

Relationship Between Prewaning Growth Rate of Female Lambs And The Growth Of Their Offspring

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Story in Brief

Data available from 129 single and 111 twin-reared Dorset X Western replacement ewes were utilized to evaluate the relationship between preweaning (birth to 70 days of age) ewe lamb growth rate and subsequent milking ability as estimated by offspring growth rate from birth to 70 days of age. The single and twin-reared ewes produced 984 and 629 lambs, respectively. The relationship between preweaning ewe lamb growth rate and subsequent milking ability was determined for each age of dam (15, 24, 36, 48, 60, 72, 84 and 96 months of age) by comparing the average birth weights and average 70-day weights of the lambs born to the single and twin-reared ewes.

The single-reared dams were heavier at birth (9.3 vs. 8.2 pounds), gained faster to weaning at 70 days of age (0.68 vs. 0.55 pounds per day) and were heavier at 70 days of age (57.2 vs 47.1 pounds) than the twin-reared ewes.

At almost all ages of dams (except when the dams were 96 months old) the lambs out of the single and twin-reared ewes had very similar birth weights. However, weaning weights (70 days of age) were slightly different for lambs out of the two groups of ewes. When the ewes were rather young (15, 24 and 36 months) the lambs out of twin-reared ewes were slightly (nonsignificant) heavier at weaning than lambs born to the single-reared ewes. After the ewes reached maturity (48-96 months of age) differences in lamb weaning weights were quite small and not consistently in favor of lambs out of either single or twin-reared ewes.

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These data suggest that there is no serious problem (if any) resulting from single ewe lambs getting too fat (because they get all of their mothers' milk) and having their own milk producing potential damaged thereby.

Introduction

There is some concern among livestock producers that females fed to grow rapidly from birth to weaning may subsequently become poorer milkers than females developed at slower rates. If this is true in sheep, then the heavier ewe lambs at weaning might not become the most productive ewes.

Information available from single and twin-reared ewe lambs selected to become replacement ewes allowed evaluation of this early growth-subsequent milk production relationship since the single-reared ewe lambs grew considerably faster to 70 days of age than did the twin-reared ewes. If rapid early growth and fattening does adversely affect milk production, then lambs out of faster growing single-reared ewes should be lighter at 70 days of age than lambs born to slower growing twin-reared ewes.

This study was undertaken to determine if rapid gaining (single reared) ewe lambs become poorer milking ewes than slower gaining (twin-reared) ewe lambs and to determine if this lowered milk production existed over the entire lives of the single-reared ewes or if it disappeared as the ewes matured.

Experimental Procedure

During the fall seasons of 1956 through 1964 (excluding 1961 and 1963), varying numbers of single and twin-reared Dorset X Western crossbred ewe lambs were saved to become replacement ewes at the Fort Reno Livestock Research Station, El Reno, Oklahoma.

Over these years, 129 single-reared and 111 twin-reared ewe lambs were saved on which production records were available. In each year, these ewe lambs were usually the first open-faced ewe lambs reaching a weight of 80-85 pounds. The 129 single-reared ewes produced 984 lambs in their lives while the twin-reared ewes produced 629 lambs.

All of the single and twin-reared ewe lambs were born between October 10 and November 25 each year. When the ewe lambs were about two weeks old, they along with their dams were allowed to graze wheat pasture and the ewe lambs had access to a creep (free choice) feed con-

sisting of 68 percent cracked milo, 5 percent molasses and 32 percent chopped alfalfa hay. The ewe lambs remained on the wheat pasture until early March and had access to the creep feed until reaching about 80 to 85 pounds. At this weight the single and twin-reared ewe lambs selected as replacements were removed from the creep feed and thereafter were maintained as a single flock on pasture and supplemental feed as needed to attain desired growth and development.

All the single and twin-reared ewe lambs were first exposed to fertile rams during a late summer breeding season when they were about ten months old. Thereafter, they were maintained on a breeding and lambing schedule illustrated in Figure 1.

