MERCK ANIMAL HEALTH

TECHNICAL BULLETIN

Determination of the pulmonary response following *Mannheimia haemolytica* challenge 10 days after administration of tildipirosin, tulathromycin, or saline

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Bovine respiratory disease (BRD) causes significant economic and production losses in the feedlot industry. While it is a multifactorial disease, Mannheimia haemolytica (MH) is considered to be the predominant bacterial pathogen associated with BRD. The administration of antibiotics to calves at risk of developing BRD at feedlot arrival is frequently used to reduce subsequent disease and further treatments in the early feeding period. Stressors such as shipping, processing, commingling and feed changes increase the risk of BRD. Macrolide antibiotics are suited for on-arrival use because of their concentration in lung tissue, spectrum of activity and duration.

This study was conducted to evaluate the efficacy of two macrolide antibiotics, tildipirosin (Zuprevo) and tulathromycin (Draxxin) on mitigation of pulmonary lesions in calves challenged with *Mannheimia haemolytica* 10-days post-treatment.

MATERIALS AND METHODS

- Thirty-three cross-breed heifer calves, average weight 391 lb.
- Random allocation to block and treatment
- Heifers within each block received Mannheimia haemolytica (MH) challenge 10 days following treatment. MH was delivered endoscopically into the accessory lobe of the lung.
- Calves were housed in individual indoor stalls for 3 days post-challenge.
- Clinical illness scores, respiration quality scores, appetite scores and injection site reactions were recorded on all calves from Day 0 through Day 13.

SUMMARY

- Treatment with Zuprevo was effective in minimizing *Mannheimia haemolytica* infection in this challenge model.
- Heifer calves treated with Zuprevo 10 days prior to challenge had less lung damage and fewer clinical signs of illness than heifers treated with Draxxin or Saline.
- Zuprevo's clinical efficacy, duration and bactericidal activity were demonstrated in this study.