PERFORMANCE OF STOCKER STEERS GRAZING SMOOTH BROMEGRASS AT TWO STOCKING RATES AND DEWORMED WITH MORANTEL TARTRATE[1]

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Summary

Early-intensive grazing of smooth bromegrass reduced animal gains but improved gain/acre. Morantel tartrate reduced fecal nematode egg counts but had no effect on animal performance at either stocking rate.

Introduction

Smooth bromegrass is a highly productive, sod-forming, perennial, cool-season grass that is adapted to most temperate climates. As much as 75% of the total seasonal yield of bromegrass generally occurs during the spring. Therefore, use of high early-season stocking rates, like those used in the Flint Hills, should improve pasture productivity. In areas of abundant rainfall, internal parasite propagation is a problem, particularly when cattle are stocked more intensively. The objectives of this experiment were to evaluate the effects on performance of early intensive grazing of smooth bromegrass, in combination with a continuous deworming program.

Experimental Procedures

One hundred twenty crossbred steers were randomly allotted by weight into six lots of 10 head or four lots of 15 head each. Each lot was assigned to one of 10, 10-acre smooth bromegrass pastures beginning on April 8. Three lots of 10 head and two lots of 15 head received morantel tartrate (MT), an antiparasite drug, in a free choice mineral mixture (Table 14.1), whereas the remaining lots received no internal parasite treatment (C). Pastures were stocked with either 1.5 steers/acre from April 8 to June 24 for the early-intensive (EI) treatment or at 1.0 steer/acre from April 8 to September 1 for the season-long (SL) treatment. Initial and final weights were determined as the mean of full weights on two consecutive days at the beginning and end of the study for each group of steers. All steers were implanted with Synovex-S at the initiation of the experiment.

[1]Morantel tartrate and partial financial support were provided by Pfizer, Inc., Lee's Summit, MO.

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Fecal samples were collected from half of the steers on April 8, May 20, June 24, and September 1, 1988, and fecal nematode egg counts were determined. Available forage was determined using a rising disk-meter on May 10, June 3, June 24, and July 21.

Results and Discussion

At the time EI steers were removed from pasture (June 24), SL steers were 16 lb heavier ($P<.05$) (Figure 14.1). Steers grazed season-long gained an additional 33 lb during the grazing period between June 24 and September 1, so that they were 49 lb heavier ($P<.05$) on September 1 than EI steers had been on June 24.

Steers on EI pastures produced 95 lb more ($P<.05$) beef per acre by June 24 than steers on SL pastures (Figure 14.2). Even though SL pastures were grazed 70 days longer, gain/acre on September 1 was still 62 lb greater ($P<.05$) from EI pastures.

Parasite treatment had no effect ($P>.10$) on gain per animal or per acre, possibly because of the relatively low nematode infestations observed throughout this study (Figure 14.3). Statistical differences in nematode egg counts were detected ($P<.10$) between MT and C on June 24, but the infestation in the C steers was still quite low. Other studies indicate that a parasite burden of 300 eggs/gram of feces is necessary to alter animal performance.

Forage availability at different dates is shown in Figure 14.4. These data indicate that forage availability was lower for EI steers but that adequate forage was available to the steers until they were removed on June 24.

Data from this experiment indicate that early-intensive stocking of smooth bromegrass may improve beef production per acre with minimal reductions in animal gain. The spring of 1988 was very dry in Southeast Kansas. Dry weather inhibited forage yield in the early season, which possibly hindered performance of the early intensive stocked steers. During years of higher rainfall, the early-intensively stocked steers could probably graze longer and produce more beef per acre than demonstrated here. Nematode propagation would likely be more severe during a spring with more typical rainfall, resulting in possible benefits from internal parasite control.

Table 14.1. Composition of Mineral Mixture Offered to Steers Grazing Smooth Bromegrass Pastures

Ingredient	C	MT
	%	
Trace mineralized salt	75.00	72.48
Dicalcium phosphate	25.00	24.28
Rumatel 88 premix (88g morantel tartrate/lb)	-	2.88

