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Comparison of Dectomax® and Valbazen® on feedlot steer performance and carcass traits

Abstract

Two hundred thirty-nine steers were fed at the K-State Agricultural Research Southeast Agricultural Research Center Center- Hays to compare the effects of different deworming agents on feedlot performance and carcass traits. This experiment consisted of two replications with steers being fed a finishing diet based on ground sorghum-grain for approximately 100 days. Before the start of each replication, steers were commingled for approximately 30 days and then stratified into high- and low-marbling groups via ultrasound measurements. Within each marbling group, steers were randomly allotted to a treatment. Treatments consisted of an oral application of Valbazen® or a subcutaneous injection of Dectomax® dewormer. Dosages of deworming products followed label instructions. At time of treatment and 12 days later, fecal grab samples were analyzed for indications of internal parasite infestation. Both deworming agents reduced fecal egg counts. Feedlot performance, as measured by daily gain and feed efficiency, was unaffected by treatment. Dectomax®-treated cattle had greater marbling scores and had a greater percentage of carcasses grading USDA Choice or greater than did cattle given Valbazen®. Steers receiving Dectomax® had thicker backfat and greater Yield Grade measurements than did the Valbazen®-treated steers. Other carcass traits were similar between treatment groups. Our data indicate that both Dectomax® and Valbazen® deworming agents can effectively reduce internal parasites, but feedlot steers given Dectomax® had more intramuscular and external fat deposition.

Keywords

Cattlemen's Day, 2005; Kansas Agricultural Experiment Station contribution; no. 05-144-S; Report of progress (Kansas State University. Agricultural Experiment Station and Cooperative Extension Service); 943; Beef; Dectomax®; Valbazen®; Steer performance and carcass traits

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COMPARISON OF DECTOMAX® AND VALBAZEN® ON FEEDLOT STEER PERFORMANCE AND CARCASS TRAITS

J. A. Christopher, T. T. Marston, J. R. Brethour, and G. L. Stokka

Summary

Two hundred thirty-nine steers were fed at the K-State Agricultural Research Center–Hays to compare the effects of different deworming agents on feedlot performance and carcass traits. This experiment consisted of two replications with steers being fed a finishing diet based on ground sorghum-grain for approximately 100 days. Before the start of each replication, steers were commingled for approximately 30 days and then stratified into high- and low-marbling groups via ultrasound measurements. Within each marbling group, steers were randomly allotted to a treatment. Treatments consisted of an oral application of Valbazen® or a subcutaneous injection of Dectomax® dewormer. Dosages of deworming products followed label instructions. At time of treatment and 12 days later, fecal grab samples were analyzed for indications of internal parasite infestation. Both deworming agents reduced fecal egg counts. Feedlot performance, as measured by daily gain and feed efficiency, was unaffected by treatment. Dectomax®-treated cattle had greater marbling scores and had a greater percentage of carcasses grading USDA Choice or greater than did cattle given Valbazen®. Steers receiving Dectomax® had thicker backfat and greater Yield Grade measurements than did the Valbazen®-treated steers. Other carcass traits were similar between treatment groups. Our data indicate that both Dectomax® and Valbazen® deworming agents can effectively reduce internal parasites, but feedlot steers given Dectomax® had more intramuscular and external fat deposition.

Introduction

When cattle are dewormed upon entering the feedlot or during the finishing phase, performance and carcass measurements are improved. It is unknown whether this response is due to the clearing of internal parasites, control of external parasites, and/or a biological response to the product. The major objective of this study was to determine if Dectomax® enhances marbling scores independent of its ability to deworm feedlot cattle.

Procedures

The cattle used in this study were large-framed, heavy-weight steers with the genetic propensity to marble. They were gathered from several local sources near Hays, Kansas. When these cattle were brought to the feedlot to begin the finishing phase, they were commingled, vaccinated for bovine respiratory disease, and given an estrogenic implant. Steers were fed a common finishing diet for about 60 days before being allotted to treatment.

