

Effect of Sires on Grade Ewe Flocks¹

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The sheep industry of North Dakota has been and will continue to be based on foundation flocks of grade ewes. Anticipation of an increasing sheep population for the state makes this summary on the comparison of the value of rams of different breeds for grading-up the ewe flock timely and important. Rapid improvement in efficiency is essential to the return of maximum profits from the farm or ranch flock. Evidence is presented herein of the major role that selection of the sire plays from the standpoint of production of replacement ewes as well as production of more profitable lamb crops in the commercial grade flock.

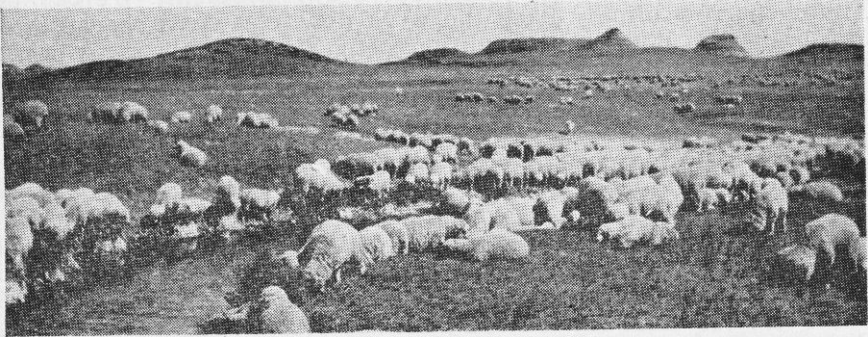


Fig. 1. Typical of the white-faced western ewes used in this study is this flock grazing along a little stream in McKenzie county, in western North Dakota. Background shows the buttes, which adjoin the picturesque badlands.

The foundation flock used for this study consisted of about 100 white-faced Western ewes purchased in two groups, one-half in 1945 and one-half in 1946. Each year these ewes were divided into four groups at breeding time and mated, one group to each of four breed-types of rams, namely, Shropshire, Hampshire, Columbia with a quarter-blood fleece and Columbia with a half-blood fleece. Every effort was made to mate each ewe to a different breed of ram each year.

Two phases of evaluation are presented in this paper, (1) a comparison of the effect of sire breed-type upon the production of the market lamb crop from the foundation ewes and (2) a comparison of the wool production of replacement ewes saved from each group.

Table I presents the comparison of market lamb production by sire groups based on a summary of four years' data. The number of lambs on which information was available varied somewhat but at least 49 records were available in each sire group. Little difference is noted in the birth weights of the various groups, each reflecting rather optimum weights. By the time lambs were thirty

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Table I. COMPARISON OF MARKET LAMB PRODUCTION BY SIRE GROUPS. (AVERAGE OF FOUR YEARS' DATA.)

	Hampshire	Shropshire	Columbia	
			½ Blood	¼ Blood
No. of Lambs	55	66	62	49
Birth Weight (lbs.) (Weighted average)	11.5	10.6	10.8	11.1
30-day Weight (lbs.) (Weighted average)	31.0	27.8	30.8	31.4
Market Weight (lbs.)*	89.8	77.5	84.8	88.8

*Average computed by multiplying number of lambs, weight and age and dividing the sire-group total by number of lambs times age.

days old differences in weight had begun to show up and the trend was pretty well established. The comparison of market weights shows that those lambs sired by the Shropshire rams were noticeably lightest, 77.5 pounds on the average as compared with 84.8 pounds for those sired by one-half blood Columbia rams, 88.8 pounds for those sired by quarter-blood Columbia rams and 89.8 pounds for those sired by Hampshire rams. The greatest difference was between Shropshire and Hampshire sired lambs and amounted to 12.3 pounds more weight marketed for each lamb raised by the latter group. The quarter-blood Columbia rams sired lambs averaging only one pound less than did the Hampshire while the one-half blood Columbia sired lambs were intermediate, averaging five pounds less than the Hampshire group but 7.3 pounds more than the Shropshires.

All lambs were run together and it is impossible to compute actual costs of gains. However, since pasture was largely used it is clear that the additional weight of lamb returned by the heavier group represents increased value in the nature of greater profits. For lambs marketed at 20c per pound a gross return of \$2.46 per head or 16% more was realized for the Hampshire sired group as compared to the Shropshire sired group.

Table II. MARKET DATA. (TWO YEARS' DATA).

	Hampshire	Shropshire	Columbia	
			½ Blood	¼ Blood
No. of Lambs	27	29	19	12
Avg. Market Weight (lbs.)	98.6	81.2	98.9	104.3
Avg. Dressed Weight (lbs.)	48.0	37.6	46.5	49.2
Dressing Percentage	48.7	46.3	47.0	47.2
Carcass Grade*	2.1	2.3	2.4	2.1

*Where: Medium—1; Good—2; Choice—3.

