

Nutrition and the Impact on Lamb Resilience to Internal Parasites 2006



Clif Little

Extension Educator, Ag & Natural Resources
OSU Extension Guernsey County
11296 East Pike, Cambridge, OH 43725

Daryl Clark

Extension Educator, Ag Natural Resources
OSU Extension Noble County
150 Courthouse, Caldwell, Ohio 43724

Abstract

Drug resistance has become a serious problem for sheep and goat producers in Ohio. Many flocks now demonstrate some level of drug resistance to all approved classes of anthelmintics. When resistance develops to all four chemical classes of dewormers, producers must have some means of continuing in production. The objective of this study was to grow lambs on pasture at a time so as to eliminate the use of anthelmintics. Wether lambs, Dorset/Marino crossbreed, were randomly sorted into six pens, three replications and equally divided according to fecal egg shedding. In total forty-one lambs were utilized in the trial. Three groups were randomly selected for drug treatment while three groups received no anthelmintic products. Treatment groups were dewormed once at the start of the trial. All groups were grown on fescue pasture with full feed/self feeder for 104 days starting August 4th. Results indicated, there is not significant difference $p < .01$, for average weight gain among animals treated for internal parasites and animals not treated.

Introduction

Fewer chemical classes, how we use them, and how frequently we use them all play a role in the development of drug resistance. As most producers understand, individual animals vary in their level of resistance and or resilience to internal parasites. In general, younger animals and nutritionally stressed animals are more susceptible to parasite infestation. Understanding parasite biology and reducing nutritional stress may reduce the need to utilize chemical dewormers.

At the Eastern Agricultural Research Station (EARS) in Belle Valley, Ohio we decided to continue our evaluation of lamb resilience to internal parasites when fed concentrate on pasture. Two previous studies at this research station utilizing these same type lambs, pasture location and ration showed no significant difference in lamb rate of gain for treated and untreated groups when these lambs were finished latter in the year, $p < .05$, (Little, Hanson, 2004). Contrary to the 2004 results: (Little, Clark, 2005), results indicated, $p < .01$, that animals treated for internal parasites gained more weight than animals not treated when the finishing phase started in September. Further investigation is needed to understand the relationship between nutrition, parasite burden, and animal age in order to predict animal performance.

Methods

Six groups of wether lambs were randomly sorted into six pens, three replicates and equally divided according to fecal egg shedding. In total 41 lambs were utilized in the trial. Three groups were randomly selected for drug treatment, while three received no anthelmintic product. Researchers utilized the modified McMaster egg counting technique. All groups were grown on fescue pasture with full feed self-feeders for 104 days, starting Aug. 4, 2006 and ending Nov. 15, 2006.

Lambs were weaned in August and vaccinated for CD&T. All lambs had free access to a corn/soybean meal concentrate ration (Table 1), access to water, pasture and trace mineralized salt. Lambs were kept outside for the entire finishing phase.

Table 1: Supplement Formulation

Ingredient	
Corn	92%
Soybean Hulls Pellets	7%
Limestone	1%

Results

Lambs were weighed at the beginning and end of the trial (Table 2). Fecal egg counts were recorded for all lambs at the start and end of the trial (Table 3). For this trial there is not a significantly difference ($p < .01$) for rate of gain for lambs treated and untreated for internal parasites. Statistical analysis using (CRD) complete randomized design. The measured parameter was not significantly different at a 1% level of probability. Therefore, we accept the Null Hypothesis.

Hypothesis: Average weight gain is greater for animals treated for internal parasites than for animals who were not.

Null Hypothesis: Average weight gain is the same for animals treated for internal parasites and for animals who were not.

Table 2: Lamb Performances

Item	Treated	Untreated
Total # of lambs	21	20
Starting weight in lb.	58	56
Ending weight in lb.	115	113
Avg. daily gain in lb.	.56	.54
Avg. total lb. gain per lamb	58	56

Table 3: Fecal Egg Counts

Item	Treated	Untreated
Avg. beginning fecal egg count (eggs per gram)	1752	5215
Avg. ending fecal egg count (eggs per gram)	666	1179

Discussion/Conclusion

The parasite of primary concern in this study was *Haemonchus Contortus*. Fecal egg count reduction tests suggest that the dewormer utilized in this study was effective. Results indicated that the average weight gain was not significantly different for treated and untreated lambs, $p < .01$. These results are consistent with two previous studies of lamb rate of gain (Little, Hanson 2004). However, (Little, Clark, 2005), did report a significant difference in rate of gain with this same group of lambs at this same location when starting the finishing phase in August. Researchers feel that the host parasite interaction seen here seems to be that as lambs get older they develop some level of acquired immunity, the high level of nutrition helps and *Haemonchus* activity declined as we move into the winter. In addition, it appears some lambs fed grain supplement may become resilient to internal parasites. This provides some explanation why doing this same trial with the same controls on the same lambs latter in the year reduces the need for an anthelmintic. The exact period of *Haemonchus* inactivity is difficult to assess since it is at least partially weather dependant. At this location it appears that we can finish these lambs on pasture utilizing supplementation and not deworm at this phase of production if we start sometime in September or October. Minimizing parasite drug exposure may be important for some producers. The need for monitoring parasite activity in lambs is extremely important and feeding supplement does not eliminate this need. Results can vary from year-to-year, and feed supplement does appear in this case to help lambs deal with parasite burdens.

Lambs starting on feed



Lamb self-feeder

