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# The Influence of Feedlot Weight on Market Lamb Performance and Body Composition

Wallace Koester  
*South Dakota State University*

Leon F. Bush

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South Dakota State University  
Brookings, South Dakota

Department of Animal Science  
Agricultural Experiment Station

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The Influence of Feedlot Weight on Market Lamb  
Performance and Body Composition

Wallace Koester and Leon F. Bush

The trend today is larger, growthier animals in our breeding stock which produce a fast gaining market lamb. These market animals must be able to finish at a desirable weight with a desirable amount of finish. The weight at which these lambs are marketed influence rate of gain and feed efficiency. When market prices look favorable for the future the producer tends to put additional weight on lambs in order to obtain a greater total return. This market weight often depends upon the availability and cost of feed. The farmer or rancher is usually encouraged to market his product at weights which maximize feed efficiency and meat production.

In the last five to ten years, trimness has become very important in all species of livestock. During this time the size and scale of the market lamb has increased with a trimmer market lamb being produced. Light weight lambs tend to gain more rapidly and produce a leaner, trimmer carcass which may sell at a premium. The packer's slaughtering and processing costs are prorated on a per head basis, therefore, it costs the packer the same amount to slaughter and process a 90 pound lamb as it does a larger one. With new techniques for processing, such as prepackaging, it may become desirable for the packer to purchase lambs which are larger than current market weights. Lambs are now produced which at these heavier weights are trim, heavily muscled and have a high percentage of edible portion. The production of more lambs of this type will assure a greater return on investment to both the packer and producer.

Procedure

A study was conducted to evaluate the influence of feedlot market weight on rate of gain, feed efficiency and carcass composition, particularly edible portion. Two trials involving 132 crossbred lambs produced by approximately 130 pound white faced ewes and sired by 230 to 250 pound rams. Lambs were randomly allotted according to weaning weight and sex into four treatment groups. The treatments, feedlot weights at which lambs were removed for slaughter, were: I - 95 pounds, II - 110 pounds, III - 125 pounds and IV - 140 pounds. These lambs were creep fed since birth, vaccinated against enterotoxemia at about 30 days of age, and weaned when they were about 60 days old. The lambs were self-fed a pelleted ration and confined to about 12 square feet per lamb in a straw bedded building. Lambs received no treatment for external nor internal parasites during the course of the study.

The lambs were weighed about every two weeks until they reached their respective feedlot weights. After removal from the lot, the lambs were sheared, held for 24 hours with only water available and slaughtered at the university meat laboratory.

Length of carcass and eight fat probes were taken before cutting. Length of carcass was taken from the anterior portion of the aitch bone to the anterior portion of the first rib. The fat probes were taken two inches off the mid-line at the leg, loin, rack and shoulder regions. The carcasses were cut into wholesale cuts with weights recorded for each cut. Each cut was trimmed to 1/8 of an inch of outside fat and weighed again. The bone was removed from each cut to determine edible portion. All lean (lean trim and roasts), fat, and bone from each wholesale cut were weighed. This was not a complete physical separation of lean, fat and bone. The lean trim consisted of 18 to 20% fat in order to make good, lean ground lamb.

### Results and Discussion

Average daily gain decreased as treatment weights increased (table 1). Average daily gain for the two trials was 0.52, 0.46, 0.44 and 0.42 pound per day for treatments I, II, III, and IV respectively. Treatment did not affect the rate of gain at each weight period, however, as lambs became heavier treatment differences were evident as rate of gain decreased at an increasing rate. The same trend is apparent in the amount of feed required per pound of gain with 6.66, 7.32, 7.73 and 8.34 pounds required for treatments I, II, III and IV respectively. Lambs in the second trial required more feed than those in trial 1. This may be partly due to a change in type of feeder which allowed more wastage in trial 2. The amount of feed required per pound of gain at the same weight period for lambs on the different treatments was about the same, however, feed efficiency decreased at an increasing rate as lambs became heavier.