Ultrasound measurements and Cattle Performance Enhancement Company (CPEC) predictions were used to select steers with similar harvest endpoints. Steers were fed 103 days. Within each harvest date, steers were stratified into high- and low-marbling groups. Steers were randomly allotted to treatments within each marbling/harvest group. Treatments consisted of: 1) steers received 4

ml/100 pounds body weight of Valbazen® oral drench, or 2) steers received subcutaneous injection of Dectomax® at 1 ml/110 pounds body weight. At the time of treatment application, fecal grab samples were collected from 80 steers and analyzed for worm egg counts. Twelve days after treatment application, fecal samples were collected and similarly analyzed.

During the two replications, steers were fed a common finishing ration consisting primarily of finely ground, dry, grain sorghum. The diet contained sorghum silage, soybean meal, urea, and ammonia sulfate. The diet also included 100 g calcium carbonate, 25 g sodium chloride, 300 mg of Rumensin, 90 mg Tylan, 30,000 IU Vitamin A per head per day, and a trace mineral premix that provided adequate amounts of copper, manganese, zinc, iron, iodine, and cobalt. Steers were fed in four, 30-head capacity pens. Feed deliveries were recorded daily for each pen. Beginning and intermediate body weights were measured, whereas final body weights were calculated from carcass weights adjusted via a common dressing percentage. Fecal samples were analyzed by microscope to count number of intestinal parasite eggs. Cattle were harvested at a commercial facility (National Beef,

Dodge City, Kansas), and carcass data were retrieved after a 24-hour carcass chill.

Results and Discussion

The fecal egg count data showed steers shedding an average of 16 eggs/gram of feces at the start of the trial. Eggs counts diminished to 1.0 egg/gram for Valbazen® and 5.2 eggs/gram for Dectomax®, indicating both products were effective at reducing shedding of eggs (Table 1).

The performance and carcass data are presented in Table 2. Average daily gain was not different between treatments. Cattle treated with Dectomax® had more intramuscular fat at the time of harvest than did cattle treated with Valbazen®. This resulted in a tendency for a greater number of cattle given Dectomax® to have a USDA quality grade of Choice or higher. Steers receiving Dectomax® also had thicker backfat and tended to have higher USDA Yield Grades. This experiment showed a tendency for steers treated with Dectomax® to have greater amounts of external and intramuscular fat than did steers receiving Valbazen®, suggesting that this effect may be independent of its deworming capacity.

Table 1. Effect of Deworming with Valbazen® or Dectomax® on Fecal Egg Counts of Feedlot Steers

	Valbazen®	Dectomax®	SEM	P-value
Day 0 egg count, eggs/gram feces	17.5	14.7	3.9	0.62
Day 12 egg count, eggs/gram feces	1.0	5.2	2.6	0.26

Table 2. Performance and Carcass Traits from Feedlot Steers Treated with Valbazen® or Dectomax®

Item	Valbazen®	Dectomax®	SEM	P-value
Number of steers	120	119		
Initial weight, lb	1005	1000		
Initial marbling score ^a	449	450		
Final weight, lb	1384	1374		
Average daily gain, lb	3.68	3.64	0.11	0.91
Feed intake, lb/day dry matter	27.7	28.0		
Feed:gain	7.52	7.69		
Hot carcass weight, lb	879	872		
Backfat, inches	0.51	0.57	0.03	0.02
Ribeye area, square inches	15.04	14.66	0.22	0.09
USDA Yield Grade	2.39	2.56	0.12	0.08
Kidney, pelvic, heart fat, %	2.41	2.52	0.07	0.09
Marbling score ^a	530	545	13.3	0.05
USDA Choice or greater, %	60.0	68.1	7.0	0.11
USDA Prime, %	3.3	4.2	3.0	0.61

^aMarbling score scale: 400 = Slight 00, 500 = Small 00, 600 = Modest 00, etc.