Lamb Feeding Demonstration Project

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Producing large-framed heavy lambs with sufficient backfat to grade properly generally requires a grain-feeding period prior to slaughter. In most of Ontario, corn is the grain of choice since it is cheaper per pound of energy fed. In some areas, especially northern Ontario, barley is usually cheaper than corn on an energy basis. In addition, barley is significantly higher in crude protein, which may eliminate the need to feed a protein source in finishing rations.

A previous trial at New Liskeard compared two energy sources, whole barley and cracked corn, when fed with alfalfa silage which was very high in soluble protein. That trial showed that animal performance was similar between the two energy sources. However, the rations fed in that trial were not typical finishing rations since they contained over 60% forage on a dry matter basis. In the current trial, we compared diets where either whole corn or whole barley made up 50 to 60% of the ration dry matter and only about 35% of the ration was forage.

Methods: One hundred and twenty lambs were first divided into females and wethers and were then randomly split between barley and corn diets. The rations were balanced to provide equal amounts of crude protein and energy for each of the four groups. To achieve equal (and recommended) amounts of crude protein, a small amount of soybean meal was added to the corn diet. The forage source was small square bales of alfalfa hay. All grain, soymeal and hay was fed twice per day. Refused hay was weighed back twice per day.

The lambs had a strong Suffolk background on the dam side, but were sired by Dorsett-Arcott crossbred rams. The lambs were born in late-April and were on a pasture trial during June and early July. They were weaned in late July and remained on pasture until September. The pasture was rather poor due in part due to dry weather and the lambs performance prior to removal from pasture was poor. The lambs were "framey" when they were started on feed. The lambs had a lengthy warm-up period to adjust to the grain rations. The actual feeding trial was conducted over a 5 week period starting in October.

Results:

i) Animal Performance

The average starting weight was similar in each group and over the course of the trial (34 days) the average absolute gain per lamb was about 10 kg (Table 1). Expressed in terms of daily gain, the lamb gains ranged from 288 g/hd/day (0.634 pounds) to 302 g/hd/day (0.664 pounds). There were no significant differences in average daily gain either between the barley and corn groups or between the wether and female groups. Feed to gain ratios were calculated as the weight of (grain+soybean+hay-refusals)/total gain. Feed to gain ratios were similar for all four groups, averaging 6.2 pounds of feed consumed per pound of gain. The average daily gain was below our expectations, although still reasonable for lambs of that age. Some of the lambs were already quite heavy following the warm up period and were past the stage of most efficient gains.

Table 1. Number of lambs, start and end weights, and average daily gain per group.

	Number	Start Weight (kg)	End Weight (kg)	Average Daily Gain (grams)	Feed:Gain Ratio
Wether-Barley	28	37.59	47.86	302	6.1
Wether-Corn	27	37.78	47.94	299	6.2
Female-Barley	32	36.56	46.39	289	6.1
Female-Corn	33	36.53	46.31	288	6.3
Average	-	37.1 +/- 5.3	47.1 +/- 5.7	294	6.2

ii) Feed Costs

Given similar performance between the two rations, the choice of grain becomes a question of feed costs. In the fall of 1998, barley could be purchased from the farm in the New Liskeard area for about $90/mt and corn could be trucked direct from the combine and delivered for about $120/mt. Soymeal was priced locally at about $350/mt. Hay prices vary widely but local prices were in the range of $70/mt (about $25 for a 4x5 bale) for good alfalfa hay. Based on these prices, the feed cost per pound of gain was 27 cents for the barley ration and 36 cents for the corn ration. This does not include salt and mineral costs, which were fed free choice.

Table 2. Cost for barley and corn-based rations.

Ration	Lb/Head/Day	Cost/Day	Feed Cost/Pound Gain
Barley Ration			
Barley (90/mt)	3.00	0.122	
Hay (70/mt)	1.75	0.056	$0.27
Corn Ration			
Corn (120/mt)	2.4	0.131	
Soymeal (350/mt)	0.15	0.024	
Hay (70/mt)	2.3	0.073	$0.35

Conclusions: Lamb gains and feed efficiency were similar on barley or corn rations where 50 to 60 percent of the ration was grain and the total protein and energy fed was the same. Cost of gain was lower for the barley ration using local prices during the fall of 1998. Lamb feedlot rations should consider ingredient cost when performance can be shown to be the same. No health problems were observed in the lambs during the trial. If wethers are to be fed rations very high in grain (over 80%) then preventative measures against urinary calculii would likely be necessary. A qualified nutritionist and veterinarian should be consulted regarding ration balancing and health issues for lamb feeding programs.