 19 days before and extended 3 weeks into a 7 week breeding season. Approximately 1 pound of rolled barley per ewe per day was provided the last 6 weeks before lambing. The ewes were shorn approximately 2 weeks before the start of the lambing season.

This same procedure was followed in 1965 with 163 ewes assigned on June 29, at the time their lambs were weaned. Seventy-one ewes, averaging 121 pounds, were assigned to the drylot treatment and 92 ewes, averaging 115 pounds, were trucked to the Antelope Field Station and allowed to graze good condition native range. The 1965 trial period was 94 days in length.

### Results

Experimental results for 1964 and 1965 are presented in Table 1. The Newell Station pastures (1964) and Antelope native range (1965) provided nutrients in excess of that which is required for body maintenance by 120 pound dry ewes. The pasture ewes averaged gains of 14 to 7 pounds during the 1964 and 1965 trial periods respectively. In contrast, the drylot ewes which were limited to approximately 2 pounds of fair to poor quality prairie hay per ewe per day averaged losses of 5 to 8 pounds during the 1964 and 1965 trial periods, respectively.

All groups of ewes gained in weight during the prebreeding flushing period. The ewes which had received the limited ration in the drylot gained much more rapidly during the prebreeding flushing period than did the pasture ewes.

Ewe death loss during the 1964-65 winter was greater for the ewes which received the limited ration the previous summer. Causes for the loss are not apparent and may or may not be related to treatment. No differences were noted in the 1965-66 trial.

Per cent dry ewes and per cent lamb crop born was essentially the same for each group of ewes the first year. An exceptionally high percentage of dry ewes was noted the second year, the result apparently of an infertile ram. However, since the ewes were stratified by summer treatment group and assigned to single-sire breeding pastures, comparison of the treatment groups seems valid. More dry ewes were noted in the group maintained on a limited ration in the drylot. Per cent lamb crop born was similar for the two groups of ewes during the second trial.

Average lambing date was 4 days earlier for the pasture ewes the first year and 1 day earlier the second.

Grease fleece weight was approximately 3/4 to 1 pound per head greater for the pasture ewes when compared with the drylot ewes which had received the limited ration.

### Discussion

The body weight changes due to the treatments evaluated in this experiment did not affect reproductive performance seriously. However, a larger per cent of dry ewes were noted in the drylot limited fed group the second year. The pasture ewes were in good condition at the end of the postweaning - prebreeding period but still responded to the flushing treatment with an additional gain in body weight. The larger flushing gain by the drylot ewes did not appear to offer any additional benefits in per cent lamb crop. Therefore, if condition limits the effectiveness of flushing, it would appear to be at a higher degree of condition than was encountered in the pasture ewes of this experiment.

Two pounds of poor to fair quality prairie hay did not meet the maintenance requirements of the ewes. However, this only affected reproduction slightly. The limited ration did not provide sufficient nutrients for optimum wool production. Protein supplementation with the limited hay ration may correct this deficiency.

The cost of providing a limited ration of hay may be less than the cost of pasture. Assuming a \$15.00/ton value for the hay, the cost of providing ewes 2 pounds per hay per day would be approximately \$0.45 per ewe per month. This does not include the cost of labor and equipment required for feeding. Therefore, the feasibility of the drylot limited ration is dependent upon the cost and availability of the pasture. If the range is limited or if rental rates are \$1.00 or more per head per month the drylot procedure deserves consideration. It may be used some years to prevent over use of the available range. However, if pasture is available at reasonable rates these data would indicate no advantage for confining ewes to a drylot on a limited ration.

### Summary

More than 100 grade western ewes were utilized each year in a 2-year study to evaluate the influence of nutrition during the postweaning - prebreeding period on ewe performance. Each year one group of ewes was retained in drylot and limited to approximately 2 pounds of prairie hay per ewe daily. The remaining group was allowed to graze Newell Station pastures or native range. The drylot ewes lost weight during the trial period while the pasture ewes gained weight. Both groups of ewes gained weight during the prebreeding flushing period. No differences in reproductive performance were noted between treatments the first year however, there were more dry ewes in the drylot group during the second trial. Wool production was greater for the pasture ewes. Feed costs may be less for the drylot ewes on the restricted ration. However, the additional labor required for feeding and less income from wool indicate no economic advantage with conditions that were associated with this experiment.

Table 1. Influences of Nutrition During the Postweaning - preflushing Period on Ewe Performance

Newell Field Station

	1964		1965	
	Dry Lot	Pasture	Dry Lot	Pasture
Length of Postweaning - Prebreeding Period	54 days		94 days	
Period Covered	8-8 to 10-1		6-29 to 10-1	
Preceding Lambs Weaned	6-22		6-29	
Initial Weight, Lb.	126 (75)	123 (49)	121 (71)	115 (92)
Final Weight, Lb.	121 (75)	137 (49)	113 (71)	122 (92)
Weight Changes, Lb.	-5	+14	-8	+7
Weight at Start of Breeding Season	132 (75)	141 (49)	122 (71)	125 (92)
Weight Gain During Prebreeding, Flushing Period	11	4	9	3
Death Loss During Winter, No.	3	0	3	3
Per Cent Dry Ewes	5	4	23*	16*
Per Cent Lamb Crop Born (of Ewes Lambing)	163	165	133	131
Average Lambing Date	March 30	March 26	April 7	April 6
Average Grease Fleece Weight, Lb.	8.98	9.75	8.33	9.43

( ) Indicates Number of Head

\*All Ewes assigned to 1 breeding pasture were open, apparently the ram was infertile.