The Relationship of Darkness and Confinement to Early Rebreeding of Spring Lambing Ewes

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Story in Brief

During the fall of 1968 a group of 113 ewes were bred to lamb between March 15 and April 5, 1969. As ewes and lambs were removed from lambing pens three days after lambing they were alternately placed in a dark, confined area or in a regular barn-night lot environment until 25 days after lambing. As the ewes in each group reached the 25 days after lambing stage, they and their lambs were removed from their treatment group, turned to pasture and exposed to fertile rams until June 30. Mating behavior indicated essentially no treatment effect on the occurence of estrus during the breeding period. Lambing records indicated that the conception rate and interval from lambing to conception was practically the same for the two groups. Thus, the experiment indicated that the use of darkness and confinement immediately after lambing apparently had no beneficial effect on spring lambing ewes in terms of getting them to breed back sooner.

Introduction

A four year study involving efforts to breed Dorset, Rambouillet and Dorset X Rambouillet crossbred ewes twice-yearly clearly demonstrated that under natural conditions ewes that lambed in March and April did not breed back for fall lambing very readily. Only about 23 percent of the ewes conceived after lambing in the spring and the average interval from lambing to conception was about 66 days for those that did conceive. These results suggest then that management practices

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need to be discovered that will increase the proportion of ewes conceiving and shorten the interval from lambing to conception if possible.

It was decided to conduct a study to determine if light control and/or confinement of ewes immediately after lambing would hasten rebreeding. These factors were selected for study for several reasons. First, it has been reported on many occasions that reducing the amount of daylight gradually during the spring will improve the out-of-season the experimental flock at Ft. Reno, a group of ewes that were confined and subjected to different light conditions for most of the first 25 days after lambing mated and conceived better than a similar group of ewes that were neither confined nor subjected to restricted light during the same period of time. Third, research in Virginia showed that ewes confined after lambing mated and conceived rather readily when lambs were weaned and ewes were turned to pasture 30 days after lambing.

This paper reports an experiment conducted during 1969 to determine whether spring lambing ewes exposed to darkness and confinement for a period of time after lambing would rebreed for fall lambing any better than similar ewes not confined nor subjected to darkness.

Materials and Methods

The experimental plan was to determine if placing ewes in a very dark area under close confinement for the period starting three days after lambing and extending until 25 days after lambing would cause them to breed back sooner than similar ewes exposed to normal light and allowed to move in and out of the barn.

The ewe flock available was composed of 35 Dorset, 91 Rambouillet and 81 Dorset X Rambouillet crossbred ewes. This entire flock was exposed to rams for 20 days starting on Octoger 20, 1968 in order to get a large number of ewes to lamb during a short period of time during late March and early April. In spite of the fact that 70 of the ewes had lambs at side, 113 ewes conceived and lambed between March 15 and April 5, 1969.

As ewes lambed they were placed in lambing pens where lambs were weighed and identified. Three days after lambing each ewe with her lamb (s) was assigned to either the dark group or the control group taking care to have the breed groups equally represented on both treatments. Also an equal number of twin rearing ewes were placed on each treatment. The two groups of ewes were fed the same ration during this period.

Twenty five days after each ewe lambed she and her lamb (s) were removed from the treatment group and placed out on pasture with a ram. The rams were equipped with marking harnesses to permit record-

ing of mating behavior. The ewes were observed each morning and the ewes that had mated were recorded. In this manner it was possible to determine the time interval from lambing to estrus for each ewe that showed estrus before June 30 at which time the breeding season ended. This procedure permitted a ewe that lambed on March 15 a period of 107 days to show estrus and a ewe that lambed on April 5 and 87 days to return to estrus before the rams were removed.

The ewes were kept under normal conditions and lambed out during the fall of 1969. Lambing records could then be compared to mating records and a determination made as to which matings resulted in conceptions.

Results

The comparison of the behavior of the two groups of ewes is summarized in Table 1. There were 56 ewes in the dark and confined group and 57 ewes in the control group. An equal number, 42, of the ewes in each group mated some time during the April to June breeding season. The average interval from lambing to first mating of the ewes that mated was almost identical for the two groups, 58 and 57 days respectively for the dark and the control group respectively.

The lambing records indicated that the conception rates were also very similar. Of the 42 dark and confined ewes that showed estrus (mated), 23 conceived at their first estrus and 34 or 67 per cent conceived altogether. This was comparable to the control ewes where of 42 ewes showing estrus, 24 conceived at first estrus and 31 or 54 percent conceived during the mating season.

Table 1. Summary of Mating and Lambing Performance of Spring Lambing Ewes Exposed to Darkness and Confinement vs. Normal Light and Space

	Dark Confined	Normal
No. ewes	56	57
No. ewes showed estrus	42	42
Av. interval to 1st estrus (da.)[1]	58	57
No. ewes conceived 1st estrus	23	24
No. ewes conceived (total	34	31
% ewes conceived (%)	61	54
Av. interval to conception da.	65	62
Lambing rate[2]	1.29	1.32

[1] Days from lambing to first estrus for those ewes that showed estrus.
[2] Lambs born per ewe lambing.

One of the most serious problems of multiple lambing involves trying to get ewes to mate soon after lambing. Previous experience had indicated an average interval of 66 days from lambing to conception for those ewes that did conceive after lambing in March and April. The two groups of ewes in this experiment demonstrated about the same performance. The interval was 65 days for the ewes on the dark treatment and 62 days in the control group. Thus, we have no suggestion that darkness used as in this experiment will aid in shortening the postpartum interval in the spring.

The lambing rates were also very similar for the two groups of ewes with no suggestion that the dark and confined group benefitted from this treatment.

These overall results do not suggest that darkness or confinement as used in this experiment has much if anything to contribute to solving the problem of getting spring lambing ewes to breed back quickly. The results from 1967, quoted earlier, had shown a great improvement in the number of spring lambing ewes that bred back after lambing in the spring with little change in the average interval from lambing to conception. The results of this experiment also indicated that over half of the ewes bred back after lambing between March 15 and April 5 but the average interval from lambing to conception, for those ewes conceiving, was over 60 days.

It would appear that other factors that might influence the postpartum interval should now be investigated.