The carcass data shown in table 2 are for the first trial only since the data for trial 2 are not completed at this writing. Pounds of edible portion increased as treatment weights increased, however, the percent of edible portion decreased (60.2, 56.3, 55.3 and 55.3 for treatments I, II, III and IV respectively). This is an important fact to consider since it required about 2.3 times as much feed in treatment IV to produce the same amount of edible portion as in treatment I.

The pounds of trimmed leg and loin, lean, bone and roasts increase with treatment weight, however, the percent of each decreases as treatment weight increases. The pounds and percent of fat in the carcass increases with treatment weight. The amount of fat increases at an increasing rate as the treatment weight increased. As lambs become heavier in weight they tend to put on more fat than lean, gain at a slower rate and are less efficient. However, in the heavier weight treatment lots there were individual lambs which gained more rapidly

Table 1. Performance of Lambs from Weaning to Final Weight.

Treatment	I			II			III			IV		
	1	2	Av.	1	2	Av.	1	2	Av.	1	2	Av.
Feedlot Weight, lb.	97.9	96.3	97.1	113.4	109.1	111.2	124.3	122.7	123.5	137.1	134.7	135.9
Rate of daily gain, lb.	0.55	0.49	0.52	0.47	0.45	0.46	0.46	0.41	0.44	0.40	0.43	0.42
Pounds of feed/ pound of gain	6.05	7.26	6.66	7.08	7.55	7.32	7.61	7.85	7.73	8.04	8.65	8.34
Total pounds of feed consumed	197	298	248	349	400	347	471	535	503	585	685	635

Table 2. Carcass Data

	(Trial 1)			
Treatments	1	2	3	4
Av. slaughter wt., lb.	97.9	113.6	124.2	137.1
Av. carcass wt., lb.	44.84	51.14	60.21	67.89
Av. dressing %	45.8	45.0	48.5	49.5
Pounds feed/lb. edible portion	6.8	12.1	14.1	15.6
<u>Pounds</u>				
Edible portion	27.1	28.9	33.3	37.6
Trimmed leg & loin	15.8	17.0	19.4	21.0
Lean	8.4	8.8	10.5	12.0
Fat	8.1	12.2	16.6	19.1
Bone	9.8	9.9	11.5	11.6
Roasts	18.7	20.1	22.8	25.5
<u>Percent of carcass wt.</u>				
Edible portion	60.2	56.3	55.3	55.3
Trimmed leg & loin	35.2	33.2	32.1	30.9
Lean	18.8	16.9	17.4	17.7
Fat	18.1	24.2	27.8	28.1
Bone	22.0	19.5	19.2	17.1
Roasts	41.5	39.4	37.9	37.6

and more efficiently than lambs in the lighter weight treatments. Some of these lambs reached slaughter weight in less days on feed than those in lighter weight lots. The fast gaining heavy lambs produced desirable carcasses which were heavily muscled with a high percentage of the carcass in edible meat. The type of carcass a lamb will produce along with live weight should be considered in determining when a lamb should be marketed. Some lambs should be marketed at 85 to 90 pounds while others can be fed efficiently to weights in excess of 110 pounds and produce very desirable carcasses.

#### Summary

A two year experiment involving 132 lambs was conducted to study the effect of feedlot weight on lamb performance and body composition. Four weight treatments: 95, 110, 125 and 140 pounds were used. Lambs on the lightest weight treatment made the most rapid and efficient gains with the highest percent of edible portion. Rate of gain decreased and feed required per pound of gain increased as feedlot market weight increased. The most pounds of edible portion was produced by lambs in treatment IV, however, about 2.3 times as much feed was required to produce a pound of edible portion as was required in treatment I. Although lambs in the heaviest treatment lot gained slower and were less efficient there were individuals in the group and in treatment III which gained rapidly and reached their respective weights in less time than those on the lighter weight treatments. These heavy lambs were meaty, well muscled and had trim, desirable carcasses.