Ohio State University Eastern Agriculture Research Station (EARS)
Belle Valley, Ohio
Ewe Lamb Confinement vs Pasture Finishing & Wether Lamb Feed Trial

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Introduction

In this project we evaluated lamb rate of gain and cost per pound of gain utilizing a grower/finisher ration. One of this ration was evaluated for finishing ewe lambs, barn raised and outside on open pasture.

Females were randomly assigned to feed groups in pens of five. The feed utilized was our own blended ration (343), (feed tags attached). The feed was given four replicates inside and on pasture. Cost and performance was measured.

Methods

Lambs were randomly assigned to feed and treatment groups. Start weights were sorted and evened across pens of five. Start weights were evaluated and not found to be significantly different ($P < 0.05$). Pen and feed assignments were randomized. All lambs were born in May, weaned in August, vaccinated for C,D and T, and de-wormed prior to the start of the trial. All lambs originate from the Eastern Agriculture Research Station (EARS) flock at the Belle Valley Research Station and are of Dorset base. Lambs finished inside, were in an open-fronted barn and were placed on a manure pack with approximately 30 square feet per lamb. Free choice hay and concentrate were provided via a gravity flow feeder. All lambs were provided with free choice water and trace minerals. Lambs finished outside were randomly assigned to paddocks of one-third acre fescue. Starting pasture mass was approximately 1000 pounds dry matter (infected fescue grass) per paddock with access to water and trace-mineralized salt. Concentrate rations were evaluated utilizing gravity flow feeders and provided free choice. No shelter was provided to pasture finished lambs other than tree shade.

Lambs were started on test September 29th and taken off test December 22nd. Both start and end weights were recorded. Average start weight for all lambs was 66 pounds.

Results

Statistical analysis utilized Anova: single factor, Alpha=.05

Hypothesis:

There is no significant difference in daily rate of gain for females fed ration 343 when comparing pasture and barn finishing.

Null Hypothesis:
There is a significant difference in daily rate of gain for females fed ration 343 when comparing pasture and barn finishing.

We accept the hypothesis that: There is no significant difference in daily rate of gain for females fed ration 343 when comparing pasture and barn finishing, ($P < 0.05$).

Discussion

Ewe lamb performance at this location and for these lambs was not significantly different when comparing feed efficiency or rate of gain for ration 343 (Table 2), ($P < 0.05$). It should be noted however, the amount of feed wastage that can occur outside has been influenced in previous trials by feed type, weather conditions and wildlife interactions. Rations containing high concentrations of soybean hulls and/or corn have exhibited significant wastage when provided free choice, outside, in gravity flow type feeders. However, for this trial this was not an issue. Ewe lambs finishing inside had an average finish weight of 105 pounds and outside finished lambs had an average finish weight of 109 pounds.

Feed cost calculations are based on the amount of concentrate fed in and 84 day finishing phase and does not account for labor, hauling or pasture. These results demonstrate it is possible to economically finish lambs without the use of a building.

Table 1 - Average Feed Consumption per lb. of gain

Feed 343		Females
Average pounds of feed per pound of gain	outside	5.12
Average pounds of feed per pound of gain	inside	5.21

Table 2 - Average rate of gain per day inside and outside

	Females

	outside	inside
	.52 lb/day	.48 lb/day

Table3 – Average concentrate feed cost per pound of gain		Females
	outside	inside
	$.59	$.60
For OSU feed 343 at $231/ton, cost calculations do not include labor, hauling/handling, etc.		

