

Effects of Early Weaning on Subsequent Rebreeding in Spring Lambing Ewes

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Story in Brief

In the spring of 1970, the lambs of 36 ewes were weaned at 30 days of age while the lambs of 36 other ewes (control ewes) were weaned at the normal 70 days of age. Of the 36 early weaned and control ewes, 33 (91.6 percent) and 24 (66.7 percent) mated with intervals (average number of days from lambing to first mating) of 58 and 64 days respectively. Of the ewes mating, 21 early weaned (58.3 percent) and 14 control (38.8 percent) ewes conceived to lamb the following fall with average spring lambing to conception intervals (average number of days from lambing to conception) of 58 and 65 days respectively. Early weaned and control ewes produced an average of 1.52 and 1.64 lambs per ewe lambing.

These results suggest that early weaning of lambs increases the percentages of ewes mating and conceiving following lambing in the spring and also decreases the interval from lambing to conception. However, there were not enough ewes involved to show conclusively how much improvement one might expect and the trial will be repeated.

Introduction

Currently sheepmen in Oklahoma are searching for some type of management system whereby they can increase lamb production without greatly increasing outlays of land and capital. One method by which this might be accomplished involves increasing the number of times a ewe lambs each year. In 1963 a program was initiated at the Fort Reno Livestock Research Station, El Reno, Oklahoma, to evaluate the problems associated with a twice-a-year lambing system. A ewe successfully performing on a twice-yearly lambing schedule would carry lambs for 294 days out of a year; thus within the remaining 71 days, she would lamb, rebreed and conceive twice.

Results from this twice-yearly lambing study, reported in 1969, indicated that the intervals from lambing to conception in the spring and

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fall seasons were 66 and 44 days respectively. Also, 71 percent of the ewes lambing in the fall rebred and conceived while only 23 percent of the spring lambing ewes rebred and conceived. Thus, a large percentage of the ewes in both the spring and fall did not conceive soon enough after lambing to maintain a successful twice-yearly lambing program. Also, a much greater percentage of the total lambs produced were born in the spring.

In an effort to discover ways to reduce the interval from lambing to conception and also to increase the number of ewes conceiving in the spring, an early weaning trial was conducted in the spring of 1970.

Materials and Methods

In the fall of 1969, the experimental ewes at the Fort Reno Livestock Research Station were exposed to fertile rams from October 20 to November 10. Thus lambing in the spring of 1970 was from March 15 through April 5 during which time 72 ewes (12 Dorset; 28 Dorset-Rambouillet Crossbred; 32 Rambouillet) gave birth to 45 sets of twins, 2 sets of triplets and 25 singles. These 72 ewes were allotted into two groups as they lambed with approximately half of each type (breed or breed cross) of ewe and half of each type of lambing (triplets; twins; singles) represented in each group. The lambs of 36 of the ewes were weaned at 30 days of age (early weaned ewes) while the remaining 36 ewes (control ewes) suckled their lambs until the normal weaning age of 70 days.

As lambs were weaned at 30 days of age, the ewes were exposed to fertile rams as were control ewes as their lambs reached 30 days of age. Thus breeding began when the oldest lamb reached 30 days of age (April 15, 1970) and continued through June 15. Therefore, some ewes were exposed to fertile rams for as long as 60 days while later lambing ewes were exposed for a shorter period of time. However, the latest lambing ewes (giving birth on April 5) were exposed to fertile rams for at least 40 days. This system allowed a ewe that lambed March 15 a period of 90 days to show estrus and a ewe that lambed April 5 had 70 days in which to show estrus before breeding ended on June 15. Mating records were obtained by use of sire marking harnesses and visual observation. All ewes were allowed to go full term and lambing began September 30, 1970. Thus, both mating and conception records were available.

A creep area was available to all lambs within ten days after their birth. The creep feed consisted of five percent molasses, 55 percent cracked milo, ten percent soybean meal and 30 percent ground alfalfa hay. All lambs to be early weaned, upon reaching 30 days of age, were removed from the vicinity of their dams and placed in a small pen (20 feet by 40 feet) at a lamb feeding barn with only the creep feed and water available

to them. After approximately 20 days, the lambs were allowed out of the small pen and until marketed, had access to a large dry lot at the feeding barn. As the lambs of the control ewes were weaned at 70 days of age, they too were moved to the lamb feeding area, but were contained in a different dry lot than the early weaned lambs in order to keep accurate feed consumption records for both groups.

In an effort to control internal parasite infestation, none of the lambs were ever allowed out of the dry lot. When the youngest lambs were about 12 weeks old, the soybean meal was removed from the creep ration and replaced with ground alfalfa. When the oldest lamb reached 30 days of age, a biweekly weighing schedule was initiated and continued until all lambs were marketed at approximately 93 pounds.

Results and Discussion

Even though the number of ewes involved in this trial was somewhat limited, certain trends are evident. This discussion will be limited to comparisons of mating and reproductive performances of early weaned and control ewes as well as a summary of lamb performance.