The question of market acceptability of lambs of the various sire groups is answered by a summary of two years' data contained in Table II. Even though greater weight differences existed in the various groups in Table II as compared with Table I little difference in carcass grade is reflected. All groups graded slightly better than U. S. Good. The Hampshire sired group yielded the greatest percentage of dressed carcass and the Shropshire yielded the least; however, there was no difference in price paid based on grading the live lambs. On a per lamb basis the quarter-blood Columbia sired group showed the greatest return simply because they were heaviest.

Table III. AVERAGE CLEAN FLEECE WEIGHTS OF REPLACEMENT EWES.

Sired by	As		As		As	
	Yearlings		Two-year olds		Three-year olds	
	No.	Pounds	No.	Pounds	No.	Pounds
Hampshire	19	5.4	14	5.8	6	4.5
Shropshire	17	5.2	9	5.5	2	4.5
½ Blood Columbia	35	5.9	16	6.8	10	7.5
¼ Blood Columbia	28	7.3	11	7.9	5	6.8

Table IV. AVERAGE GREASE FLEECE WEIGHTS OF REPLACEMENT EWES.

Sired by	As		As		As	
	Yearlings		Two-year olds		Three-year olds	
	No.	Pounds	No.	Pounds	No.	Pounds
Hampshire	19	9.5	14	10.4	6	10.1
Shropshire	17	9.2	9	8.6	2	8.0
½ Blood Columbia	35	10.5	16	12.2	10	12.1
¼ Blood Columbia	28	12.1	11	12.4	5	12.3

Fleece production of the replacement ewes is compared in Tables III and IV. Table III presents clean-fleece weights which represent 365-day growths corrected for the amount of grease, dirt and other extraneous material contained in the individual wool clips. This correction was determined by scouring a sample of each fleece. Table IV presents the uncorrected grease fleece weights. Data are available for some ewes as yearling, as two-year old and as three-year olds. The foundation flock of ewes averaged 10.1 pounds of grease wool per head which yielded 55.3% or 5.6 pounds of clean wool. With these figures in mind and considering Tables III and IV it becomes apparent that the use of Hampshire or Shropshire rams did not increase wool production; on the contrary it would appear that wool production was actually decreased slightly. The two types of Columbia rams produced lambs that yielded larger amounts of clean wool than did their dams. Discrepancies in the data due to small number increase the difficulty of measuring accurately this difference. If the records as two-year olds is arbit-

rarily accepted as most representative the one-half blood Columbia rams resulted in an increase of 1.2 pounds of clean wool or 2.1 pounds of grease wool. The quarter-blood Columbias resulted in an increase of 2.3 pounds of clean wool or grease wool.

Columbia rams are obviously capable of siring heavier shearing replacement ewes that return a more profitable wool check than do either Shropshire or Hampshire rams. Assigning an arbitrary value of \$1.00 per pound for clean wool and utilizing the two-year old records the following comparison can be made:

	Value of the yearly wool crop (Per Ewe)
Foundation Ewes	\$5.60
Shropshire Sired Group	\$5.50
Hampshire Sired Group	\$5.80
One-half-Blood Columbia Sired Group	\$6.80
Quarter-Blood Columbia Sired Group	\$7.90

The use of a coarse fleeced Columbia sire resulted in the production of replacement ewes with an increased yearly return of \$2.30 above that of the foundation ewes. In an average lifetime of five productive years this replacement ewe would have an increased value of \$11.50.

Combining this estimate of the wool crop with an estimate of value of increased lamb weight and using the Shropshire sired group as a basis of comparison the other three groups produced respectively the following greater values:

	SIRE GROUPS		
	Hampshire	1/2 Blood Columbia	1/4 Blood Columbia
Lamb	\$2.46	\$1.46	\$2.26
Wool	0.30	1.30	2.40
Total	<u>\$2.76</u>	<u>\$2.76</u>	<u>\$4.66</u>

SUMMARY

A comparison of the value of using rams of the Shropshire, Hampshire and Columbia breeds on commercial grade ewes is reported. Two phases of evaluation are presented: (1) a comparison of the effect of sire breed-type upon the production of the market lamb crop from the foundation ewes and (2) a comparison of the wool production of replacement ewes saved from each group.

Under the conditions of this study lambs sired by Hampshire and Columbia rams were from 7 to 12 pounds heavier at market time. Since no difference in price was commanded by the lighter Shropshire sired lambs heavier lambs meant greater profit.

Ewe lambs returned to the flock for breeding purposes showed important differences in their production of wool. Ewes sired by Columbia rams produced as much as 40% more clean wool than did those sired by the Shropshires or the Hampshires, or than produced by the foundation ewe flock.

Care in the selection of a ram breed or breed type can greatly influence the success of a sheep enterprise.