

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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Story in Brief

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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ewes gave birth to an average of 10.6 lambs in their lives while single-born ewes produced an average of 9.8 lambs in their lives. Furthermore, twin-born ewes gave birth to an average of 1.51 lambs per lambing while single-born ewes produced an average of 1.46 lambs per ewe per lambing.

Introduction

Reproductive rate has always been of major importance in any sheep enterprise. However, with increased land prices, increased labor costs and decreased availability of grazing land during recent years, reproductive rate has become even more important. Reproductive rates of 120 percent or less are not uncommon in the western and Great Plains areas of the United States. The sheep industry cannot remain competitive with alternative livestock enterprises with lambing rates near one lamb born and saved per ewe lambing.

There are two general ways one might improve reproductive rate: by improving the environment (management and feeding) and by breeding and selecting more productive sheep (selecting twin-born breeding stock). The purpose of this paper is to present observed productivity of single vs. twin-born ewes.

Even though response to selection for twinning ability (saving twin-born ewe lambs as replacements) may be rather low, it has been shown that twin-born ewes of some breeds may be from 3 to 10 percent more prolific than single-born ewes. Using these figures, it can be seen that selecting twin-born ewes might result in improved lambing rates over a period of several years.

Materials and Methods

During the years 1956, 1957 and 1958, varying numbers of single-born and twin-born Dorset X Western crossbred ewe lambs were saved to become replacement ewes for ongoing sheep research studies at the Fort Reno Livestock Research Station at El Reno, Oklahoma. Over these three years, 77 single-born and 35 twin-born ewe lambs were saved on which lifetime (production to 96 months of age) production records were available. In each year, these ewe lambs were usually the first open-faced ewe lambs reaching a weight of 80 to 85 pounds.

The ewe lambs saved each year were born between October 10 and November 25. These single and twin-born ewe lambs were managed the same throughout their entire lives. Beginning at about two weeks of age, the ewe lambs were allowed to graze wheat pasture and had access to a creep feed (free choice) consisting of 63 percent cracked milo, 32 percent ground alfalfa hay and 5 percent molasses until reaching about 80 to 85 pounds. At this weight the ewe lambs were weaned and removed from

the creep feed area. Thereafter they were maintained on pasture and supplemental feed as needed to attain desired growth and development.

When these single and twin-born ewe lambs were approximately ten months old, they were exposed to fertile rams during a 30 day late summer breeding period. The ewe lambs that conceived then lambed at about 15 months of age in mid-winter. Their lambs were weaned at about 50 to 70 days of age. All the single and twin-born ewe lambs were again exposed to fertile rams at about 19 months of age during a 40-day spring breeding period with possible lambing at about 24 months of age in the early fall. Thereafter, the ewes were maintained on a breeding and lambing schedule illustrated in Figure 1. As a result of the first two exposures to fertile rams, 41 single and 14 twin-born ewe lambs lambed first at 15 months of age while 36 single and 21 twin-born ewe lambs lambed first at 24 months of age.

Throughout the entire lives of the single and twin-born ewes, they were managed as a single flock. Culling of the ewes was done only when physical condition became extremely poor with no culling on the basis of reproductive performance.

Results and Discussion

In Table 1 are presented the observed reproductive performances of the single and twin-born ewes lambing first at 15 and 24 months of age. As indicated in the two left hand columns of the table, there were 41 single and 14 twin-born ewes that lambed first at 15 months of age. Each of these ewes had eight opportunities (years) to lamb. On the average the twin-born ewes lambed more times in their lives (7.5 vs. 6.8), produced more lambs per ewe (11.8 vs. 9.7) in their lives, and gave birth to more lambs at each lambing (1.57 vs. 1.42) than the single-born ewes.

