

while it usually takes about 2 weeks for immunity to develop following vaccination with bacterin. There was very little difference in feed lot performance of vaccinated and nonvaccinated lambs.

Heritabilities, Genetic and Phenotypic Correlations Between Carcass and Live Animal Traits in Sheep.

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Data were collected on 91 lambs of known breeding born during the fall, 1963. The lambs were from ewes in the original fine-wool flock and were sired by 10 performance-tested Hampshire rams (see 1963 Feeders' Day Report for ram performance data). This was the ewe's fifth lamb crop.

All lambs were creep fed a pelleted ration of 45% dehydrated alfalfa, 45% sorghum grain, 7.5% molasses, and 2.5% soybean oil meal. The ration contained 10 to 15 mgs. aureomycin per pound. Half the male lambs were castrated and half were left intact. Lambs were weaned and weighed at 65 days of age. When they weighed approximately 95 pounds, they were sheared and these measurements obtained: length of right fore cannon, circumference of right fore cannon, length of rump, width at second lumbar vertebra, and circumference of right rear leg. All lambs were then slaughtered and various quality factors influencing carcass grade were scored by a representative of the Federal Grading Service. Loin-eye area, fat thickness, and weight of trimmed wholesale cuts were obtained; the racks were dissected into fat, lean, bone, overflow and intercostal muscle, and the loins were sent to the home economics department for additional analyses.

Data are currently being collected on the sixth lamb crop sired by performance-tested Hampshire rams (see 1964 Feeders' Day Report for performance data). The lambs are being handled as the 1963 lamb crop was except that a sonoray machine is being used to estimate depth of fat cover and loin-eye area at the 12th rib of lambs before slaughter.

Results and Discussion

Uncorrected data for 1963-64 lambs are reported in Table 14, and those for 1964-65 lambs in Table 15. Effect of lamb sex on growth performance is reported in Table 16. Effects of sex on carcass data are reported on page 21.

Variation was only 21 days between sire groups in age of 1963-64 lambs at slaughter. Although data have not been statistically analyzed, there appears to be some correlation between rate of gain of sires and their lambs. However, ram 10, the slowest gaining one, sired lambs that gained somewhat faster than lambs of several rams that gained faster during the performance test.

There was considerable variation in average loin-eye area among sire groups.

Twin lambs gained considerably slower than singles. Ram lambs gained faster than wethers, and ewe lambs made the slowest gains.

Table 14
Uncorrected data for 1963-64 lambs.¹

Ram no.	2	3	4	5	6	7	8	9	10
Ram A.D.G., lbs. ²	.64	.74	.70	.56	.69	.73	.54	.63	.47
No. single lambs	5	8	8	6	2	5	8	4	3
No. twin lambs	6	2	2	0	0	6	2	6	0
Av. 65-day weaning wt., lbs.:									
Single lambs	61.4	59.0	53.1	55.4	65.0	61.0	55.6	60.5	63.7
Twins	45.5	42.5	47.0	.....	.....	44.2	42.5	48.7	.....
Av. slaughter wt., lbs.	54.3	59.5	59.0	58.4	58.5	57.4	56.0	57.1	58.3
Av. age at slaughter:									
Single lambs	117.2	122.1	122.2	129.9	113	110.8	128.5	132	118
Twins	152.4	146.0	145.5	.....	.....	149.6	139.0	135.7	.....
Av. wt. per day of age at slaughter:									
Single lambs	.81	.81	.80	.76	.87	.88	.74	.73	.83
Twins	.61	.70	.69	.....	.....	.65	.70	.72	.....
Av. loin-eye area	2.01	2.03	2.30	2.34	2.58	2.34	2.33	2.23	2.38

1. Not corrected for sex or birth weight.

2. Data made on performance test.

Table 15
Effect of sex of lamb on rate of gain.

Sex	Ewe	Wether	Ram
No. of lambs	36	16	21
Av. age at slaughter	138	127	117
Av. wt. at slaughter	96.3	97.3	99.3
Av. wt. per day of age at slaughter	.70	.76	.85

Table 16
Uncorrected data for 1964-65 lambs.¹

Ram	No. single lambs	Av. 65-day weaning wt., lbs. (single)	No. twin lambs	Av. 65-day weaning wt., lbs. (twins)
Ahtschwede 12	6	59.2	2	48.0
Cox 1698	7	48.4	2	34.0
Eberle 54	3	51.3	2	31.5
Eberle 530	7	50.9	0	...
Gilmore 6323	6	53.0	6	35.3
KSU 6312	5	52.8	2	31.5
KSU 6328	5	57.2	...	...
Nowell 214	5	51.4	2	37.0
McCosh 339	3	54.6	2	37.5
McCosh 378	7	59.3	2	28.0

1. Not corrected for sex or birth weight.

Comparison of Slaughter and Carcass Characteristics of Ram, Wether and Ewe Lambs.

