

# ewe estrual control:

## Are Vaginal Pessaries the Answer?

Jim Tilton and Merle Light

Several means have been used to try to control sexual behavior in sheep. Success has varied. These methods included the use of injectable materials and oral administration of hormones and allowing limited exposure time to light.

In some instances the amount of time spent applying techniques of estrual control was not worthwhile. Oral feeding of the hormones is often impractical and intake among animals frequently unequal.

Degree of synchronization, or the number of animals showing heat within a specific time period, is usually very good, but good breeding results, which is the ultimate goal, fall below expectations.

### Previous Work

Numerous authors have noted comparable degrees of success with the oral progestogens. Combs *et al.*, (1961) fed 81 cycling ewes 120 mg. of Repromix per head per day for 13 days and noted that 79 mated within six days after removal of treatment. First service conception rate was 58 per cent. Hinds *et al.*, (1961) used two levels of Repromix (75 and 100 mg. per head per day for 14 days) and found 86 per cent of the treated ewes mated within a five day post-treatment period as compared to 38 per cent of the control ewes.

Another oral progestogen which has been used experimentally is CAP (Botkin and Nelms, 1963). Of 40 Columbia ewes fed 0.5 mg. daily for 14 days, 80 per cent mated within five days after treatment and 47 per cent lambed from these matings.

These reports show oral progestogens have been effective in estrus and ovulation suppression during the breeding season, thus affecting estrus synchronization. These regimes, however, are based on the premise that each ewe eat her specific allotment of a particular hormone. The levels usually fed are not the least possible dosages, but contain safety factors to allow for a probable unequal intake.

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Recently a new technique for administering these estrus suppressing hormones was developed. It involves the insertion of a sponge saturated with "Cronolone" into the vaginal region. The vaginal pessary is inserted with a plastic tube (speculum) and plunger apparatus. Insertion is a relatively simple operation, requiring only a few minutes per animal. The pessaries usually are left in the vagina 12 days.

### Procedure

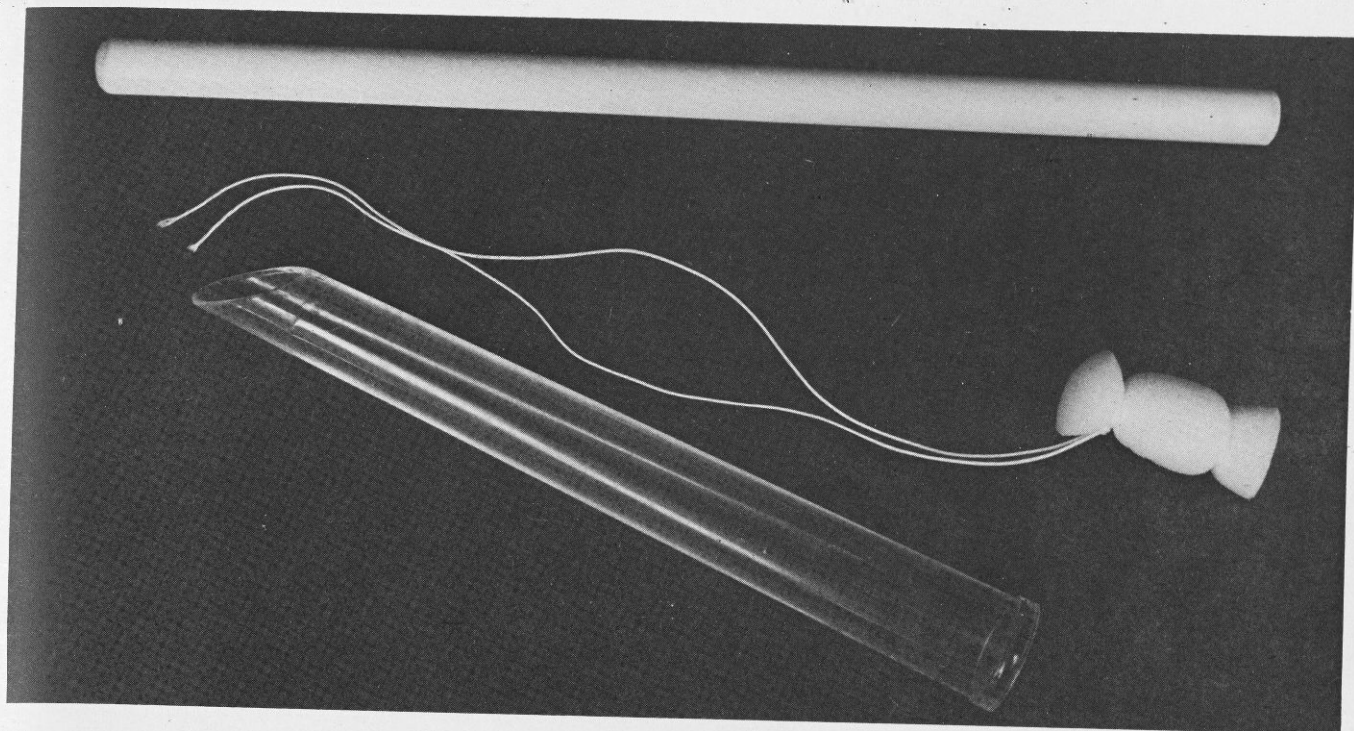
The effectiveness of the vaginal pessaries was tested in 74 ewes of three breeds at the Fargo Experiment Station. In the last breeding season 34 Hampshires, 35 Suffolks, and 8 Cheviot ewes were treated for 12 days. Upon removal of the pessaries, fertile rams with painted briskets were put in the breeding pens. Breeding marks were used as an indication of mating. The Suffolk ewes were divided into two groups with a ram lamb placed in one breeding group and an aged ram with the other group. The Suffolk ewes were pen-mated, whereas the other ewes were pasture-mated.