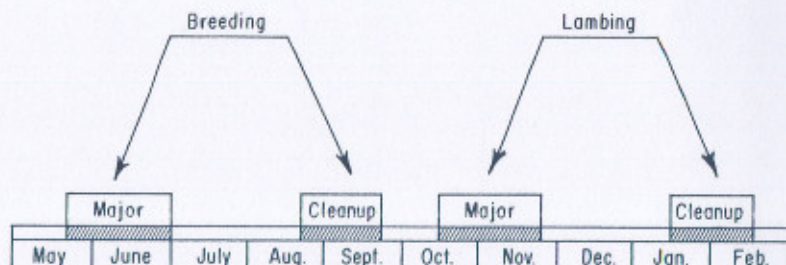


Figure 1. Breeding and Lambing Periods

Table 1. Observed Reproductive Performances of Single and Twin-Born Ewes Lambing First at 15 and 24 Months of Age

Traits	Lambd at 15 months		Lambd at 24 months	
	Single	Twin	Single	Twin
No. of ewes available	41	14	36	21
Av. no. of opportunities to lamb/ewe/lifetime	8	8	7	7
Av. no. of times each ewe lambed	6.8	7.5	6.6	6.7
Total no. lambs born	398	165	356	205
Av. no. born/ewes	9.7	11.8	9.9	9.8
Av. no. of lambs born/ewe/lambing	1.42	1.57	1.50	1.46
Av. no. of lambs born/ewe/opportunity to lamb	1.21	1.42	1.41	1.40

Though these differences are not extremely large, it seems that of ewes lambing at a very young age (15 months), the twin-born ewes were more productive over their entire lives than the single-born ewes. However, for the single and twin-born ewes that lambed first at 24 months of age, little difference can be seen in their lifetime reproductive performance.

Each of the 36 single and 21 twin-born ewes that first lambed at 24 months of age had seven opportunities (7 years) to lamb. As can be seen in the two right hand columns of Table 1, the single and twin-born ewes were essentially equal in average number of times each ewe lambed (6.6 vs. 6.7), in average number of lambs born per ewe (9.9 vs. 9.8), and in average number of lambs born per ewe per lambing (1.50 vs. 1.46). These observations suggest little if any reproductive rate advantage for twin-born ewes over single-born ewes if the ewes lamb first at two years of age.

Whether a ewe lambs at 15 or 24 months of age is more than likely a function of the size and sexual development of the ewe. If the ewe is relatively large and well developed at 15 months of age she will be more likely to lamb than if she is small and not yet developed. Consequently, a sheepman may be unable to determine what proportion of his replacement ewe lambs will lamb at an earlier age than two years. In this respect then, Table 2 presents the observed lambing performance of single vs. twin-born ewes disregarding age of ewe at first lambing.

As is indicated in Table 2, each of the 77 single-born ewes had an average of 7.5 opportunities to lamb while each of the 35 twin-born ewes had an average of 7.4 opportunities to lamb. Each of the twin-born ewes lambed an average of 7.0 times in their lives while each of the single-

Table 2. Observed Reproductive Performances of Single and Twin-Born Ewes

Traits	Dam Type of Birth	
	Single-Born	Twin-Born
No. of ewes	77	35
Av. no. of opportunities to lamb/ewe/lifetime	7.5	7.4
Av. no. times each ewe lambed	6.7	7.0
Total no. lambs born	754	370
Av. no. born/ewe	9.8	10.6
Av. no. of lambs born/ewe/lambing	1.46	1.51
Av. no. of lambs born/ewe/ opportunity to lamb	1.30	1.43

born ewes lambed an average of 6.7 times. Furthermore, each twin-born ewe produced an average of 10.6 lambs in her life (an average of 1.51 lambs per lambing) while each single-born ewe gave birth to 9.8 lambs or an average of 1.46 per lambing. Thus, even when the various ages of dams at first lambing are not considered, the twin-born ewes still appear somewhat more productive over their entire lives than single-born ewes.

These data suggest a small productive advantage for twin-born ewes. Although no great increase in productivity is indicated, what difference there is suggests that sheepmen who raise their own ewe replacements would make a small gain by consciously selecting twin ewe lambs as replacements.