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Preliminary Report

Lambs of known history were individually slaughtered as they attained 95 pounds live weight. Quality and quantity factors were evaluated and measurements taken after carcasses were chilled 48 hours. Carcasses were broken into wholesale cuts and weights were obtained. Loin weights are with kidney knob and hanging tenderloin removed. The leg and loin were further trimmed of external fat to $\frac{3}{8}$ inch thick and trimmed weights obtained.

No sex differences (Table 17) were noted with regard to caul or stomach fat, feathering, fat streaking in secondary flank muscles, color of flesh, shoulder weight, trimmed loin weight, leg and trimmed leg weight, total weight or percentage of trimmed leg and loin or in average loin-eye muscle area.

Dressing % was highest for ewe lambs, lowest for rams, and intermediate for wethers. Conformation scores were highest for ewe lamb carcasses and lowest for rams, perhaps due partly or wholly to more external fat on ewes and less on ram carcasses. Ewe lamb carcasses had more overflow fat, more kidney and pelvic fat, higher rib-eye marbling scores, and higher carcass grades. Rams had the least overflow fat, less kidney and pelvic fat, less rib-eye marbling and lowest average

Table 17
Comparison of slaughter and carcass characteristics of ram, wether, and ewe lambs.

	Group averages ¹		
	Ram	Wether	Ewe
No. of animals	24	21	41
Slaughter wt., lbs.	87.5	87.5	86.6
Cold dressed wt., lbs.	46.0	48.5	49.5
Cold dressing %	52.6	55.4	57.2
Pelt wt., lbs.	10.1	9.1	8.9
Caul fat wt., lbs.	1.1	1.2	1.7
Conformation score ²	7.5	8.1	8.6
Quantity external fat score ³	8.1	8.3	9.1
Feathering score ⁴	5.8	5.6	5.9
Overflow fat score ⁵	4.4	4.6	5.2
Fat streaking flank steak ⁶	4.0	4.5	4.9
Fat streaking, other flank muscles ⁶	3.9	4.0	4.3
Kidney and pelvic fat score ¹	4.2	5.0	6.0
Rib-eye marbling score ¹	4.5	5.4	5.9
Rib-eye firmness score ⁷	10.0	10.4	10.4
Fat firmness score ⁷	8.2	9.6	9.6
Rib-eye color score ⁷	10.8	10.8	10.7
Color reading, L. dors ⁷	13.1	12.8	12.7
Color reading, flank steak ⁷	19.3	18.9	18.9
U.S.D.A. grade	8.4	9.2	9.7
Fat thickness, in.	0.16	0.22	0.26
Breast wt., lbs.	8.1	8.4	8.6
Shoulder wt., lbs.	12.8	12.9	12.8
Rack wt., lbs.	4.6	4.9	5.1
Loin wt., lbs.	4.9	5.2	5.4
Trimmed loin wt., lbs.	4.8	4.9	5.0
Leg wt., lbs.	15.1	15.6	15.3
Trimmed leg wt., lbs.	14.8	15.0	14.7
Trimmed leg + loin wt., lbs.	19.5	20.0	19.7
% trimmed leg + loin	42.4	41.2	39.8
Kidney knob wt., lbs.	0.7	1.0	1.5
Loin-eye muscle area, sq. in.	2.32	2.22	2.17
Fat, hotel rack, gms.	619.7	718.1	854.7
Bone, hotel rack, gms.	375.2	366.8	339.8

1. Lot averages underlined with same line are not significantly different at 5% level of probability.

2. Conformation score: Low prime = 9, choice + = 8, av. choice = 7.

3. Quantity external fat: Moderately thick = 9, slightly thick = 8.

4. Quality score: Modest = 6, small = 5, slight = 4.

5. Firmness score: Firm = 10, moderately firm = 9, slightly firm = 8.

6. Color score: Light pink = 11, slightly dark pink = 10.

7. Color read on photovolt color difference meter: Darker colors have lower numbers.