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Marketing Lambs at Heavier Weights

A Progress Report

Dan H. Gee and A. L. Slyter

Marketing lambs at heavier weights may offer some advantages to the sheep industry. The factors favoring production of a heavier weight market lamb are:

1. Decreased slaughter cost per unit of carcass weight. Slaughter costs are about the same for a 100 lb. or a 140 lb. lamb.
2. A lamb chop with a larger loin eye area may have a wider variety of uses.
3. Help alleviate the seasonality of lamb marketing. With a longer feeding period and the use of a variety of management techniques, lamb marketing could be more uniformly distributed throughout the year.

Experimental Procedure

Thirty-three Suffolk-Targhee crossbred wethers and 31 Targhee wethers were randomly allotted to one of two ration treatments. One-half of the lambs received a 70:30 concentrate roughage ration and the other one-half received a 30:70 concentrate roughage ration. The ration was a mixture of ground alfalfa hay, cracked corn, SBOM, urea, trace mineral salt and aureomycin. Feed and water were available ad libitum to all lambs.

Within each ration treatment lambs were randomly assigned to a light (110 lb.) or heavy (140 lb.) termination weight. The lambs were slaughtered and data collected at the SDSU Meat Lab.

Results and Discussion

Table 1 presents the mean values for performance traits and carcass characteristics of light vs. heavy weight lambs and comparisons of the Suffolk x Targhee crossbreds vs. straightbred Targhees.

Average daily gain was slightly higher for the light terminal weight lambs. The Suffolk-Targhee crossbreds gained slightly faster than the Targhee wethers with the largest difference between the two breeds in the light weight group.

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Feed efficiency was more desirable for the light lambs as expected. Within the light weight group the Suffolk-Targhee lambs were more efficient, but within the heavy weight group the Targhee lambs were most efficient in feed conversion.

The initial weight of all the lambs was similar. At slaughter the light weight group averaged 111 lb. and the heavy weight group 129 pounds. The intended termination weight for the heavy lambs was 140 pounds. The heavy group was terminated at 130 lb. because of their slower rate of gain and poorer feed efficiency as they approached the termination weight.

The loin eye area as measured between the 12th and 13th ribs was larger for the heavier weight lambs. In both weight groups the Suffolk-Targhee crossbreds had a larger loin eye area than the Targhees.

Fat thickness as measured over the center of the loin eye area was less for the light weight lambs by 0.08 inch. The Suffolk-Targhee crossbreds in the light weight group were slightly leaner than the Targhee wethers. At heavier weights, the Targhees had less measurable fat than the crossbreds. The heavier weight lambs were fatter as measured over the lower rib. In the heavy weight group the Targhee wethers were leaner than the crossbreds.

USDA yield grade in lamb carcasses is determined by using fat thickness, (measurement directly over center of loin eye area), percent kidney fat and leg conformation. The light weight lambs had a more desirable yield grade than the heavy weight lambs primarily because they were leaner.

Heavy weight lambs had a more desirable USDA quality grade than the light weight lambs. The higher quality grade was a result of the additional feathering and flank streaking in the heavier lambs.

Mean values for performance traits and carcass characteristics comparing the high concentrate and high roughage rations are presented in table 2. Average daily gain was considerably higher (0.26 lb./day) for the lambs fed the high concentrate ration. Also, as expected, the light weight lambs gained faster than the heavy weight lambs. The difference in rate of gain between the light and heavy weight groups was greater when fed the high concentrate ration (0.14 lb./day vs. 0.05 lb./day).

Because of the present high cost of cereal grains, feed efficiency becomes more important in determining profit or loss in a lamb feeding operation. The lambs on the high concentrate ration were more efficient in feed conversion than the lambs on high roughage diets. These differences are to be expected because of the difference in energy content of the ration.

Carcass weights were higher for the lambs on the high concentrate rations, although their initial weights were lower. The size of the loin eye area was larger for the lambs fed the high concentrate rations.

The average fat cover as measured over the loin eye area was the same for both rations. However, the difference in loin eye area between the light and heavy weight groups was greatest for the high concentrate ration. The lambs on the high roughage rations were trimmer as measured over the lower rib. The USDA yield and quality grades were similar for lambs on both levels of roughage.

Summary

Sixty-four lambs were used in this experiment to study performance and carcass characteristics of wether lambs in two terminal weight groups and fed two levels of roughage. The heavier lambs grew slower with a poorer feed efficiency. Both measures of fat thickness were greater for the heavy lambs and thus their USDA yield grade was less desirable. Loin eye area was larger for the heavier lambs. Average daily gain, feed efficiency and loin eye area were more desirable for the lambs fed the high concentrate as compared to the high roughage ration.

Table 1. Effect of Market Weight and Breed on Performance and Carcass Parameters

Variable	Light weight group		Heavy weight group	
	Average	Suffolk x Targhee	Average	Suffolk x Targhee
Average daily gain, lb.	0.57	0.62	0.53	0.47
Feed efficiency, lb.	6.50	6.35	6.61	7.40
Initial wt., lb.	61.8	63.4	60.1	62.8
Slaughter wt., lb.	111.2	112.2	110.1	129.4
Carcass wt., lb.	52.7	54.1	51.3	65.8
Loin eye area, sq. in.	2.21	2.26	2.16	2.53
Fat cover over loin eye area, in. ^a	0.22	0.21	0.24	0.32
Fat cover over lower rib, in. ^b	0.60	0.60	0.60	0.80
Yield grade	3.5	3.3	3.6	4.1
Quality grade ^c	11.8	11.6	12.1	13.9
			Average	Targhee
			0.76	0.72
			4.0	3.9
			12.8	12.0

^a Measurement taken directly over center of loin eye area.

^b Measurement taken over the lower rib at a point 2 inches from lower end of rib eye area.

^c Based on High Prime = 15, High Choice = 12, High Good = 9.

Table 2. Effect of Ration and Market Weight on Performance and Carcass Parameters

Variable	High concentrate			High roughage		
	Average	Light	Heavy	Average	Light	Heavy
Average daily gain, lb.	0.68	0.77	0.63	0.42	0.45	0.40
Feed efficiency, lb.	5.84	4.79	6.75	9.05	8.33	9.55
Initial wt., lb.	60.3	61.6	58.9	62.1	61.9	62.2
Slaughter wt., lb.	121.6	113.5	130.8	118.2	163.5	127.6
Carcass wt., lb.	60.7	55.2	66.5	56.3	49.8	62.8
Loin eye area, sq. in.	2.41	2.31	2.52	2.22	2.10	2.32
Fat cover over loin eye area, in. ^a	0.26	0.20	0.33	0.26	0.24	0.27
Fat cover over lower rib, in. ^b	0.73	0.65	0.82	0.63	0.55	0.71
Yield grade	3.8	3.3	4.2	3.7	3.6	3.8
Quality grade ^c	12.5	11.7	13.4	12.2	12.0	12.3

^a Measurement taken directly over center of loin eye area.
^b Measurement taken over the lower rib at a point 2 inches from lower end of rib eye area.
^c Based on High Prime = 15, High Choice = 12, High Good = 9.