Wether Lamb Feed Comparison

Wether lambs were finished during the same time period as the ewe lambs. These lambs were of the same genetic makeup as the ewe lambs and produced on the Belle Valley, Ohio State University, EARS station. Vaccinations, weaning, start-time, start-weights were as described for the ewe lambs. Pen and feed assignments were randomized. All lambs were born in May, weaned in August, vaccinated for C,D and T, and de-wormed prior to the start of the trial. However, these lambs were all finished inside on a manure pack with approximately 30 square feet per lamb. No comparisons were made to an outside finishing system. Feed manufacture's requested evaluation of four lamb rations, tags and prices provided below (note: prices are subject to change). No comparisons were made between feeds as each was different. Four replicates of each feed were evaluated with lambs randomly assigned to treatment groups and pens. Start weights were evaluated and not found to be significantly different (appx. 66 lbs). Free choice hay and concentrate were provided via a gravity flow feeder. All lambs were provided with free choice water and trace minerals. Performance data below is for wether lambs starting at the same time and grown for 101 days finishing in January 2010. Average finish weight (107 lbs). Feeds were evaluated for conversion of feed per pound of gain and cost per pound of gain utilizing the cost for these commercially available feeds at the start of the trial. Cost figures represent only the feed. One wether lamb died of urinary calculi.

Table 4 – Average wether lamb performance & cost (101 day finishing phase)

Feed Type	Average Daily Gain	Feed per pound of Gain	Cost per pound of Gain
Gerber 1 (medicated)	.42	7.19	$.93
Gerber 2 (unmedicated)	.34	7.88	$1.01
Green Valley 1 (medicated)	.46	5.95	$.89
Green Valley 2 (medicated)	.51	5.34	$.74

14% Lamb Gr-Commodity Medicated (Green Valley-2) $277/Ton	
Crude Protein Not more than .55% non-protein nitrogen	14%
Crude Fat	Min 4.75%
Crude Fiber	Max 12%
Calcium min/max	.75-1.25%
Phosphorus min	0.30%
Salt min/max	.25-.75%
Selenium	.30 ppm
Vitamin A	2800 IU/#
Active Drug Ingredient Lasaiocid	35 g/ton
Ingredients	
Processed Grain By-Products,, Forage Products, Grain Products, Molasses Products, Dried Baker Products, Plant Protein Products, Animal Protein Products. Urea, Ammonium Sulfate, Potassium Chloride, Calcium Carbonate, Salt, Calcium Phosphate, Magnesium Mica, Zinc Sulfate, Zinc Oxide, Magnesium Sulfate, Manganous Oxide, Cobalt Carbonate, Calcium Lignin Sulfonate, Potassium Iodide,, Ethylenediamine Dihydroiodide, , Vitamin A Supplement, Vitamin D_3 Supplement, Mineral Oil.	

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14% Lamb Gr.-WSC Medicated (Green Valley-1) $299/Ton	
Crude Protein Not more than 1.85% non-protein nitrogen	14%
Crude Fat	Min 3%
Crude Fiber	Max 7%
Calcium min/max	.75-1.25%
Phosphorus min	0.30%
Salt	.5-1%
Selenium	.30 ppm
Vitamin A	3,400 IU/#
Active Drug Ingredient Lasaiocid	35 g/ton
Ingredients	
Processed Grain By-Products, Forage Products, Grain Products, Molasses Products, , Dried Baker Products, Plant Protein Products, Animal Protein Products. Urea, Ammonium Sulfate, , Potassium Chloride, Calcium Carbonate, Salt, Calcium Phosphate, Magnesium Mica, Zinc Sulfate, Zinc Oxide, , Magnesium Sulfate, Manganous Oxide, Cobalt Carbonate, Calcium Lignin Sulfonate, Potassium Iodide,, Ethylenediamine Dihydroiodide, , Vitamin A Supplement, Vitamin D_3 Supplement, Mineral Oil.	

(Gerber 1) Pellet **14% Lamb Grower w/Bovatec – $258.20/Ton**	
Active Drug - Lasalocid	27.3 g/ton
Crude Protein	14.10%
Crude Fat	3.90%
Crude Fiber	12.50%
Calcium	.40-.90%
Phosphorous	0.48%
Salt	.40-.90%
Selenium	.8 ppm
Vitamin A	6,000 IU/#
Ingredients	
Processed Grain By-Products, Fine Ground Shelled Corn bulk, Roughage Products, Forage Products, Molasses Products, Plant Protein Products, Non-Ruminant Animal Protein Products, Calcium Carbonate, Lignin Sulfonate, Blended Poultry & Vegetable Fat Preserved with BHA, Salkt, Ammonium Chloride, Brewers Grains Yeast, Zinc Sulfate, Manganous Oxide, Ferrous Sulfate, Vitamin A Supplement, Vitamin D_3 Supplement, Vitamin E Supplement, Vitamin B_{12} Supplement, Mendodione 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.	

