

Comparison of Slaughter and Carcass Characteristics of Ram,
Wether and Ewe Market Lambs. 2 Year Preliminary Report.

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Lambs sired by Hampshire rams and from western ewes were individually slaughtered as they reached 96 lbs. live weight. Quality and quantity factors were evaluated after carcasses were chilled 48 hours. Carcasses were broken into wholesale cuts and weights obtained. The leg and loin were trimmed of external fat in excess of 3/8 inch and trimmed weights were taken.

Ewe lambs dressed heavier carcasses and a higher dressing %, but the extra carcass weight was due to higher finish. Wether and ewe lamb carcasses showed higher conformation scores and higher U.S.D.A. grades, apparently due to more fat.

Fat and lean from ram carcasses was noticeably less firm than from wethers and ewes. Lowest rib eye marbling scores were noted in ram carcasses, highest scores in ewe carcasses, with intermediate values in wethers.

No sex difference was noted in average weight of shoulder, breast, trimmed loin, untrimmed leg or total trimmed weight of leg plus loin. A heavier hotel rack was noted from ewe carcasses due largely to greater fat deposition in the rack. Rams had lighter untrimmed loins, due to fat as no sex difference was found in trimmed loin. Ewe carcasses exhibited lighter trimmed leg weights and carried more weight in kidney and pelvic fat.

No sex difference was found in total cooking loss, although loin roasts from the ram carcasses exhibited higher volatile, but lower drip cooking loss, probably due to greater trimness and muscling. No sex difference was found in cooking time to a certain degree of doneness, or in flavor or juiciness scores. Ram roasts were not stronger flavored. In all cases, loin roasts from ewe carcasses were most tender, followed by wethers and rams in that order. Tenderness differences were so small that their importance is doubtful.

Table 62
Slaughter and Carcass Characteristics of Ram, Wether and Ewe
Market Lambs.

	Group averages ¹		
	Ram	Wether	Ewe
No. of animals	39	34	87
Wt. per day of age, lb.	<u>0.71</u>	<u>0.63</u>	<u>0.59</u>
Empty slaughter wt., lb.	89.4	88.6	88.4
Cold dressed wt., lb.	<u>47.9</u>	<u>49.2</u>	<u>50.0</u>
Cold dressing %	<u>53.5</u>	<u>55.4</u>	<u>56.7</u>
Pelt wt., lb.	<u>10.2</u>	<u>9.1</u>	<u>9.2</u>
Conformation score ²	<u>7.6</u>	<u>8.1</u>	<u>8.3</u>
Amount external finish score ³	<u>8.2</u>	<u>8.8</u>	<u>9.2</u>
Fat firmness score ⁴	<u>8.2</u>	<u>9.4</u>	<u>9.5</u>
Lean firmness score ⁴	<u>9.0</u>	<u>9.5</u>	<u>9.7</u>
Feathering score ⁵	<u>5.6</u>	<u>5.6</u>	<u>5.5</u>
Overflow fat score ⁵	<u>4.5</u>	<u>4.9</u>	<u>5.3</u>
Rib eye marbling score ⁵	<u>4.5</u>	<u>5.5</u>	<u>5.9</u>
Rib eye firmness score ⁴	<u>10.1</u>	<u>10.5</u>	<u>10.6</u>
Rib eye color reading ⁶	<u>13.2</u>	<u>12.8</u>	<u>12.7</u>
Flank steak color reading ⁶	<u>19.3</u>	<u>18.5</u>	<u>18.4</u>
U.S.D.A. carcass grade ⁷	<u>8.6</u>	<u>9.2</u>	<u>9.5</u>
Ave. rib eye area, sq. in.	<u>2.34</u>	<u>2.30</u>	<u>2.21</u>
Fat thickness over rib eye, in.	<u>0.16</u>	<u>0.21</u>	<u>0.26</u>
Fat thickness lower rib, in.	<u>0.47</u>	<u>0.57</u>	<u>0.64</u>
Breast wt., lb.	8.4	8.5	8.7
Shoulder wt., lb.	<u>13.0</u>	<u>13.1</u>	<u>13.0</u>
Hotel rack wt., lb.	<u>4.8</u>	<u>5.0</u>	<u>5.3</u>
Loin wt., lb.	<u>5.0</u>	<u>5.4</u>	<u>5.6</u>
Trimmed loin wt., lb.	<u>4.8</u>	<u>5.0</u>	<u>4.9</u>
Leg wt., lb.	<u>15.3</u>	<u>15.6</u>	<u>15.3</u>
Trimmed leg wt., lb.	<u>14.8</u>	<u>15.0</u>	<u>14.5</u>
Trimmed leg + loin, lb.	<u>19.6</u>	<u>19.9</u>	<u>19.3</u>
Kidney and pelvic fat, lb.	<u>0.8</u>	<u>1.1</u>	<u>1.6</u>

