

## Western vs. Dorset X Western Crossbred Ewes for Fall Lamb Production

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### Story in Brief

During the years 1957-1959, a flock of 120 Dorset x Rambouillet (Western) and 120 whitefaced Western ewes was established at Ft. Reno to test their productivity in a fall-lambing program. This paper presents a complete analysis of the lifetime performance of these ewes. The greatest difference was found in the number of lambs born and raised during the fall-lambing season. The Dorset crossbred ewes raised about 23 percent more fall-born lambs than the whitefaced Western ewes. The Western ewes sheared 1.6 pounds heavier fleeces, but the estimated clean wool production was similar for the two groups. For other productive measures of performance, there were no striking differences.

### Introduction

The practice of producing fall-born lambs to be marketed during the spring has generally been favorable under Oklahoma conditions especially for those producers who are willing to utilize wheat pasture for winter grazing. In recent years, however, there has been some concern as to what is the most productive ewe from the standpoint of lamb and wool production under this type of management system.

Oklahoma sheepmen have traditionally purchased replacement ewes for their flocks from the West Texas and New Mexico area rather than raising their own replacements. This procedure has been practiced since raised ewe lambs are usually worth more as fat slaughter lambs at five months of age than purchased yearling ewes cost. Furthermore, the purchased ewes generally breed well in the spring (a necessary requirement for fall-lambing), are relatively long-lived and shear heavy fleeces. Many of these purchased replacements, generally referred to as "Western" ewes,

are grade Rambouillets or various mixtures of Rambouillet with Merino, Columbia, Panama or Corriedale.

The purpose of this study was to answer the question: can Oklahoma sheepmen raise more productive ewes than those normally purchased as replacements for fall lamb production? The lifetime performance of 120 purchased Western ewes was compared with the lifetime performance of 120 raised Dorset x Western ewes when both ewe breed groups were managed similarly under a fall-lambing program. The two breed groups were compared on the basis of their reproductive performance, lamb growth performance, wool production and ewe mortality. The reproduction traits were: percent ewes lambing, lambing rate (lambs born per ewe lambing) and number of lambs reared per 100 ewes in the flock. The lamb growth and wool traits were: birth weight, 70-day weight, rate of gain from 70 days to market, market age (age at 95 lb.), grease fleece weight and clean fleece weight.

## Materials and Methods

During the spring of 1955 an experimental ewe flock was established at the Fort Reno Station. The initial flock consisted of 100 grade Rambouillet and 100  $\frac{3}{4}$  Rambouillet x  $\frac{1}{4}$  Panama purchased yearling ewes. From 1956 through 1958, these ewes were mated during the spring to purebred Dorset rams and during each of the fall seasons of 1956, 1957 and 1958, 40 ewe lambs were raised and the following spring seasons, 40 yearlings, considered to be typical of those normally purchased by Oklahoma sheepmen as replacements, were purchased for comparison with the raised replacements. The breed composition, number of ewes involved in each breed group and the season and year the ewes were purchased or raised are presented in Table 1. For the purposes of this study, all purchased ewes were combined and collectively referred to as Western ewes and the raised replacements referred to as Dorset crossbreds. In the production of the raised replacements, Dorset rams were used because a higher percentage of Dorset ewes will breed in the spring than will black-faced ewes.

The managerial practices were similar for the Western and Dorset crossbred ewes. The ewes from both breed groups were randomly assigned to breeding lots each year (40-50 ewes each) according to breed, age and past reproductive performance. The ewes of each breeding group were mated to one blackface (Suffolk or Hampshire) and one whiteface (Dorset) ram, and the two rams per breeding group were alternated, one breeding one night and the other the next night. Breeding for fall-lambing began on May 20 and had an average duration of 40 days. A 30-day "cleanup" breeding period beginning on August 20 was permitted for

**Table 1. Breed Composition, Number of Ewes Involved in Each Breed Group and the Season and Year the Ewes Were Purchased or Raised for Fall Lamb Production.**

Breed composition	No. of ewes	Season and yr. purchased	Season and yr. raised
Dorset x Rambouillet	20		Fall 1956
Dorset x ( $\frac{3}{4}$ Rambouillet x $\frac{1}{4}$ Panama)	20		Fall 1956
Panama	20	Spring 1957	
$\frac{3}{4}$ Rambouillet x $\frac{1}{4}$ Merino	20	Spring 1957	
Dorset x Rambouillet	20		Fall 1957
Dorset x ( $\frac{3}{4}$ Rambouillet x $\frac{1}{4}$ Panama)	20		Fall 1957
Rambouillet	20	Spring 1958	
Whiteface Market <sup>1</sup>	20	Spring 1958	
Dorset x Rambouillet	20		Fall 1958
Dorset x ( $\frac{3}{4}$ Rambouillet x $\frac{1}{4}$ Panama)	20		Fall 1958
Rambouillet	20	Spring 1959	
$\frac{3}{4}$ Rambouillet x $\frac{1}{4}$ Columbia	20	Spring 1959	

<sup>1</sup>Part Columbia, Panama or Corriedale mixed with Rambouillet.

those ewes failing to conceive during the regular breeding season. This breeding procedure resulted in fall (Oct. 15-Nov. 25) and winter (Jan. 15-Feb. 15) lambing. No "cleanup" breeding was permitted during 1966, at which time the project was being terminated. At the end of the breeding season, the breeding groups were pooled and remained on pasture until the lambing season began.