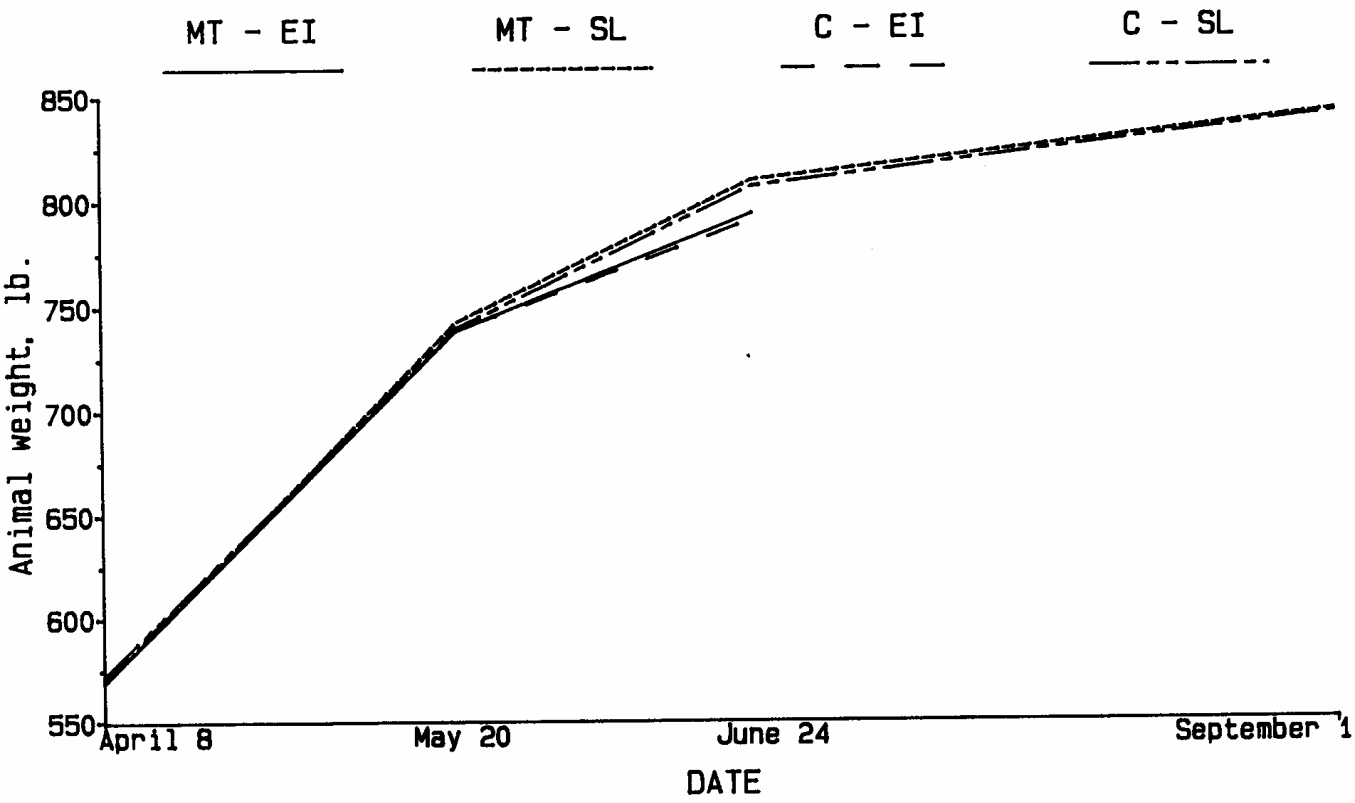

Figure 14.1. Weights of steers offered a control (C) mineral mixture or a mineral mixture containing morantel tartrate (MT) while grazing smooth bromegrass pastures that were early-intensive (EI) or season-long (SL) grazed.

