Feeding a Hungry World: The Role of Macrocyclic Lactones

Phillips III, Harrell

It is essential for beef cattle ranchers to identify and utilize only the most effective medications. Trichostrongyle organisms threaten the nutritional efficiency of cattle, and thus are targets of the common macrocyclic lactones doramectin, ivermectin, and moxidectin. My past experimentation with the administration of these substances suggests that they are collectively most effective in a pour-on as opposed to a subcutaneous injection, but more inquiry into the molecules' differing structures led me to wonder if there was an administration method and anthelmintic combination that would be most effective in our own herd. It seemed probable that the high molarity of moxidectin would combine with the potency of a pour-on to produce optimum results. I tested my hypothesis by testing 7 groups of 9 replacement heifers, with one group receiving no treatment and six groups receiving experimental treatments (3 drugs • 2 administration methods). They were fed for 60 days, and their body mass gain and percentage change in eggs per gram feces (EPG) were evaluated. The mean body mass gains showed no trend based on treatment received. However, the percentage EPG change means indicated an elevated level of efficacy for doramectin, with the subcutaneous administration being the most effective. Differences in the majority of the means were not statistically significant due to substantial uncertainty in the standard laboratory procedure used to determine EPG values, but the distinction of the doramectin treatment group's mean, combined with the in-vivo nature of the experiment, can still act as a valuable indication of best herd health management practices.

Awards Won: