Kansas Agricultural Experiment Station Research Reports

Volume 0
Issue 1 *Cattleman's Day (1993-2014)*

Article 513

1998

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Recommended Citation

Spire, M.F.; Galland, J.C.; Unruh, John A.; and Drouillard, James S. (1998) "Influence of melengesterol acetate (MGA®) and Implus-H® implants on rate of gain, feed efficiency, and carcass characteristics of culled beef cows fed a high concentrate ration," *Kansas Agricultural Experiment Station Research Reports*: Vol. 0: Iss. 1. https://doi.org/10.4148/2378-5977.1916

Influence of melengesterol acetate (MGA®) and Implus-H® implants on rate of gain, feed efficiency, and carcass characteristics of culled beef cows fed a high concentrate ration

Abstract

No statistical differences were detected in feedlot performance or carcass traits between control culled beef cows and those that were treated with melengesterol acetate (MGA®) and/or Implus-H® when fed in a feedyard for 56 days before slaughter. All groups performed well, indicating that this practice may be used to improve the market value of culled cows. Cow health during the feeding period is a major concern.

Keywords

Kansas Agricultural Experiment Station contribution; no. 97-309-S; Report of progress (Kansas State University. Agricultural Experiment Station and Cooperative Extension Service); 804; Cattlemen's Day, 1998; Beef; Culled cows; Melengesterol acetate; Implus-H implant; Feedlot health; Carcasses

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INFLUENCE OF MELENGESTEROL ACETATE (MGA®) AND IMPLUS-H® IMPLANTS ON RATE OF GAIN, FEED EFFICIENCY, AND CARCASS CHARACTERISTICS OF CULLED BEEF COWS FED A HIGH CONCENTRATE RATION[1]

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Summary

No statistical differences were detected in feedlot performance or carcass traits between control culled beef cows and those that were treated with melengesterol acetate (MGA®) and/or Implus-H® when fed in a feedyard for 56 days before slaughter. All groups performed well, indicating that this practice may be used to improve the market value of culled cows. Cow health during the feeding period is a major concern.

(Key Words: Culled Cows, Melengesterol Acetate, Implus-H Implant, Feedlot Health, Carcasses.)

Introduction

Melengesterol acetate (MGA)suppresses behavioral and hormonal changes associated with the estrous cycle of intact bovine females. Riding behavior associated with cycling heifers and cows is thought to be associated with decreased performance. The objective of this study was to evaluate the effects of MGA alone, Implus-H alone, and the combination of the two on feedlot performance and carcass characteristics of culled beef cows.

Experimental Procedures

The experimental group consisted of 128 mature beef cows purchased from six Kansas livestock markets. On arrival at the feedyard, age of cows was estimated and they were given a broad spectrum anthelmintic, treated topically for external parasites, pregnancy checked, given a health physical, weighed, and frame scored. The cows were ranked by weight and allocated randomly into one of four experimental groups of 32 head each; control, MGA only, Implus-H implant only, or MGA + Implus-H. Within each experimental group, cows were assigned by weight, heaviest to lightest, into one of four replicates.

All cows were fed a ration based on corn grain and sorghum silage. Ration net energy was increased incrementally in five steps through day 24. The sixth and final ration was fed from day 25 through the end of the feeding period on day 57. The final ration (dry basis) consisted of 68.6% corn, 19.1% sorghum silage, 6.1% supplement, 3.5% alfalfa hay, and 2.7% molasses. Dry matter intake was calculated daily for each pen. For those groups receiving MGA, the product was added to the ration at 4.0 mg/head/day beginning on day 2 of the trial. Rumensin

[1]The authors express their appreciation to Pharmacia/Upjohn and Excel Corporation for providing grant support for this research.

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was added at a rate of 30g/ton to the base ration formulation for all experimental groups.

Cows were monitored twice daily for estrus and health status. All animals in standing estrus were identified, and the date was recorded. All animals showing signs of illness were pulled for medical examination and treatment. Cows with severe medical conditions were removed from the trial.

On day 29 of the trial, the cows were weighed. At the end of the trial on day 56 and the morning of day 57, the cows were weighed, and the weights averaged to calculate final weight. On day 57, the cows were shipped to the Excel, Inc. processing plant at Sterling, CO for slaughter.

Health information was recorded for each cow at evisceration. Hot carcass weight (HCW); fat thickness; ribeye area (REA); kidney, pelvic, and heart fat percent (KPH%); skeletal maturity; lean maturity; marbling; and fat color were recorded for each carcass. Dressing percent, USDA quality grade (USDA QG) and yield grade (YG) were determined for each cow.

Mean gain, intake, and feed/gain ratio were tabulated for each treatment group for days 1-28, days 29-56, and days 1-56. Means for each treatment group were compared by analysis of variance. Frequency of disease was tabulated. Twenty-two cows (chronic, dead, or pregnant at slaughter) were removed from the study and not considered in the final statistical analysis.

Results and Discussion

No significant differences (P>.05) were detected between treatment and control group means for gains, feed intakes, or effi ciencies (Table 1) or carcass traits. Means across all treatments were 9.8 $in.^2$ for REA, 0.27 in. for fat thickness, 53.0% for dressing percent, 153.4 (Utility grade= 100-199) for USDA QG, and 2.6 for YG.

Estrus was detected in 37 cows. Average daily gains were 3.91 lb for those cows displaying estrus and 3.79 lb for those not displaying estrus. The difference was not statistically significant.

During the feeding period, 29 animals were pulled for evaluation and medical treatment (Table 2). No differences in number of animals treated were found among experimental groups. At slaughter, post- mortem examination revealed 35 cows with single or multiple pathological conditions of a minor to severe nature. The type and frequency of postmortem finding were comparable to USDA reports for cull cows, except for liver condemnations, which were 10% greater than USDA reports. Based upon texture and physical characteristics, the liver abscesses appeared to be healed and had been of considerable duration. No acute or wet lesions were found. Whether this higher than expected incidence was due to feedlot management practices or to preexisting hepatic insult is unknown. One or more bruises requiring extensive tissue trimming were found on 53% of the carcasses. Average daily gains for cows pulled and treated or having pathology at slaughter were lower than gains for other cows on trial (3.58 vs 3.99 lb, P<0.09).

Cull cows are market-ready from the first day in the feedlot. The option to slaughter before the projected slaughter date can be used when unanticipated price fluctuations occur or a cow exhibits poor performance, becomes lame, goes off-feed, or is injured. Thus, products such as vaccines, insecticides, and anthelmintic should be selected for the shortest withdraw times or their use should be avoided.

Table 1. Feedlot Performance of Culled Cows

Item	Diet/Implant Regime			
	No MGA/ No Implant	No MGA/ Implus-H	MGA/ No Implant	MGA/ Implus-H
No. head	27	26	29	24
Pens	4	4	4	4
	Days 1 to 28			
Gain, lb/day	3.65	3.97	3.88	3.56
Intake, lb/day	28.76	29.95	28.69	28.83
Feed/gain	7.95	7.86	7.51	8.13
	Days 29 to 56			
Gain, lb/day	3.43	3.95	3.94	4.11
Intake, lb/day	26.84	26.55	26.39	26.25
Feed/gain	8.3	6.97	6.96	7.33
	Overall days 1 to 56			
Gain, lb/day	3.54	3.96	3.94	3.83
Intake, lb/day	27.80	28.25	27.51	27.54
Feed/gain	7.9	7.38	7.13	7.36

Table 2. Feedlot Health Report - Diagnosis and Disposition

Clinical Diagnosis	No. Treated	No. Removed from Trial	No.Died/Euthanized
Foot rot/toe abscesses	13	5	0
Off-feed/noncompetitor	5	0	2
Lame	4	1	1
Cancer in eye	2	0	0
Reproductive disorder	3	0	0
Clostridial disease	1	0	1
Jaw abscess	1	0	0
Total	29	6	4