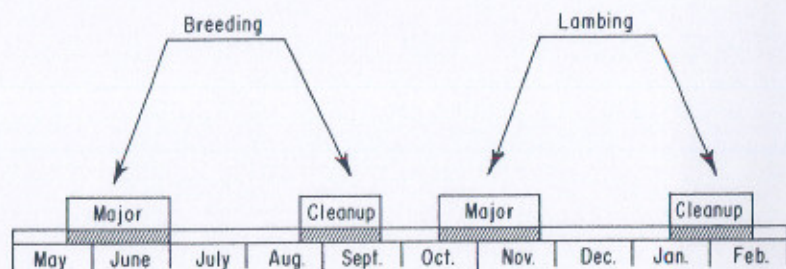


Figure 1. Breeding and Lambing Periods

Throughout the lives (birth to 96 months of age) of the single and twin-reared ewes, they were managed as one flock. Culling of the ewes was done only when physical condition became extremely poor. Furthermore, the offspring of these single and twin-reared ewes received the same treatment. Thus differences in growth rates of lambs out of the single and twin-reared ewes should have been due to the amount of milk produced by the two kinds of ewes because other factors were equal.

Though measured differences in lamb growth from birth to weaning at 70 days of age are due to both genetic differences in growth potential and milk consumption, it has been shown that about 80 percent of the variation in lamb weaning weights at 70 days of age is directly related to differences in milk consumption. Thus, weaning weights of the lambs out of the single and twin-reared dams should reflect to a large extent differences in milk production by the two kinds of ewes.

Results and Discussion

The growth rates and weaning weights of the single and twin-reared ewes used in this study were considerably different. The single-reared ewes were heavier (9.3 vs. 8.2 pounds) at birth, gained faster from birth to weaning at 70 days of age (0.68 vs. 0.55 pounds/day) and were therefore heavier (57.2 vs. 47.1 pounds) at 70 days of age. If rapidly grown ewe lambs do subsequently become poorer milking ewes than slower ewe lambs, the offspring of the slower growing twin-reared ewes should be heavier at weaning (70 days of age) than the offspring of the faster growing single-reared ewes. Any harmful effects upon subsequent milking abilities due to the different growth rates of single and twin-reared dams should be detectable in the growth rates of their lambs.

Offspring Birth Weights.

Though birth weight of the lambs born to the single and twin-reared ewes were not of primary interest, they must be considered because it has been established that each extra pound at birth results in about three extra pounds at 70 days of age. The average birth weights of the lambs born to the single and twin-reared ewes are presented in Table 1. These birth weights are presented for each age of dam at each lambing. These data indicate that the birth weights of the lambs born to the single and twin-reared ewes were very similar at all ages of dams until the ewes reached 96 months of age. Thus, differences in the 70-day weights of their offspring due to differences in birth weights should be quite small.

Offspring Weaning (70 days of age) Weights.

The weaning weights of the lambs out of the single and twin-reared ewes are presented in Table 1 and further illustrated in Figure 2. When the ewes were young (15, 24 and 36 months old), the lambs out of the twin-reared ewes were consistently (1.7, 1.4 and 0.7 pounds) though only slightly heavier at weaning than lambs born to the single-reared dams. However, after the dams reached maturity (48 and 60 months old), the average weaning weights of their lambs were almost equal. When the ewes were over 60 months old, differences in the weaning weights of their lambs were small and not consistently in favor of lambs out of either type ewe.

It should further be noted at this time that at no age of dam was the difference in the weaning weights of the lambs out of the single and twin-reared ewes statistically significant. However, when the ewes were

Table 1. Mean Birth and 70-Day Weights of Lambs Born to the Single and Twin-Reared Dams Classified by Age of Dam

Age of Dam	15 mo.	24 mo.	36 mo.	48 mo.	60 mo.	72 mo.	84 mo.	96 mo.	Av of All Lambs
Birth Weight									
Single-reared	8.27	8.70	8.91	8.91	9.10	9.29	9.45	9.80	8.78
Twin-reared	8.41	8.70	8.89	9.24	9.24	9.23	9.23	10.80	8.82
70-Day Weight									
Single-reared	46.0	50.0	52.3	53.7	51.8	52.6	53.5	55.3	50.0
Twin-reared	48.3	51.4	53.0	53.7	51.9	53.3	52.6	55.6	51.0

