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Story in Brief

Two field trials were conducted on a ranch in Okmulgee County, Oklahoma. One hundred and twenty yearling heifers purchased in auction barns were grazed for 57 days on native range beginning in late April, and 80 yearling heifers purchased from a ranch were grazed on common bermuda pastures for 55 days from late May to Mid July. The effects of feeding Deccox in mineral mixes during receiving and/or grazing were evaluated. Feeding Deccox on native range increased gains by .5 lb/head/day while gains on bermuda were not improved. The data suggest that the heifers purchased at the auctions were possibly affected by sub-clinical coccidiosis enough to reduce performance without causing clinical signs of the disease.

Introduction

Coccidiosis is a common occurrence among newly arrived cattle on Oklahoma cattle operations. The infection causes economic losses from death loss, high labor and treatment costs and from poor performance of some cattle following recovery. Chronic infections may occur all seasons of the year, but less frequently during summer months. There is some evidence that sub-clinical levels of coccidiosis can reduce performance and increase susceptibility to other diseases. Often times it is difficult to administer anticoccidial agents to cattle that are not normally fed supplemental feed or maintained at locations where treatment through feed or water is possible. In these circumstances, administration of an anticoccidial drug through self-fed mineral mixes might be an efficient and economical means of protecting cattle from both clinical and sub-clinical coccidiosis. The following trials were conducted to study the effects of feeding Deccox in a self-fed mineral mix through receiving and/or grazing on the performance of stocker cattle.

Materials and Methods

Two field trials were conducted in Okmulgee County, Oklahoma, approximately 35 miles south of Tulsa in East Central Oklahoma. Trial 1 was conducted on native range forage while Trial 2 was conducted on common bermuda pasture.

Trial 1

One hundred and twenty English and English crossbred yearling heifers weighing approximately 500 lb were purchased at Oklahoma auction barns and assembled at the ranch over a two week period in late April with each load randomly split into two treatments, Deccox-fed or

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control. During the first 7 days after arrival, all calves were fed ad libitum, a receiving ration consisting of ground corn (75 percent), chopped prairie hay (23 percent) and soybean meal (2 percent) with or without Deccox. Feed consumptions for the drylot period were 6.9 lb/head/day for Deccox heifers resulting in a daily dosage of 142 mg of Deccox/head/day vs 6.8 lb/head/day for control heifers. After the 7 day period in drylot, heifers were moved to separate native range pastures that were similar in forage quantity and quality.

Heifers were individually weighed at the beginning of the study and group weighed at termination. All heifers were vaccinated for IBR-PI3 (Nasal), Lepto, Blackleg (3-way), wormed with levamisol, treated with systemic grubicide and implanted with Ralgro. Each heifer received a numbered insecticide impregnated ear tag for hornfly control and identification.

During grazing, both groups of heifers were self-fed a commercial mineral mix in whirlwind feeders equipped with rubber pans (Figure 1). Deccox was added to one mineral mix (1.0 to 1.25 lb of 6 percent Deccox premix per 50 lb of mineral) to deliver at least 23 mg Decoquinatate/100 lb of body weight. Mineral consumption was measured weekly with Deccox levels and mineral feeder locations adjusted to achieve the desired consumptions. On June 14 (day 50 of trial 1 and day 17 of trial 2) the mineral consumption was higher than necessary. Therefore, an adjustment was made in the mineral mix formulation to decrease consumption. The amount of cottonseed meal in the batch mix (Table 1) was decreased 100 lb, while salt and dicalcium phosphate were increased 250 and 50 pounds, respectively. The amount of all other ingredients used remained the same resulting in a 2200 lb batch.

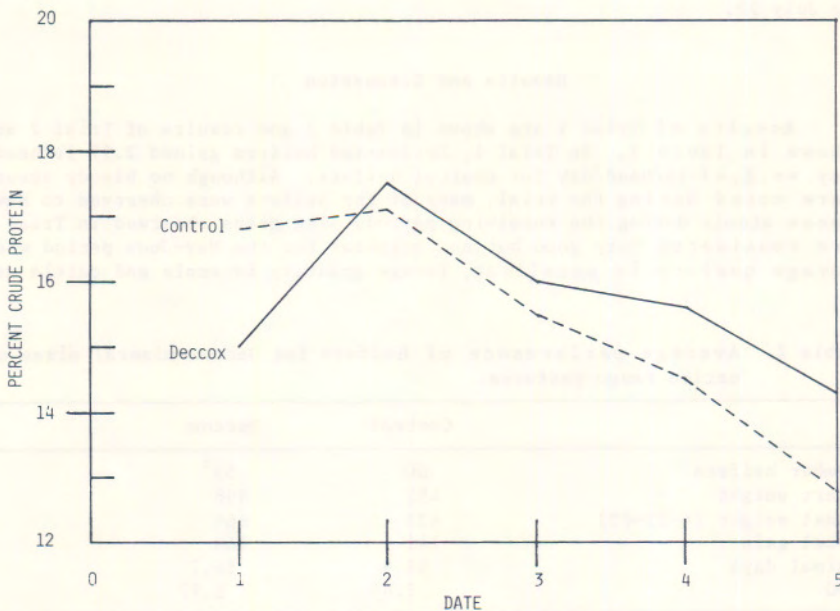


Figure 1. Percent crude protein of bermuda in Trial 2 (DM basis).