Table 1 presents a summary of the post-lambing mating performance of all ewes under this program. Thirty-three early weaned ewes (91.6 percent) mated with an average interval of 58 days from lambing to first post-lambing estrus. Only 24 control ewes (66.7 percent) mated during the same period with an average interval of 64 days from lambing to first post-lambing estrus. The average first post-lambing estrus for early weaned and control ewes was May 24 and May 30 respectively. Thus, a greater percentage (91.6 vs 66.7) of the early weaned ewes mated after lambing, and they also mated six days earlier than the control ewes.

Table 2 presents a summary of the subsequent fall lambing performance of early weaned and control ewes. Of the 36 early weaned ewes exposed to fertile rams in the spring, 21 or 58.3 percent conceived and

Table 1. Mating Performance of Early Weaned and Control Ewes Following Spring Lambing.

	Early Weaned Ewes	Control Ewes
No. of ewes ¹	36	36
Avg. Spr. lambing date	March 27	March 27
No. ewes mating	33	24
% ewes mating	91.6	66.7
Avg. 1st mating date	May 24	May 30
Avg. int. lambing to first mating ²	58	64

¹ Number of ewes available.

² For those ewes that showed estrus.

Table 2. Summary of Reproductive Performance of Early Weaned and Control Ewes Following Spring Lambing.

	Early Weaned	Control
No. of ewes ¹	36	24
No. of ewes mating	33	14
No. of ewes conceiving	21	38.8
% lamb, mate, conc. of ewes available	58.3	May 31
Avg. conc. date	May 24	64
Avg. int. lamb to conc.	58	1.64
Lambing rate ²	1.52	37.4
% ewes conc. to 1st mating	48.4	58.3
% ewes conc. of ewes that mated	63.6	36

¹ Number of ewes available.

² Based on ewes that lambled.

lambled the following fall. However, only 14 of the 36 available control ewes (38.8 percent) conceived during the spring breeding season to lamb the following fall. With respect to the number of ewes conceiving of ewes mating, 33 early weaned ewes mated with 21, or 63.6 percent, conceiving while only 14 of the 24 (58.3 percent) control ewes mating actually conceived. The average intervals from spring lambing to conception were 58 and 64 days respectively for early weaned and control ewes. Thus a greater percentage (58.3 vs 38.8) of the early weaned ewes conceived in a shorter period of time (58 vs 64 days) than the control ewes.

Lambing rates (average number of lambs born per ewe lambing) in the fall were similar for both groups of ewes with early weaned and control ewes producing an average of 1.52 and 1.64 lambs respectively.

The performance of the early weaned lambs and lambs of the control ewes is summarized in Table 3. The early weaned lambs gained at a somewhat slower rate (0.55 vs 0.63 pounds per day) from birth to 70-days than lambs of the control ewes. However, gains from 70-days to market were more comparable (0.52 vs 0.57 pounds per day) for the early weaned lambs and the lambs weaned at 70 days of age. Thus, the lambs from the control ewes were heavier at 70 days of age (56.9 vs 48.4 pounds) and reached market weight (97.2 vs 92.8 pounds) nine days earlier (147 vs 156 days) than the early weaned lambs.

The results of this study indicated that early weaning of lambs increased the percentage of ewes mating and conceiving following lambing in the spring and also suggested a decreased interval from lambing to conception. However, this interval was not decreased enough by early weaning to assure a successful twice-yearly lambing program. But since a greater percentage (58.3 vs 38.8 percent) of the early weaned ewes did conceive following lambing in the spring and gave birth to lambs the fol-

Table 3. Performance of Lambs Weaned at 30 Days of Age and Lambs Weaned at 70 Days of Age.

	Weaned at 30 days of age	Weaned at 70 days of age
ADG birth to 70-days	0.55	0.63
70-day weight	48.4	56.9
ADG 70-days to mkt.	0.52	0.57
Avg. mkt. age	156	147
Avg. mkt. wt.	92.8	97.2

lowing fall, early weaning could prove useful in some situations. If a sheepman wished to convert a group of spring lambing ewes to fall lambing schedule without sacrificing a complete lambing, early weaning could aid in this conversion.

Adaptation of Sheep to Biuret as a Nitrogen Source When Fed Low Quality Roughages

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Story in Brief

Rumen fistulated lambs were utilized to study the adaptation of rumen microflora to biuret as a source of nitrogen. The lambs were fed a low quality bermudagrass hay plus supplements containing either (1) cottonseed meal, (2) biuret, (3) biuret + cornmeal or (4) urea + cottonseed meal. There was little apparent effect of the nitrogen supplements on digestibility of dry matter, organic matter or fiber. Nitrogen retention data was highly variable.

When rumen contents from the lambs were utilized as inoculum for *in vitro* cellulose digestion studies, there appeared to be no adaptation