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Synchronizing Micotil Treatment with Time of Sickness in Newly Received Calves

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Mass treatment with Micotil® 300 of newly received feeder cattle susceptible to bovine respiratory disease can be an effective means of reducing animal morbidity and increasing animal intakes and gains.

Summary

A trial was conducted to evaluate treatment with Micotil® 300 on health and performance of newly received feeder cattle. Treatments included an untreated control, mass Micotil® treatment on arrival, mass Micotil® treatment on day six, and Micotil® treatment on day six based on internal body temperature. Calves mass treated with Micotil® either on arrival or day six had greater dry matter intakes, greater average daily gains, and reduced incidence of bovine respiratory disease. Treating animals on day six based on body temperature identified a greater incidence of sickness than visual observation alone.

Introduction

Bovine Respiratory Disease Complex (BRD) is the most commonly occurring disease problem in feedlot cattle. Stress factors, such as weaning, castration, dehorning, transportation, processing, feed changes, and weather changes create situations where cattle, especially calves, are susceptible to viral and bacterial organisms associated with BRD.

Direct losses due to BRD include those associated with morbidity and mortality. However, indirect losses, including reduced performance, are equally important. While reducing stress factors may aid in managing BRD problems, antibiotic therapy is often necessary to combat BRD. Micotil® 300 is an effective antibiotic treatment for BRD.

Treatment with Micotil® 300 has been shown to be effective in reducing the incidence of BRD in newly received feedlot cattle, but mass treatment of all calves may not be cost effective (1995 Nebraska Beef Report, pp.38-41.). Additionally, calves may not become sick at arrival but at some point after arrival. Thus, the timing of antibiotic administration may be equally important in the control of BRD.

The objective of this research was to synchronize Micotil® treatment with time of sickness in newly received calves. Additionally, determining sickness of animals based on internal body temperature was evaluated as an alternative to mass treatment.

Procedure

Nine hundred fifty-two steer calves (495 lb) received at the Agricultural Research and Development Center (ARDC) Ithaca, NE during the fall of 1995 were blocked by load into 14 replications. Calves were obtained both directly from ranches and from sale barns and represented those typically available to Nebraska cattle feeders.

Calves received in the morning were processed upon arrival without access to feed or water. Calves received in the afternoon were given access to grass hay and water overnight and processed the following morning. When processed, all calves were vaccinated for IBR, BVD, PI_3, BRSV, and Haemophilus Somnus, treated for internal parasites, and tagged with two identification ear tags. In addition, the weight of each animal was recorded.

Calves were assigned randomly to treatment at processing; every fourth calf through the chute was assigned the same treatment. The four treatments included an untreated control, mass Micotil® treatment on arrival, mass Micotil® treatment on day six, and Micotil® treatment on day six based on an internal body temperature greater than 103.5°F. Mass treated calves received 8 ml Micotil® 300.

Six groups of calves representing 546 total head were penned by treatment for determination of dry matter intake. Due to a limited number of pens, the remaining eight groups of calves were penned by combining the untreated control calves with calves mass treated on arrival, and calves mass treated on day six with calves that were treated on day six based on body temperature. Dry matter intake for combined treatments could not be determined.

All calves were observed daily for sickness. Those suspected of illness were pulled and checked for fever via rectal thermometer. Animals were treated if their internal body temperature exceeded 103.5°F. Animals treated

Table 1. Effect of Micotil® 300 treatments on receiving health and performance.

	Treatment			
Item	Control	Mass Day-0	Mass Day-6	Temp Day-6
Total head/treatment	251	248	228	225
Daily gain, lb	1.62[c]	1.80[d]	1.81[d]	1.62[c]
Feed intake, lb/day[a]	10.78[c]	11.14[d]	11.20[d]	11.07[cd]
Number of cattle treated[b]	56[d]	32[c]	32[c]	80[e]
Number of dead cattle	3	1	2	1

[a]Feed intakes are for 6 of the 14 replications.
[b]Temp D-6 includes 41 animals treated due to elevated temperature on day 6.
[c,d,e]Means within a row with unlike superscripts differ (P<.10).

received Micotil® 300 (1.5ml/100 lb body weight) once every three days until body temperature was restored to normal. If health was restored, animals treated with Micotil® from treatments three and four were not remedicated on day six..

Calves were fed a receiving diet containing (DM basis) 50% forage and 50% concentrate for the first ten days of the trial. Following day ten, diets were changed to 65% concentrate, which included 25% corn gluten feed. The receiving trial lasted an average of 24 days. The last five days on trial, animals were limit fed at 2% of estimated body weight for each replication to reduce differences in weight due to fill. Final weights were determined as the average weight of two consecutive days at the completion of the receiving period. Average daily gain, dry matter intake, morbidity, and mortality were the criteria used to evaluate treatments.

Results

Mass treatment with Micotil® 300, either at arrival or on day six, decreased (P<.10) the incidence of BRD in newly received feeder calves (Table 1). This is in agreement with McCoy et al. (1995 Nebraska Beef Cattle Report, pp. 38-41) who found improved health when newly received calves were mass treated with Micotil® 300. Mass treated animals also had improved dry matter intakes (P<.10) and greater daily gains (P<.10) than animals on the Control or Temp Day-6 treatments (Table 1). However, there were no differences between mass treatment at arrival or on day six (P>.40) for average daily gain, dry matter intake, or number of animals treated . Animals treated on day six did have an added labor cost associated with additional processing which animals treated on arrival did not.

Micotil® treatment on day six based on body temperature did not improve dry matter intake or average daily gain compared to the untreated controls. However, treating animals on day six based on internal body temperature did identify more animals with an elevated temperature than visual observation alone (P<.10). While animals were treated if their internal body temperature exceeded 103.5°F, some elevated temperatures may have been due to factors other than BRD. Of the 225 animals from treatment four, 80 required treatment; however, only 41 of them were treated due to an elevated temperature on day six. Visual observation of the 251 control animals identified 56 animals that required treatment.

These results show that mass treatment with Micotil® 300 improved dry matter intake and average daily gain, and effectively reduced the incidence of morbidity due to bovine respiratory disease in newly received calves. Mass treatment at arrival is just as effective as treatment on day six. Treating animals based on internal body temperature can reduce medical costs over mass treatment and identify more sick animals than visual observation alone.

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