



ENDOVAC-Beef® with IMMUNEPlus® Improves Efficiency in Feedlot Steers

by Dr. Monty Kerley, Ph.D., University of Missouri-Animal Science and
Robyn Harvey, University of Missouri-Animal Science

Bacteria Basics

Bacteria in the rumen are important to the nutrition and health of beef cattle. The majority of protein, or amino acids, that cattle use for growth and lactation come from bacterial protein produced in the rumen. Without bacteria in the rumen, cattle would be unable to digest forage. Health, especially digestive health, is in large part due to interaction between the bacteria in the digestive tract and the host animal. We are most familiar with infectious diseases that result in scours, bloat or acidosis because clinical signs are evident. However, subclinical effects can occur which reduce growth of bacteria in the rumen and result in reduced bacterial protein available to the animal and potentially reduced forage digestion. Bacteria which are symbiotic with nutrition and health of the host animal can be replaced by bacterial species not conducive to gut health of the host animal. Maintaining gut health of cattle is crucial if optimum performance potential is to be reached. By improving or stabilizing gut health of cattle it is expected that nutrition and health of the animal would be improved as well.

Gram Negative vs. Gram Positive

Bacteria in the gut are divided into two basic groups depending upon the structure of their membrane, either gram negative or gram positive. Gram negative bacteria are most often associated with disease and/or poor performance of cattle due to impaired gut health or function. Stimulating immune response towards gram-negative bacteria has been shown to be beneficial to dairy cattle. Vaccinating dairy cows with a cross-protecting antigen and immune stimulant elicited an immune response against gram-negative bacteria. We were interested in the effect vaccination would have on beef cattle performance in the feedlot. Our objective was to determine if vaccinating calves with ENDOVAC-Beef® would affect intake, gain, feed efficiency or carcass characteristics. [Continued...]



Improve ADG with ENDOVAC-Beef®

Study Findings	Non.	Vac.
Beginning Weight (lbs)	803	774
Intake (lbs/day)	28	27
Average Daily Gain (lbs/day)	4.5	4.7
Feed to Gain Ratio	6.4	5.8

Convert feed to marketable weight gain.





As feed prices continue to climb, converting feed into marketable gain is more important than ever to your bottom line. That's why more ranchers are protecting their steers - and their profitability - with ENDOVAC-Beef®.

Keep steers healthy and growing with proven protection.



To learn more, visit us at www.ENDOVACBeef.com, call 800-944-7563, or speak with your veterinarian.

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Setup & Results of the Study

To conduct the experiment, calves were vaccinated with ENDOVAC-Beef® with IMMUNEPlus® or a placebo (carrier only) while grazing on pasture two weeks before shipping to UM Beef Farm and then boosted upon arrival at the research farm. Calves were weighed at beginning and end of the study, every 21 days during the study, and intakes were measured daily for each animal. Calves were slaughtered as a single group when it was believed that 80% would grade choice via visual observation. As shown in the table below vaccinated calves had similar gain to non-vaccinated calves, but statistically lower intake and therefore improved feed to gain ratio. We measured a 9% improvement in feed efficiency in calves vaccinated with ENDOVAC-Beef® with IMMUNEPlus®. If feed cost were \$1 per lb. of gain in the feedlot, benefit of using ENDOVAC-Beef® with IMMUNEPlus® in this experiment would have been \$0.09 per lb of gain, or \$63 per head for 700 lbs. of gain.

Improved Health of the Animal

Residual feed intake (RFI) is a measure of metabolic efficiency. RFI is a measure of the difference between measured intake of an animal and the intake predicted for the animal at a specific body weight and rate of gain. In this experiment we measured RFI for the vaccinated and non-vaccinated groups. The non-vaccinated group had a positive 0.4 RFI while the vaccinated group had a negative 0.5 RFI. By vaccinating calves upon placement into the feedlot energy required for growth was reduced by almost one lb. per day. We interpreted this data that vaccination reduced energy expenditure of gut tissue due to improved health and nutrition of the animal. We also measured carcass weight and characteristics of calves in the two groups and no effect occurred due to vaccination. ENDOVAC-Beef® with IMMUNEPlus® vaccination increased feed efficiency in beef calves. We speculated that vaccination improved rumen and gut health by decreasing endotoxin release from gram-negative bacteria.



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