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

2. Conformation score: Low Prime=9, High Choice 8, Average Choice=7.

3. Amount external fat score: Moderately Thick=9, Slightly Thick=8.

4. Firmness score: Firm=10, Moderately Firm=9, Slightly Firm=8.

5. Quality scores: Modest=6, Small=5, Slight=4.

6. Color reading on photovolt color difference meter (green filter) Darker color has lower number

7. Carcass grade: Average Prime=10, Low Prime=9, High Choice=8.

Table 63
Cooking Time, Cooking Losses and Taste Panel Evaluations of
Loin Roasts From Ram, Wether and Ewe Market Lambs¹

	Ram	Wether	Ewe
Mean cooking time, min./lb.	39.2	35.9	36.5
Volatile cooking loss, %	<u>8.9</u>	<u>8.3</u>	<u>7.8</u>
Drip cooking loss, %	<u>2.6</u>	<u>3.8</u>	<u>4.1</u>
Total cooking loss, %	<u>11.7</u>	<u>12.3</u>	<u>12.0</u>
Press fluid, ml./25 g.	<u>7.8</u>	<u>8.0</u>	<u>8.2</u>
Shear force ($\frac{1}{2}$ inch cooked cores) lb.	<u>8.8</u>	<u>7.8</u>	<u>7.2</u>
Flavor intensity score ²	<u>4.7</u>	<u>4.5</u>	<u>4.6</u>
Flavor desirability score ²	<u>5.5</u>	<u>5.6</u>	<u>5.5</u>
Juiciness score ²	<u>6.0</u>	<u>6.0</u>	<u>6.1</u>
Initial tenderness score ²	<u>5.4</u>	<u>5.6</u>	<u>5.8</u>
Number of chews	<u>33.6</u>	<u>32.1</u>	<u>29.1</u>
Final tenderness score ²	<u>5.2</u>	<u>5.5</u>	<u>5.7</u>

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

2. Higher score is more desirable.

Table 64
Chemical Analyses of Feeds Used In Beef Cattle Experiments

Description	Protein (Nx6.25) %	Ether extract %	Crude fiber %	Mois- ture %	Ash %	N-free extract %
Sorghum grain (Nov., 1965)	11.69	2.99	2.33	11.22	1.91	69.86
Sorghum grain (Jan., 1966)	9.25	2.81	2.21	11.83	1.64	72.26
Soybean oil meal	46.06	2.03	5.80	8.76	6.48	30.87
Sorghum grain (March, 1966)	10.19	2.38	1.84	12.68	1.78	71.19
Sorghum silage	1.84	0.70	6.87	64.23	1.29	25.07
Alfalfa hay	22.54	2.57	26.59	8.27	7.48	32.55
Prairie hay (Nov., 1965)	3.90	2.10	29.60	7.50	7.80	49.10
Prairie hay (Jan., 1966)	4.88	2.33	32.27	4.85	6.76	48.91

Table 65
Prices of Feeds Used in Beef Cattle Experiments

	Per ton
Sorghum grain	\$40
Corn	\$46
Soybean oil meal	\$90
Protein supplement (AH 75)	\$70
Dehydrated alfalfa	\$50
Urea, 42% N	\$134
Ground limestone	\$16
Sorghum silage	\$ 8
Alfalfa hay	\$25
Prairie hay	\$20
Aurofac 10 (10 grams chlorotetracycline per lb.)	Per lb. 87¢
Stilbosol (1 gram diethylstilbestrol per lb.)	55¢
Vitamin A (10,000 I.U. per gram)	28¢
Trace mineral mixture	10¢