

Effects of Concurrent Chlortetracycline Mass Medication with Tulathromycin Metaphylaxis on Health and Performance of High-Risk Cattle

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Introduction

The use of metaphylaxis on arrival has been shown to decrease morbidity due to bovine respiratory disease complex (BRDC) in newly received, high-risk stocker cattle. The objectives of this study were to examine the effects of mass medication with chlortetracycline concurrently with metaphylactic treatment using tulathromycin on the health and performance of high-risk cattle.

Materials and Methods

Two separate trials, each utilizing three loads of high-risk stocker calves were conducted at the Kansas State University Beef Stocker Unit in November 2007 and March 2008. Within each study, calves were delivered over three consecutive days ($n = 463$, initial BW = 447 lb [203 kg]). Upon arrival calves were weighed, tagged, mass medicated with tulathromycin (Draxxin, 1.1mL/100 lb [2.4 mg/kg]; Pfizer Animal Health) and then given *ad libitum* access to long-stem prairie hay and water. The following day calves were vaccinated against clostridial and respiratory diseases, dewormed, and bull calves were surgically castrated. Calves within each load were randomly assigned to one of six pens within an alley for a total of 18 pens/study (two studies, three treatments, 12 pens/treatment). Calves were revaccinated at 12 days on feed (DOF). All cattle enrolled in the study were fed a common growing diet containing 36% concentrate. Pens of calves were randomly assigned to one of three treatments: no top dress pellets (Con); top dressed with chlortetracycline containing pellets (CTC); or top dressed with the same pellets that did not contain any chlortetracycline (PP). The CTC treatment was top dressed at a level to supply cattle 10 mg of CTC per lb of BW [22 mg/kg], based on the average BW within each pen. The PP pellets were top dressed at an equal weight per BW as the CTC pellets. CTC and PP treatments were top dressed for two periods that lasted

for five days (1 to 5 and 7 to 11 DOF). All calves were weighed at the end of the 41 d receiving period. Daily feed delivery was recorded. Health of the calves was monitored daily by stocker unit personnel and animals exhibiting signs of BRDC were removed from the pen for treatment and were subsequently returned to their home pen on the same day as they were treated for BRDC. Health and performance data were analyzed on a pen basis following the feeding period. Data were analyzed using the random effects MIXED model procedure of the Statistical Analysis System (SAS Institute, Cary, NC). Random variables included study and start date. Due to differences in initial BW between treatments, initial BW was used as a covariate.

Results

Initial weights tended to differ between treatments (442, 447, and 452 lb for CTC, CON, and PP respectively) ($P < 0.07$). However, final BW and average daily gain were not different for any of the three treatments ($P > 0.69$). Daily intake and feed efficiency were not different for any of the three treatments ($P > 0.33$). No differences were observed for percent pulled, percent pulled for respiratory disease, or the number of second and third treatments ($P > 0.61$). Cattle receiving the PP treatment tended to have a higher percent death loss than either the CTC or the CON treatments ($P = 0.09$). Death loss was not different between the CTC and CON treatments ($P = 0.99$).

Significance

In this study, following metaphylaxis with tulathromycin on arrival, using pellets containing chlortetracycline as a top dress provided no benefits in terms of performance or health of calves. These results may be beneficial when designing receiving protocols for high-risk stocker calves.