(Gerber 2) Pellet **14% Lamb Grower unmedicated – $256/Ton**	
Crude Protein	14%
Crude Fat	3.70%
Crude Fiber	12%
Calcium	.45-.95%
Phosphorous	0.52%
Salt	.45-.95%
Selenium	.7 ppm
Vitamin A	5,000 IU/#
Ingredients	
Processed Grain By-Products, Fine Ground Sh Corn bulk, Roughage Products, Molasses Products, Plant Protein Products, Forage Products, Calcium Carbonate, Salt, Ammonium Chloride, Blended Poultry & Vegetable Fat Preserved with BHA, Lignin Sulphate, Zinc Sulfate, Manganous Oxide, Ferrous Sulfate, Vitamin A Supplement, Vitamin D_3 Supplement, Vitamin E Supplement, Vitamin B_{12} 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.	

(OSU 343) w/Bovatec 91 $231/Ton **Recipe Percent**	
Active Drug -	.015%
Soybran Flakes	30.25%
Corn , ground, rolled	21.57%
Distillers dried grains	45.38%
Limestone feed grade	1.50%
Salt, trace mineralized	.521%
Ammonium chloride	.521%
Vitamin A-30 (30,000 units per gm)	.01%
Vitamin D3-3000 units per gm	.01%
Vitamin E-20,000 units per lb	.052%
Selenium, 90.8 mg/lb.	.015%

Dairy One

FORAGE TESTING LABORATORY
DAIRY ONE, INC.
730 WARREN ROAD
ITHACA, NEW YORK 14850
607-257-1272 (Fax 607-257-1350)

Sampled	Recvd	Printed	ST	CO
	10.03.09	10.03.09		

CLIF LITTLE
[illegible] EXPANSION COMPANY CPY

PO BOX 300
[illegible] WASHINGTON, OH 43788

ENERGY TABLE - NRC 2001

	Mcal/Lb	Mcal/Kg
DE, 1X	1.14	2.52
ME, 1X	0.95	2.10
NEL, 3X	0.53	1.17
NEM, 3X	0.55	1.22
NEG, 3X	0.30	0.65
TDN1X, %	59	

Sample Description	Form	Code	Sample
DANE GRASS HAY		803	13276700

Analysis Results

Components	As Fed	DM
% Moisture	7.0	
% Dry Matter	93.0	
% Crude Protein	4.6	5.0
% Available Protein	4.	4.4
% ADICP	5	.6
% Adjusted Crude Protein	4.6	5.0
Soluble Protein % CP		28
Degradable Protein % CP		72
% NDICP	1.4	1.5
% Acid Detergent Fiber	39.5	42.5
% Neutral Detergent Fiber	59.8	64.3
% Lignin	5.3	5.7
% NFC	23.7	25.5
% Starch	2.2	2.3
% WSC (Water Sol. Carbs)	14.7	15.8
% ESC (Simple Sugars)	6.7	7.2
%Crude Fat	1.9	2.0
% Ash	4.45	4.79
% TTN	55	59
NEL, Mcal/Lb	.47	.50
NEM, Mcal/Lb	.49	.52
NEG, Mcal/Lb	.25	.27
Relative Feed Value		81
% Calcium	.31	.33
% Phosphorus	.12	.13
% Magnesium	.11	.12
% Potassium	1.07	1.15
% Sulfur	.08	.09
% Chloride Ion	.40	.43
% Lysine	.18	.19
% Methionine	.06	.07
Horse DE, Mcal/Lb	.91	.98