

# A Comparison of Prophylactic Antibiotic Treatments with Regards to Morbidity, Mortality and Performance in Arkansas Stocker Cattle

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## Abstract

Eighty-eight mixed breed heifer calves (180-227 kg) were used to compare the prophylactic use of tilmicosin (Micotil®, Elanco Animal Health, Indianapolis, IN) with the addition of chlortetracycline (Aureomycin® 50, Roche Animal Nutrition and Health, Paramus, NJ) to the receiving ration from days 2-6 after arrival. Heifers were purchased at several sale barns in central Arkansas, delivered as one group to the university research facility in Savoy, Arkansas and processed within 24 hours after arrival. All animals were given access to round bales of mixed grass hay and a corn-soybean meal supplement (1.8 kg/head/day). The animals were blocked by weight, randomly allocated to treatment groups, and placed in one of 16, 1.1 acre grass traps. The lower weight blocks contained 6 animals per group, whereas the higher weight blocks contained 5 animals per group. Treatments were randomly assigned to the traps, with each weight group having an equal representation across treatments and resulting in 44 animals per treatment group. Group 1 received chlortetracycline (1 gm/100 lbs. body weight/day), top-dressed on the supplement from days 2-6. Group 2 was mass medicated with tilmicosin (10 mg/kg body weight) at processing. The groups were compared with regards to morbidity (number of treatment regimens for respiratory disease), mortality, number of days to the first time animals were treated for respiratory disease, the number of relapses after the first treatment, medicine costs, and average daily gain. Heifers were observed daily for signs of morbidity. They

were treated for morbidity according to an established protocol. Body weights were taken on arrival, day 14, day 28 and day 41. Chi-square analysis was used to compare morbidity, mortality, number of days to first treatment, and number of re-treats. Analysis of variance was used to compare medication costs and average daily gain. The probability of being treated for respiratory disease (morbidity) in the tilmicosin group was significantly lower than in the chlortetracycline group ( $P < 0.03$ ). There were no significant differences with regards to mortality, medication costs, days to the first pull for respiratory disease, number of re-treats, mortality and average daily gain. While medication costs and number of re-treats were not significantly different between groups, the tilmicosin group had lower medication costs than the chlortetracycline group (\$1.62 vs. \$2.51). In addition, the number of re-treats were lower in the tilmicosin group than in the chlortetracycline group (5 vs. 14). The data suggests that there may be an advantage to using parenteral antibiotic mass treatment over mass treatment with antibiotics in the feed when cattle are at high risk for respiratory disease. Lighter weight, highly stressed cattle will take longer to consume adequate amounts of medicated feed, giving parenteral antibiotics the edge for reaching therapeutic levels in the face of respiratory challenge. It is important to also consider the cost of each treatment with respect to the risk for respiratory disease in a given group of cattle. In cattle that are less stressed and at lower risk for respiratory challenge, it may be more cost effective to use antibiotics in the feed.