SOUTHWEST FEEDERS PROJECT:
Altering Feedlot Performance and Marketing Endpoints of Finish Lambs

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INTRODUCTION

There is in excess of $2.1 million in added economic activity available to the state of North Dakota associated with finishing lambs. Southwest Feeders is a multi-faceted project designed to enhance value-added economic development in southwestern North Dakota through education and research programs involving production systems that utilize locally-produced feedstuffs, calves and lambs. The lamb feedlot facility (24 pens, 1000 head capacity) was constructed as part of the multi-species support to the educational and research components of the Southwest Feeders project.

This research trial was designed to address the opportunities of alternative self-fed finishing scenarios and evaluate extended the delivery period which finish lambs would be available for market. Research focus was on feeding management of self-fed diets utilizing locally produced forage and grains in January-born lambs.

PROCEDURE

White-faced wether and ewe lambs (216 hd) were used to test the effects of diet combination on animal performance and the economic impact of market timing in the summer of 2003 (Apr 22 to Aug 5). Lambs were fed for 103 days and managed according to NDSU Animal Care and Use guidelines. Lambs were stratified by weight and allotted to 12 pens (18 head/pen).

The finishing ration (Table 1) consisted of a ground diet of alfalfa hay and corn base with a custom formulated mineral/protein supplement (NRC, 1985). Treatments were designed as a 2 x 3 factorial arrangement to evaluate the combination of high (HE) and low dietary energy (LE) level and mixed (M), wether (W) or ewe (E) sorted sex groups on feedlot and economic performance.

Table 1. Diet composition for HE and LE rations.

	HE	LE
Corn,%	73.10	34.50
Hay, %	24.40	64.10
Supplement, %	2.50[a]	1.40

[a] *includes limestone*

Weigh periods consisted of initial, 21 day interim and final weights. Average daily gain (ADG), total gain and cost of gain (COG) were used to track economic and animal performance for the finish period. Carcass traits measured included carcass weight, dressing percent, backfat, USDA quality grade and total retail product.

Production and economic data was analyzed as a factorial design (SPSS, 1999). Main effects and interactions were tested with the residual as the error term. Pen was used as the experimental unit for performance, economic and carcass variables.

RESULTS

Table 2. Feedlot and carcass performance by diet.

	HE	LE
Initial wt, lbs	75[a]	75[a]
Final wt, lbs	132[a]	120[b]
Overall gain, lbs	57[a]	45[b]
ADG, lbs/d	0.54[a]	0.43[b]
COG, lbs/d	$0.35[a]	$0.44[b]
Carcass wt, lbs	67[a]	59[b]
Dressing %	50.3[a]	46.7[b]
Backfat, in.	0.26[a]	0.14[b]
USDA Quality Grade	11.5[a]	10.9[b]
Total Retail Product, lbs	40.4[a]	38.1[b]

[a,b] *unlike superscripts differ P<.01*

Feedlot and carcass performance by diet is presented in Table 2. Feedlot and carcass performance by sex is presented in Table 3. Lambs fed HE had heavier final weights (P<.01), greater total gain and ADG (P<.01) than lambs fed LE. Wether lambs (W) had a heavier initial weight (P<.05) and maintained this weight advantage through to the final weight (P<.01) over mixed sex (M) and ewes (E).

Lambs fed HE had heavier carcass weights, higher dressing percentage, greater backfat, higher USDA quality grade and higher pounds of total retail product (P<.01) than LE lambs. However, sex only increased carcass weight and pounds of total retail product for W over E (P<.05).

CONCLUSIONS

Diet effects on feedlot performance and carcass characteristics did not suggest any alternative management is needed to utilize lower energy diet to stretch the marketing window of finish lambs. Sorting by sex does allow to more effective market pens of lambs, but mixed groups will perform favorable if facilities do not allow for sorting. However, to extend the marketing window of finish lambs to meet supply requirements will also require a premium. Lambs fed the LE would have required an additional 28 days on feed to meet the equivalent finish weight of the HE lambs. This would require an additional $12/head premium to cover the costs (higher COG) to meet this market specification. Also, this assumes the additional 28 days would provide similar carcass performance.

Table 3. Feedlot and carcass performance by sex.

	Wether	Ewe	Mixed
Initial wt, lbs	76[a]	74[b]	75[a]
Final wt, lbs	130[a]	123[b]	124[b]
Overall gain, lbs	54[x]	50[y]	50[y]
ADG, lbs/d	0.52[x]	0.47[y]	0.47[y]
COG, lbs/d	$0.38	$0.39	$0.41
Carcass wt, lbs	65[a]	61[bx]	64[ay]
Dressing %	48.5	48.2	48.9
Backfat, in.	0.20	0.20	0.21
USDA Quality Grade	11.1	10.9	11.2
Total Retail Product, lbs	40.2[a]	38.2[bx]	39.4[ay]

[a,b] *unlike superscripts differ P<.01*

[x,y] *unlike superscripts differ P<.05*