Approximately six weeks before the lambing season was to commence, the ewes were fed grain (cracked milo) at the rate of one-half pound per day. This grain intake was gradually increased to one pound per day as lambing time approached and was continued until the lambs were weaned. All ewes were lambed out in a central lambing barn and approximately two weeks after lambing, the ewes and their lambs were transferred to wheat pasture. The ewes that reared twin lambs were separated on wheat pasture from those that reared single lambs so that their grain intake could be continued longer.

The lambs were weaned at about 10 weeks of age and had access before and after weaning to a free-choice creep ration consisting of 63 percent cracked milo, 5 percent molasses and 32 percent chopped alfalfa hay. As the last lambs were weaned and their dams moved from wheat to dry grass pasture, all lambs were enclosed in a drylot feeding area and remained there with access to the creep ration until shipped to market at an average weight of 95 pounds.

All ewes were shorn from 5 to 10 days prior to the beginning of the spring breeding season. As each ewe was sheared, her grease fleece weight

was recorded and the fleece was squeezed using a Neale "squeeze" machine to estimate the clean fleece weight. Also, all ewes were tagged (crutched) and had their faces sheared about two weeks before fall-lambing began.

## Results and Discussion

### Ewe Reproduction

Records were available on both ewe breed groups over a 10-year period (1957-66) as to the number of ewes lambing and the number of lambs born and reared in both the fall and winter seasons of each year. In this study, any lamb alive at two weeks of age was considered to be reared. Lamb death losses beyond this period were usually associated with factors other than poor mothering ability of the ewes.

In a fall-lambing program under Oklahoma conditions, it is desirable to have as many ewes as possible lamb during the fall rather than the winter so maximum utilization can be made of the available wheat pasture and the lambs can be shipped to market before the advent of hot weather. Table 2 reveals that an average of 82.8 percent of the Dorset crossbred ewes lambled during the fall of each year compared to 75.1 percent for the Western ewes. However, on the average, 12.6 percent of the Western ewes lambled during the winter of each year compared to 8.3 percent for the Dorset crossbred ewes. Since more Western ewes did not lamb during the fall, they were available to lamb during the winter.

The average fall-lambing rate was 1.48 for the Dorset crossbred ewes compared to 1.29 for the Western ewes; whereas, the mean winter-lambing rate was 1.44 and 1.41 for the Western and Dorset crossbred ewes, respectively (Table 2). It is well to emphasize that 4.3 percent fewer

Table 2. Reproductive Performance of Western and Dorset Crossbred Ewes During the Fall and Winter.

	Western	Dorset Crossbred
Fall (Oct. 15-Nov. 25)		
Percent Ewes lambing	75.1	82.8
Lambing rate <sup>1</sup>	1.29	1.48
No. lambs reared <sup>2</sup>	87.7	110.3
Winter (Jan. 15-Feb. 15)		
Percent Ewes lambing	12.6	8.3
Lambing rate <sup>1</sup>	1.44	1.41
No. lambs reared <sup>2</sup>	16.6	9.9

<sup>1</sup>Lambs born per ewe lambing.

<sup>2</sup>Lambs reared per 100 ewes.

Dorset crossbred ewes lambd during the winter than did the Western ewes; however, the lambing rates were quite similar for both breed groups. This high lambing rate for the Dorset crossbred ewes during the fall and winter was due to a greater number of multiple births. During the two seasons, the Dorset crossbred ewes gave birth to 722 twins and 39 triplets; whereas, the Western ewes gave birth to 470 twins and 15 triplets.

The Dorset crossbred ewes reared an average of 110.3 lambs per 100 ewes in the fall compared to 87.7 reared by the Western ewes (Table 2). However, on the average, the Western ewes reared 16.6 lambs per 100 ewes during each of the years in which winter-lambing was permitted compared to 9.9 for the Dorset crossbred ewes. Such winter-lambing results would be expected since there were more of the Western ewes open and available for breeding during the "cleanup" season.

These results suggest an advantage for the Dorset crossbred ewes over the Western ewes with respect to their reproductive performance when both breed groups are managed for fall-lambing.

### Lamb Growth Performance

Records were available on 847 and 1037 fall-born lambs from the Western and Dorset crossbred ewes, respectively. A comparison of the Western and Dorset crossbred ewes with respect to the growth performance of their fall-born lambs indicates that both breed groups produced lambs that had similar birth weights, 70-day weights, rates of gain from 70 days to market and market ages (Table 3). The respective means for each of these variables were 9.0, 8.9 lb; 52.5, 52.3 lb.; 0.54, 0.55 lb.; and 156.4, 155.5 days for the lambs from the Western and Dorset crossbred ewes, respectively. Thus, from the standpoint of the lamb growth performance, it appears that neither ewe breed group has any advantage over the other.