Table 1. Ingredient composition of mineral mix.

Ingredient	Pounds/Ton Batch	Percent
Dicalcium phosphate	650	32.5
Salt	300	15.0
Limestone	250	12.5
Corn, ground	300	15.0
Cottonseed meal	300	15.0
Alfalfa pellets, ground	100	5.0
Molasses	100	5.0
Vitamin and trace mineral premix	10	10 lb/ton
Vitamin A, D and E	2	2 lb/ton

Trial 2

Eighty crossbred heifers wintered as a group on a low plane of nutrition near Stillwater, Oklahoma were delivered to the ranch on May 27, 1983. On May 28 they were processed, allotted to two treatments and placed on two common bermuda pastures with a stocking rate of about 1.5 head/acre. Vaccination and processing and weighing procedures were the same as in Trial 1. While on pasture, mineral and mineral with Deccox was self-fed in the same manner as in Trial 1. Forage samples were clipped weekly throughout the last half of the grazing period in order to closely monitor forage quality. Pastures were well fertilized and were mowed when necessary to maintain equivalent quality and quantity of forage between treatments. The grazing period lasted 55 days from May 28 to July 22.

Results and Discussion

Results of Trial 1 are shown in Table 2 and results of Trial 2 are shown in Table 3. In Trial 1, Deccox-fed heifers gained 2.97 lb/head/day vs 2.47 lb/head/day for control heifers. Although no bloody scours were noted during the trial, many of the heifers were observed to have loose stools during the receiving period. The gains observed in Trial 1 are considered very good but not atypical for the May-June period when forage quality is excellent, forage quantity is ample and cattle are

Table 2. Average performance of heifers fed Deccox-mineral mixes on native range pastures.

	Control	Deccox
Number heifers	60	59 ¹
Start weight	492	498
Final weight (6-22-83)	633	666
Total gain	141	168
Animal days	56.9	56.7
ADG	2.47	2.97

¹One chronic heifer died. Data removed from study.

Table 3. Average performance of heifers fed Deccox-mineral mixes on Bermudagrass pastures.

	Control	Deccox
Number heifers	34 ¹	45
Start weight	446	451
Final weight (7-22-83)	606	603
Total gain	160	152
Animal days	55	55
ADG	2.91	2.76

¹One heifer had a rectal prolapse and died. Data removed from study.

making some compensatory gain following the winter. The higher gains (+.5 lb/day) for the Deccox heifers suggests that these cattle, purchased through auction barns were affected by subclinical coccidiosis severely enough to have affected performance without causing clinical signs of coccidiosis.

Heifers in Trial 2 grazed improved pastures under intensive management. There was little apparent difference in gains between treatments with Deccox-fed heifers gaining 2.76 lb/head/day and control heifers gaining 2.91 lb/head/day. As in trial 1, no signs of coccidiosis were noted. The average weight of heifers on test was about 30 lb less than the pay weight at Stillwater before transit to Okmulgee. Even with an adjustment for recovery of fill, the daily gains of both groups of heifers would have been about 2.0 lb/head/day. Gains of about 1.25 lb/head/day would be considered average for heifers of this weight grazing bermuda pastures in June and July. Results suggest that all heifers were in excellent health throughout the study and presented little opportunity to improve gains over the high rate observed for the control heifers. Forage protein levels (Figure 1) show that forage quality was excellent throughout late June and July when forage quality is normally quite difficult to maintain.

Mineral consumption averaged .3 lb/head/day for both trials and ranged from .2 to .5 lb/head/day. Heifers received on the average 173 and 153 mg Decoquinatate/head/day during trials 1 and 2, respectively. The amount of coccidiostat per heifer was never below the recommended level (23 mg/cwt/day) in trial 1 and was below the recommended level only one week of trial 2 due to low mineral intake.

The cost of administering the coccidiostat through a mineral mix was \$.07 per day in this trial or \$3.92 for a 56-day period. This expense includes commercial mineral at \$12.00 per cwt, 6 percent Deccox at \$530 per cwt, and no charge for feeders, mixing, or labor.

Results suggest that the response of grazing cattle to Deccox may depend on the origin of the cattle and the degree of previous stress imposed. It is possible that season of the year may also be important because the previous history of this ranch has shown more difficulty with coccidiosis in fall months than in spring months. Further studies at this ranch are planned for the fall months with cattle purchased from auction barns.