### Results

Of the 74 ewes treated, 87.8 per cent were synchronized within a 6 day period (Table 1). The mean number of days from treatment to the occurrence of first estrus was 2.9 days, which is comparable to that obtained with the oral progestogens.

Table 1. The control of estrual behavior with intra-vaginal pessaries inserted for 12 days.

Criteria	Hampshires	Suffolks		Cheviots	Total
		Ram No. 1	Ram No. 2		
Days to first estrus	3.4	2.3	2.9	2.0	2.9
% synchronized	83.9	94.4	82.3	100.0	87.8
First service conception rate (%)	65.5	38.9	47.1	87.5	56.9
Days from treatment to conception	8.0	12.1	11.1	4.1	9.6



Plastic tube and plunger apparatus used to insert Cronolone-saturated sponge (right center) into vaginal region of ewes in estrual control tests.

The first service conception rates in the Hampshire and Cheviot ewes was much higher than that noted in the pen-mated Suffolk ewes. This is partially explainable in that aged rams were used in the preceding groups with very little false mounting, and the ewes were not confined to such a restricted area, which also contributes to reduced false marks. The actual conception rates will be known definitely only upon lambing. Lambing rates indicated the aged Suffolk ram was a lowly fertile. Overall conception across breeds was 56.9 per cent, comparable to that of Combes et al., (1961). The conception rates of the Hampshires and Cheviots are reflected in the reduced intervals from treatment to conception for these breeds versus the Suffolks, where several repeat matings lengthened this interval.

The real objective of estrus synchronization is to provide a means of control whereby a large number of females would exhibit sexual desire at a given time, conceive and undergo parturition within a limited interval. This would provide offspring uniformity, and the shorter lambing period would reduce housing and labor needs. The use of vaginal pessaries may more appropriately provide a means of doing this in sheep.

#### SUMMARY

By preventing ovulating hormone (LH) release like the oral progestogens, the vaginal pessaries may provide a satisfactory means of estrus synchronization. The pessaries effectively control the

occurrence of estrus as evidenced by 87.8 per cent of the ewes coming in heat within six days after treatment. Estrogen production, which requires ovulating hormone, is retarded until the pessary containing progestogen is removed.

Based on the preliminary data, conception rates are comparable to those obtained with the oral progestogens and similar to those normally observed in untreated ewes. Approximately 57 per cent of the ewes were mated, and conceived within a 6 day period. All these ewes probably will lamb within a 14 day interval, providing a more uniform group of lambs than normally occurs with ewes that are not synchronized.

Administration of treatment certainly is much easier; this is an advantage to the producer. Lambing results and further testing will provide more insight into the feasibility of vaginal pessaries as a possible answer to estrual control in sheep.

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# Irrigation Practices And Costs In North Dakota

Prospects for constructing the Garrison Diversion Unit have intensified interest in irrigation development in North Dakota. While the traditional gravity flow methods of applying water are well known in the western states, they are the subject of much discussion in the area to be served by the Garrison Unit. Several types of sprinkler systems are beginning to attract attention as alternate ways to apply water. NDSU Experiment Station Bulletin No. 474, "Irrigation Practices and Costs in North Dakota," summarizes the first of a series of research studies on the economics of agricultural water management. The studies are a joint effort

of the North Dakota Agricultural Experiment Station and the Natural Resource Economics Division, Economic Research Service, USDA. This study of sprinkler irrigation systems is designed to give farmers information they need about the economics of different irrigation methods: Capital investment and labor requirements, operating costs, and advantages and disadvantages. Other significant irrigation studies are in progress at NDSU. Bulletin No. 474 is now ready for distribution. Copies can be obtained from county agricultural extension agents or from the Agricultural Information Department, NDSU, Fargo.

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