Table 3. Growth Performance of Fall-Born Lambs from Western and Dorset Crossbred Ewes.

	Western <sup>1</sup>	Dorset Crossbred <sup>1</sup>
Birth weight (lb.)	9.0	8.9
70-day weight (lb.)	52.5	52.3
Rate of gain from 70 days to market (lb.)	0.54	0.55
Age at 95 lb.	156.4	155.5

<sup>1</sup>Values are adjusted for year of birth, age of dam, type of birth and rearing and sex of lamb.

## Wool Production

Records collected during the 9-year period, 1957-1965, were available on 806 and 780 grease and clean fleece weights for the Western and Dorset crossbred ewes, respectively. Table 4 reveals that the mean grease and clean fleece weights were 10.3, 4.9 pounds and 8.7, 4.8 pounds for the Western and Dorset crossbred ewes, respectively. Thus, the results of this study reveal that the Western ewes were superior to the Dorset crossbred ewes with respect to grease fleece production, but the clean fleece weights were quite similar for both ewe breed groups. These results were to be expected since the Western ewes are noted for their ability to shear heavy grease fleeces.

## Ewe Mortality

In this context, ewe mortality has reference to those ewes that either died or were culled for some reason. However, no culling was practiced among the ewes of either breed group unless a ewe's teeth deteriorated or she became severely emaciated for some reason.

Table 5 reveals that during the first seven years covered by this study, the loss of the Dorset crossbred ewes (23), either from death or for some reason for which they were culled, was almost twice that of the Western ewes (13). However, during the last three years, the loss of the Western ewes (38) was higher than for the Dorset crossbreds (21). From an overall standpoint with the results from all 10 years of the study combined, the loss of the Western ewes was about 7 percent higher than for the Dorset crossbred ewes. At the time the project was terminated in the spring of 1967, there were 69 of the 120 Western and 77 of the 120 Dorset crossbred ewes remaining in the flock. Thus, it would appear that the length of productive life is as long or longer for the Dorset crossbred ewes as for the Western ewes.

Table 4. Wool Production (Grease and Estimated Clean Fleece Weight) of Western and Dorset Crossbred Ewes.

	Western <sup>1</sup>	Dorset Crossbred <sup>1</sup>
Grease fleece wt. (lb.)	10.3	8.7
Clean fleece wt. (lb.)	4.9	4.8

<sup>1</sup>Values are adjusted for year, age of dam and number of lambs born and reared.

Table 5. Number of Western and Dorset Crossbred Ewes that Either Died or Were Culled.<sup>1</sup>

Year	Western	Dorset Crossbred
1957	1	1
1958	1	0
1959	0	3
1960	2	3
1961	5	4
1962	2	6
1963	2	6
1964	23	12
1965	10	6
1966	5	3

<sup>1</sup>No culling was practiced unless a ewe's teeth deteriorated or she became severely emaciated for some reason.

## Summary

The lifetime performance of 120 purchased Western ewes (predominately Rambouillets) was compared with that of 120 raised Dorset x Western ewes when both ewe breed groups were managed for fall-lambing. The two breed groups were compared on the basis of their reproductive performance, lamb growth performance, wool production and ewe mortality. Breeding for fall-lambing began on May 20 and continued for 40 days. A 30-day "cleanup" breeding period beginning on August 20 was also permitted for those ewes failing to conceive during the regular breeding season. This breeding procedure resulted in fall (Oct. 15-Nov. 25) and winter (Jan. 15-Feb. 15) lambing.

On the average, a higher percentage (7.7 percent) of the Dorset x Western ewes lambed during the fall of each year, they had a higher lambing rate (0.19 more lambs per ewe lambing) and reared more lambs per 100 ewes (22.6) in the flock than the Western ewes. On the average during the winter, a higher percentage (4.3 percent) of the Western ewes lambed, they had a slightly higher lambing rate (0.03) and reared more lambs per 100 ewes (6.7). These advantages for the Western ewes during the winter, although insignificant, would be expected since there were more of these ewes open and available for breeding during the "cleanup" season.

Both ewe breed groups produced fall-born lambs that had similar birth weights, 70-day weights, rates of gain from 70 days to market and market ages. With respect to wool production, the Western ewes, on the average, produced 1.6 pounds more grease wool per ewe than did the Dorset x Western ewes. However, the two breed groups produced clean

fleece weights that were quite similar. With the results of all 10 years of this study combined, ewe mortality was about 7 percent higher for the Western than for the Dorset x Western ewes.

On the basis of the results obtained in this study, the answer to the question originally proposed as to whether Oklahoma sheepmen can raise a more productive ewe for fall-lamb production than they can purchase appears to be — Yes! This conclusion is based primarily on the superior reproductive performance of the Dorset x Western ewes. On the average, a higher percentage of the Dorset x Western ewes lambd during the fall, they had a higher lambing rate and reared more lambs per 100 ewes in the flock than the Western ewes. Also, the growth performance of their lambs and their clean wool yield were similar; whereas, their length of productive life appears to be at least as long or longer as for the Western ewes.

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