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Summary

Two trials were conducted to evaluate the effect of deworming beef cows on weaning weight production and calf sickness. In Trial 1, deworming first-calf heifers with Valbazen approximately 2 weeks prior to the start of calving did not significantly affect calf weaning weight, weight per day of age or number of treatments for sickness. In Trial 2, deworming cows 3 years of age or older with Valbazen or Levasole approximately 2 weeks prior to the start of calving did not significantly affect calf weaning weight, weight per day of age or number of treatments for sickness. Under the experimental conditions of these trials in which control and dewormed cows were managed together and under an apparently low parasite load, deworming did not significantly increase weaning weights. More field research is necessary before we can accurately evaluate the economics of deworming as a management practice in the Northern Great Plains.

(Key Words: Deworming, Parasites, Anthelmintic, Weaning Weight.)

Introduction

Including deworming in a herd health program is not a universal practice among cow-calf producers of the Northern Great Plains. The economic benefit of deworming has not been consistently proven, and much of the deworming data comes from areas with vastly different production environments and practices. Therefore, the decision to deworm might be made easier if a producer were able to evaluate the practice in his own herd. This trial was designed and conducted by the SDSU Extension Service in response to a rancher's request for local information on deworming. The objective was to evaluate the effect of deworming cows on calf weaning weights on a commercial ranch in western South Dakota.

Materials and Methods

Two deworming trials were conducted in the spring of 1990 on a commercial ranch near Martin, SD, with the assistance of Gary Nies, County Agricultural Agent, and Drs. Morgan Dallman and Carolyn Woodruff, Blackpipe Veterinary Clinic. Deworming product and partial financial support for laboratory analysis of fecal egg counts were provided by Pitman-Moore, Terre Haute, IN, and product was provided by Norden Labs, Lincoln, NE.

Trial 1. Approximately 100 first-calf heifers were allotted by service sire and birth date ,breed cross and individual sire (if known) of heifer to one of two treatment groups consisting of 1) control or 2) dewormed with Valbazen. Valbazen treatment was given approximately 2 weeks prior to the start of calving in conjunction with precalving vaccinations. All heifers in both groups received vaccinations of Scour-guard III and Clostridium Perfringens Types C and D Bacterin Toxoid. The 60-day calving season started approximately February 15. Treatment groups were managed together throughout the trial.

Trial 2. Approximately 550 cows were allotted by age, previous production history (based on MPPA) and service sire (if known) to one of three treatments consisting of 1) control, 2) dewormed with Valbazen

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and 3) dewormed with Levasole. Deworming treatments were given approximately 2 weeks prior to the start of calving in conjunction with the precalving vaccinations described in Trial 1. The 60-day calving season started approximately March 1 and treatment groups were managed together during calving. Cows were assigned to breeding pastures based on previous production history, with cows from all three treatment groups represented in each pasture.

In both trials final calf weights were obtained on October 6, 1990. The number of times each calf was treated for sickness of any kind were recorded for each calf. Fecal samples were collected from a representative sample of each treatment group on four occasions as follows:

1. Injection of dewormer
2. 14 days after deworming
3. Branding in April
4. October 6.

Five heifers per treatment were sampled in Trial 1 and 13 to 14 cows per treatment were sampled in Trial 2. These same heifers and cows were resampled according to schedule unless culled from the herd at calving. None of the cattle used in these trials had ever been dewormed.

Data were analyzed by least squares procedures using the GLM procedure of SAS. In Trial 1, the final model for calf performance data included treatment and calf sex as independent variables and calf age as a covariate (excluding weight per day of age, WDA). In Trial 2, the final model for calf performance data included treatment, calf sex and age of dam as independent variables and MPPA and calf age (excluding WDA) as covariates. Treatment means and standard deviations were determined for fecal egg counts. Upon finding larger standard deviations than treatment means, no further statistical analysis was performed.

Results and Discussion

The first-calf heifers used in Trial 1 had an average condition score of 6 (range of 5 to 8) and an average weight of 1177 pounds (range of 1000 to 1410 pounds) at the time the trial was started. The effect of deworming first-calf heifers on calf weaning weight, WDA and number of treatments for sickness is shown in Table 1. The 11-lb difference in calf weaning weight was not sufficiently large enough to be statistically significant (P=.27). This indicates the variation in weaning weight created by the treatments imposed, i.e., control vs dewormed, was not unusually large compared to variation observed within a treatment. In addition, WDA (P=.21) and number of treatments for sickness (P=.15) were not significantly affected by deworming.

TABLE 1. EFFECT OF DEWORMING ON PRODUCTIVITY OF FIRST-CALF HEIFERS (TRIAL 1)

	Treatments[a]		
Item	Control	Valbazen	SEM
No. of heifers	45	45	
Calf weight, lb	590	601	7.2
WDA, lb	2.68	2.74	.03
Sick treatments	.10	.21	.05

[a] Least square means.

In Trial 2, deworming mature cows precalving had no significant effect on calf weaning weight (P=.67), WDA (P=.62) or number of treatments for sickness (P=.11) [Table 2].

Fecal egg counts per gram of fresh feces were extremely low throughout both trials (Table 3). A total of 194 fecal samples were collected and only nine samples were found to have over 20 eggs per gram, with a high of 59 eggs per gram observed in one sample. The low fecal egg counts suggest a very low parasite load. Although our egg count data can not be interpreted due to low values and large variation within treatments, it would appear that deworming effectively reduced fecal egg count by 14 days after injection.

Collectively, the weaning weight and fecal egg data indicate deworming did not influence calf weaning weights under an apparently low parasite challenge. However, the need to co-mingle treatment groups makes the interpretation of these data difficult. One could agree that the control cattle reinfected the dewormed cattle and thus lowered their productivity.

TABLE 2. EFFECT OF DEWORMING ON PRODUCTIVITY OF MATURE COWS (TRIAL 2)

	Treatments[a]			
Item	Control	Valbazen	Levasole	SEM
No. of cows	179	156	168	
Calf weight, lb	609	605	609	7.5
WDA, lb	2.90	2.87	2.88	.03
Sick treatments	.31	.43	.40	.09

[a] Least square means.

TABLE 3. EFFECT OF DEWORMING ON FECAL EGG COUNTS (TRIALS 1 AND 2)

	Oocyst count/g fresh feces				
	Trial 1		Trial 2		
Sample date	Control	Valbazen	Control	Valbazen	Levasole
Injection of dewormers:	0	0	2.9	8.5	3.5
14 days after deworming	14.2	0	1.2	0	0
Branding, April	19.2	3.4	5.8	1.3	2.7
October 6	3.0	1.6	.8	1.3	1.0

Another argument would be that deworming lowered the parasite exposure of the control cattle and thus increased their productivity. Other studies have shown significant improvements in calf weaning weights when control and dewormed cattle were managed together as in this trial, so the true effect of co-mingling treatment groups remains unknown.

More field research is necessary before we can accurately evaluate the economics of deworming as a management practice in the Northern Great Plains.