

Pasture vs Confinement Lamb Finishing

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Introduction

When wether and ewe lambs are fed free choice concentrates during the finishing phase and supplemented both on pasture and in the barn, how will growth rates compare? Will wether lambs grow faster than ewes, will being inside provide an advantage and how will the use of an ionophore impact growth?

In September of 2007 we decided to evaluate these questions on finishing lambs at the Eastern Agriculture Research Station (EARS) in Belle Valley, Ohio.

For this trial we compared the use of four different concentrate supplements fed in two replicates in the barn and two outside on pasture. Comparisons were made between male and female growth rates and feed efficiency.

Methods

Lambs were randomly assigned to feed groups and separated by sex. Four ad lib concentrate rations were evaluated and replicated twice in the barn and on pasture. Lambs were fed in a total of sixteen pens of five individuals each. All lambs were born in May 2007, weaned in August, vaccinated for C,D and T, and de-wormed prior to the start of the trial. Distribution by weight ranges were made across groups. The pasture consisted of unfertilized, stockpiled fescue and white clover. A cattle creep feeder was utilized to provide feed on pasture. Paddock size was approximately 1/3 acre each. Lambs finished in the barn were on a manure pack with approximately 38 square feet per lamb, open-fronted barn, and provided free choice hay and concentrate, via a gravity flow feeder. All lambs were provided with free choice water and minerals.

Lambs were started on test September 27th and taken off test December 4th, 2007. Both start and end weights were recorded (Table 2).

Results

For this project a statistical analysis using a completely randomized design was utilized.

Hypothesis: (1, 2, 3)

1. Lambs fed the same ration on pasture and in the barn will not have a rate of gain and feed efficiency (F/G) that is significantly different.

Results indicated feed type was highly significant ($P<.001$), but location (inside or outside) had a probability of $P=.1109$ and thus little effect on average daily gain (ADG). Feed per pound of gain was significant at a $P=.0004$ (Table 1).

2. Lambs supplemented with an ionophore will have a significantly improved feed efficiency when compared to groups of lambs not supplemented with an ionophore.

Results demonstrated that ionophore status did make a significant improvement in feed per pound of gain, $P=.0197$ (Table 1).

3. There is no significant difference in rate of gain and feed per pound of gain between males and females.

Results showed that neither ADG ($P=.6470$) or F/G ($P=.9801$) were affected by lamb sex (Table 2).

Discussion

Animal performance at this location and for these lambs was not significantly different when self-fed on pasture or in the barn. However, it appears that feed efficiency could become a concern in foul weather as potentially more feed can be wasted outside. Ionophores did significantly increase feed efficiency in both males and females and was a cost effective measure to improve animal performance (Table 1). Based on the feeds used at this location, males and females gained equally well during this phase of finishing (Table 2). Feeding lambs outside with a self-feeder is an inexpensive option for finishing lambs. However, feed wastage due to spoiling is a concern and producers should protect feed from excess moisture. Feed cost calculations are based on the amount of concentrate fed and does not account for pasture, hay, or death loss. Two lambs in the SH 101 groups, one lamb in an inside group, and one in an outside group died of acidosis. The 2008 feed prices will be significantly higher than 2007.

Table 1 – Average Daily Gain & Feed per Pound of Gain

Pen	Total Feed	lb/hd/day	ADG	lb Feed/lb Gain	\$/lb gain (feed only)
Green Valley Outside	1731	2.55	0.49	5.20	.97
Green Valley Inside	1809	2.66	0.57	4.63	0.86
Averages		2.60	0.53	4.89	0.91
Gerber Pellet Outside	1908.4	2.81	0.51	5.50	0.76
Gerber Pellet Inside	1824.3	2.68	0.54	4.97	0.69
Averages		2.74	0.53	5.23	0.72
Gerber Corn with ionophone Outside	1741.5	2.56	0.58	4.42	0.59
Gerber Corn with ionophone Inside	1435.6	2.11	0.50	4.22	0.56
Averages		2.34	0.54	4.33	0.58
SH 101 Outside	1036	1.90	0.34	5.6	0.48
SH 101 Inside	1276	2.08	0.39	5.35	0.45
Averages		1.99	0.37	5.46	0.46

Table 2 – Female vs Male ADG

	Female	Male
Average daily gain for lambs inside and outside	0.54 lb/day	0.53 lb/day
Average feed per pound of gain	4.78	4.78
Average start weight	65 lbs	67 lbs
Average end weight	102 lbs	103 lbs

Feed Tags

SH 101	
Whole Shelled Corn	92%
Feedgrade Limestone	1%
48% Soybean Meal	7%
Ingredients	
Whole shelled corn, feedgrade limestone, soybean meal.	

Green Valley Lamb Finisher Complete	
Crude Protein	14%
Crude Fat	2%
Crude Fiber	12%
Calcium	1-1.5%
Phosphorus	.35%
Salt	.5-1%
Selenium	.3 ppm
Vitamin A	4,000 IU/#
Vitamin D3	1,000 IU/#
Vitamin E	10 IU/#
Ingredients	
Processed Grain By-Products, roughage products, Forage products, calcium carbonate, salt, ammonium Chloride, Calcium Lignin Sulfonate, Urea, Molasses Products, Vegetable Fat Product (feed grade), Lecithin, Sulfuric Acid, Artificial flavoring, Propionic Acid (a preservative), Acetic Acid (a preservative), Benzoic Acid (a preservative), Ferrous Sulfate, Magnesium Sulfate, Magnesium Oxide, Zinc Sulfate, Zinc Oxide Plant Protein Products, Vitamin A Supplement, Vitamin D3 Supplement, Mineral Oil, Vitamin E Supplement, Sodium Selenite.	

Gerber Corn 14% Lamb Tex	
Active Drug - Lasalocid	21.6 g/ton
Crude Protein	14%
Crude Fat	3.4%
Crude Fiber	5%
Calcium	.35-.85%
Phosphorous	.31%
Salt	.08-.58%
Selenium	.2 ppm
Vitamin A	8,000 IU/#
Ingredients	
Shelled corn, Plant Protein Products, Processed Grain By-Products, Molasses Products, Roughage Products, Calcium Carbonate, Forage Products, Brewers Grains Yeast, Blended Poultry & Vegetable Fat Preserved with BHA, Salt, Ammonium Chloride, Mono-dicalcium Phosphate, Lignin Sulfonate, Magnesium Oxide, Zinc Sulfate, Manganous Oxide, Ferrous Sulfate, Vitamin A Supplement, Vitamin D3 Supplement, Vitamin E Supplement, Vitamin B12 Supplement, Menadione Sodium Bisulfite Complex, Riboflavin Supplement, d-Calcium Pantothenate, Niacin Supplement, Sodium Selenite, Mineral Oil, Ethylenediamine Dihydroiodide, Cobalt Carbonate, Calcium Sulfate, Propionic Acid, Ammonium Hydroxide, Methylparaben, Butylated hydroxyanisole.	

Gerber Pellet 14% Lamb Grower Pit	
Unmedicated	
Crude Protein	14%
Crude Fat	3.9%
Crude Fiber	12.5%
Calcium	.4-.9%
Phosphorous	.49%
Salt	.30-.50%
Selenium	.8 ppm
Vitamin A	6,000 IU/#
Ingredients	
Processed Grain By-Products, Fine Ground Sh Corn bulk, roughage Products, Forage Products, Molasses Products, Non-Ruminant Animal Protein Products, Planat Protein Products, Calcium Carbonate, Lignin Sulphate, Blended Poultry & Vegetable Fate Preserved with BHA, Salt, Ammonium Chloride, Brewers Grains Yeast, Zinc Sulfate, Manganous Oxide, Ferrous Sulfate, Vitamin A Supplement, Vitamin D3 Supplement, Vitamin E Supplement, Vitamin B12 Supplement, Menadione Sodium, Bisulfite Complex, Riboflavin Supplement, d-Calcium Pantothenate, Niacin Supplement, Sodium Selenite, Mineral Oil, Ethylenediamine Dihydroiodide, Cobalt Carbonate, Propionic Acid, Ammonium Hydroxide, Sorbic Acid, Benzoic Acid, Phosphoric Acid, Propylparaben, Methylparaben, Butylated hydroxyanisole.	

Sheep TM Salt w/Selenium	
Salt	92-96%
Manganese	.80%
Zinc	1%
Iron	.80%
Iodine	70 ppm
Cobalt	100 ppm
Selenium (as Sodium Selenite)	90 ppm

GRASS/LEGUME HAY		
ANALYSIS RESULTS		
Components	As Sampled Basis	Dry Matter Basis
% Moisture	7.9	
% Dry Matter	92.1	
% Crude Protein	12.1	13.1
% Available Protein	11.4	12.4
% ADICP	.6	.7
% Adjusted Crude Protein	12.1	13.1
Soluble Protein % CP		28
Degradable Protein % CP		64
% NDICP	3.5	3.9
% Acid Detergent Fiber	30.9	33.5
% Neutral Detergent Fiber	49.7	54.0
% Lignin	5.5	6.0
% NFC	23.7	25.7
% Starch	2.1	2.3
% WSC (Water Soluble Carbs.)	13.3	14.4
% ESC (Simple Sugars)	11.0	11.9
% Crude Fat	2.7	2.9
% Ash	7.47	8.11
% TDN	60	65
NEL, Mcal/lb	.57	.62
NEM, Mcal/lb	.58	.63
NEG, Mcal/lb	.34	.37
Relative Feed Value		108
% Calcium	.53	.58
% Phosphorus	.22	.24
% Magnesium	.26	.28
% Potassium	1.49	1.62
% Sodium	.022	.024
PPM Iron	24	26
PPM Zinc	24	26
PPM Copper	7	8
PPM Manganese	104	113
PPM Molybdenum	.1	.1
% Sulfur	.18	.19
% Chloride Ion	.22	.24
Horse TDN, %	46	50
Horse DE, Mcal/lb	.93	1.01
I VTD 24 hr, % of DM		71
NDFD 24 hr, % of NDF		46
Kd, %/hr		5.20
% Lysine	.42	.46
% Methianine	.16	.17