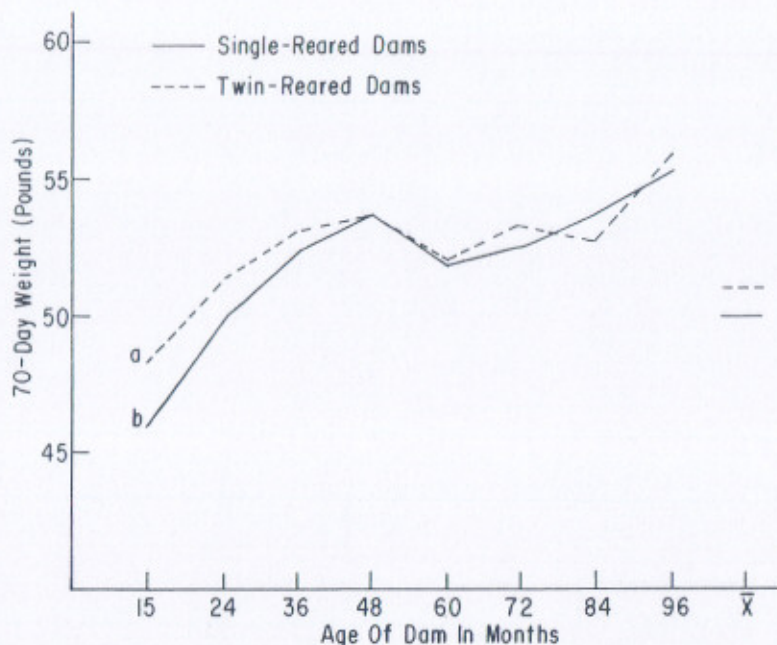


Figure 2. Mean 70-Day Weights of Lambs Born to Single and Twin-Reared Dams Presented by Age of Dam With The Data Pooled Over Age of Dam at First Lambing

15 months old, the difference of 1.7 pounds approached or was near statistical significance.¹

Conclusions

As indicated in the introduction, there is concern that rapid early growth may decrease the milk production of the producing ewe. In this study, when the ewes were relatively young (15, 24 and 36 months old), the lambs born to the twin-reared ewes were slightly heavier at weaning than lambs out of the single-reared dams. These results suggest rather weakly that rapid early growth may only very slightly decrease ewe milk production when the ewe is fairly young (36 months or younger). After the ewe reaches maturity (48 months), evidence of decreased milk pro-

¹ The words "statistical significance" mean that the evidence is strong that a real difference actually exists due to reasons other than just pure chance.

duction seems nonexistent.

Therefore, it would seem advisable for sheepmen who are saving female replacements from within their own flocks to save twin-reared ewe lambs as much as is practical. This would seem advisable since production capabilities (milking abilities) seem as high or higher for twin-reared ewes, and this also should result in slightly improved lambing rates (over a period of years) since twinning is somewhat heritable. However, since adequate numbers of twin-reared ewes are not normally available to meet replacement needs, some single-reared ewes will have to be saved. Since the evidence indicating decreased milk production is rather slim, it would seem advisable to select faster growing (birth to weaning) single-reared ewe lambs also.

Lifetime Reproductive Performance Of Single vs. Twin-Born Crossbred Ewes

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Over a three year period (1956-1958) 77 single and 35 twin-born Dorset X Western crossbred ewe lambs were saved as replacements at Fort Reno. Some of these single and twin-born ewe lambs lambed first at 15 months of age (41 single-born, 14 twin-born) while the remainder (36 single-born, 21 twin-born) lambed first at 24 months of age. Twin-born ewes that lambed first at 15 months appeared more productive over their lives than single-born ewes lambing first at 15 months (11.8 vs. 9.7 lambs produced in eight years production). However, for single and twin-born ewes lambing first at 24 months of age, little difference in their lifetime reproduction (9.9 vs. 9.8 lambs born in seven years of production) could be detected.

When age of dam was not considered, twin-born ewes seemed slightly more productive over their entire lives than single-born ewes. Twin-born

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