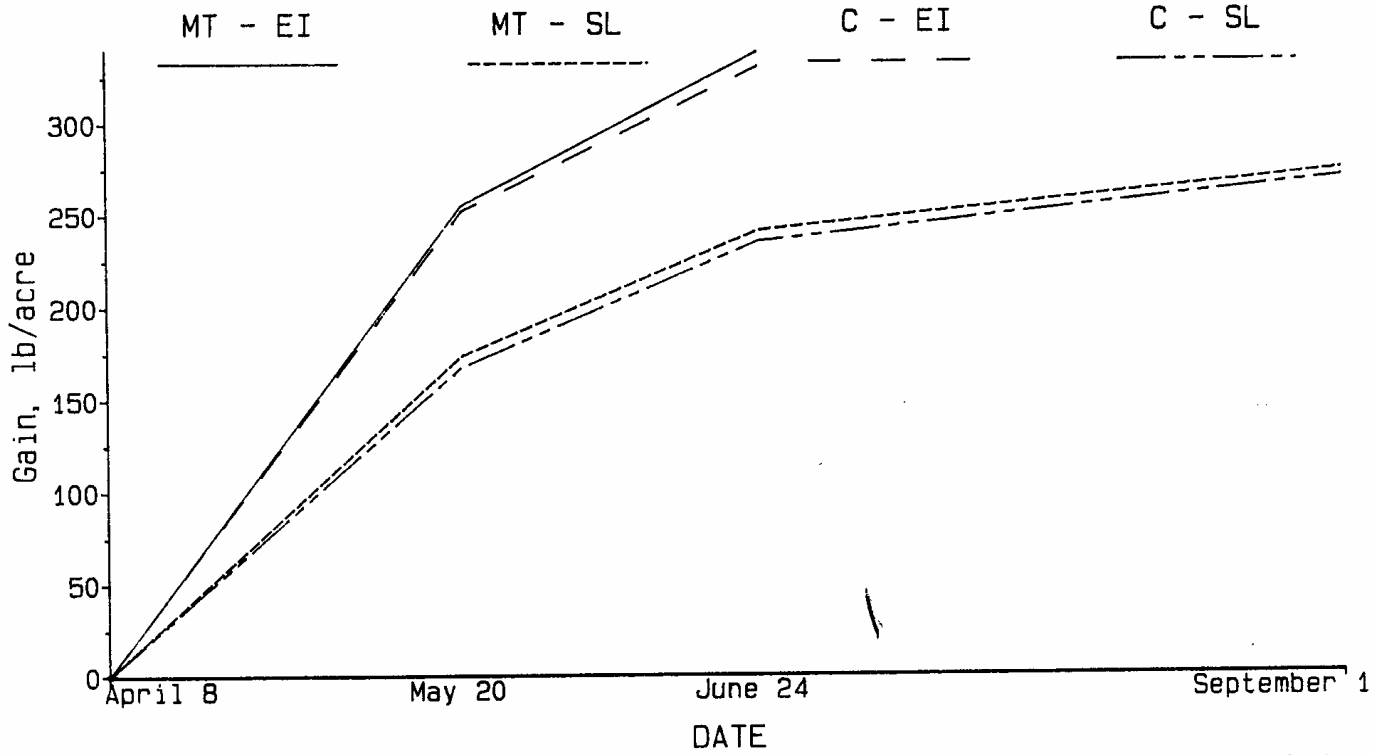

Figure 14.2. Gain per acre from smooth bromegrass pastures that were early-intensive (EI) or season-long (SL) grazed with steers offered a control (C) mineral mixture or a mineral mixture containing morantel tartrate (MT).

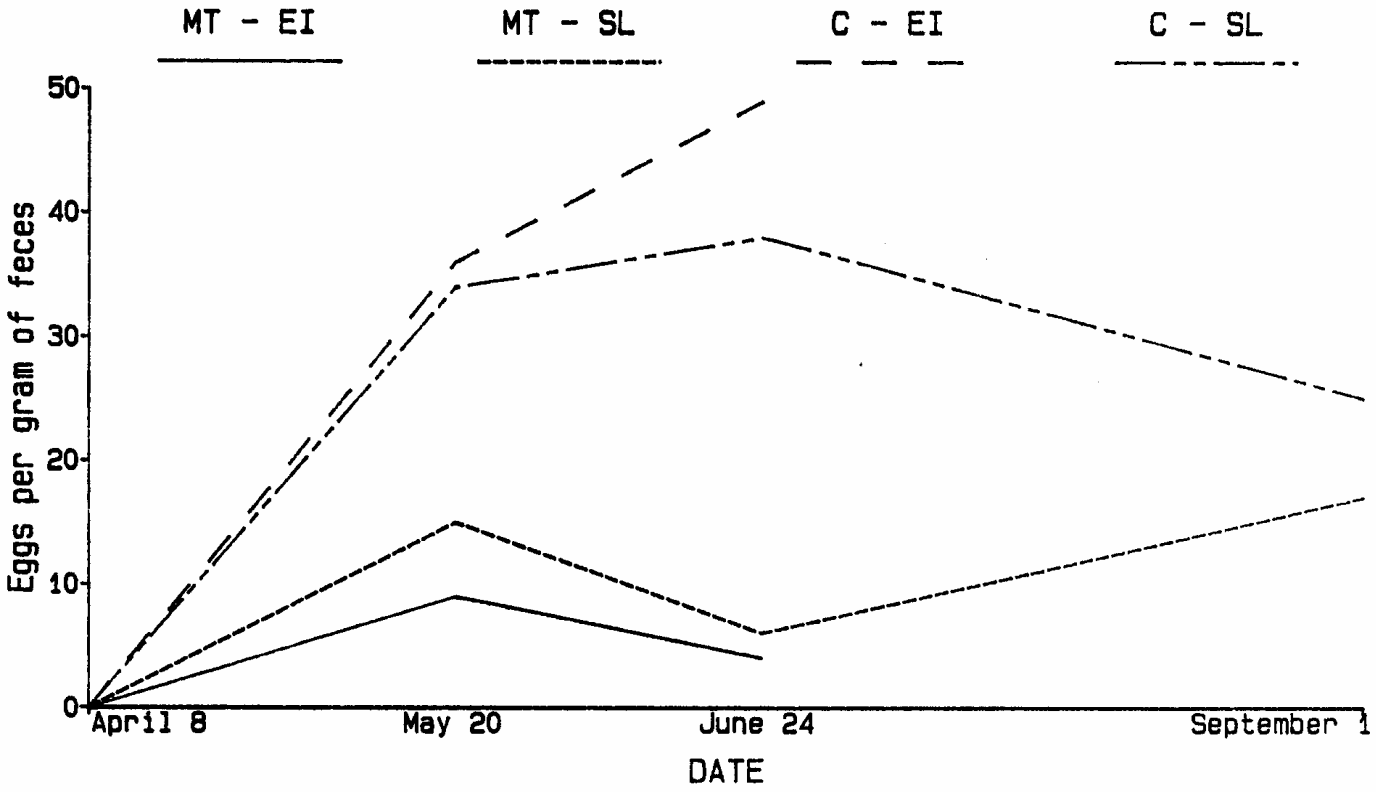

Figure 14.3. Nematode egg counts of steers offered a control (C) mineral mixture or a mineral mixture containing morantel tartrate (MT) while grazing smooth bromegrass pastures that were early-intensive (EI) or season-long (SL) grazed.

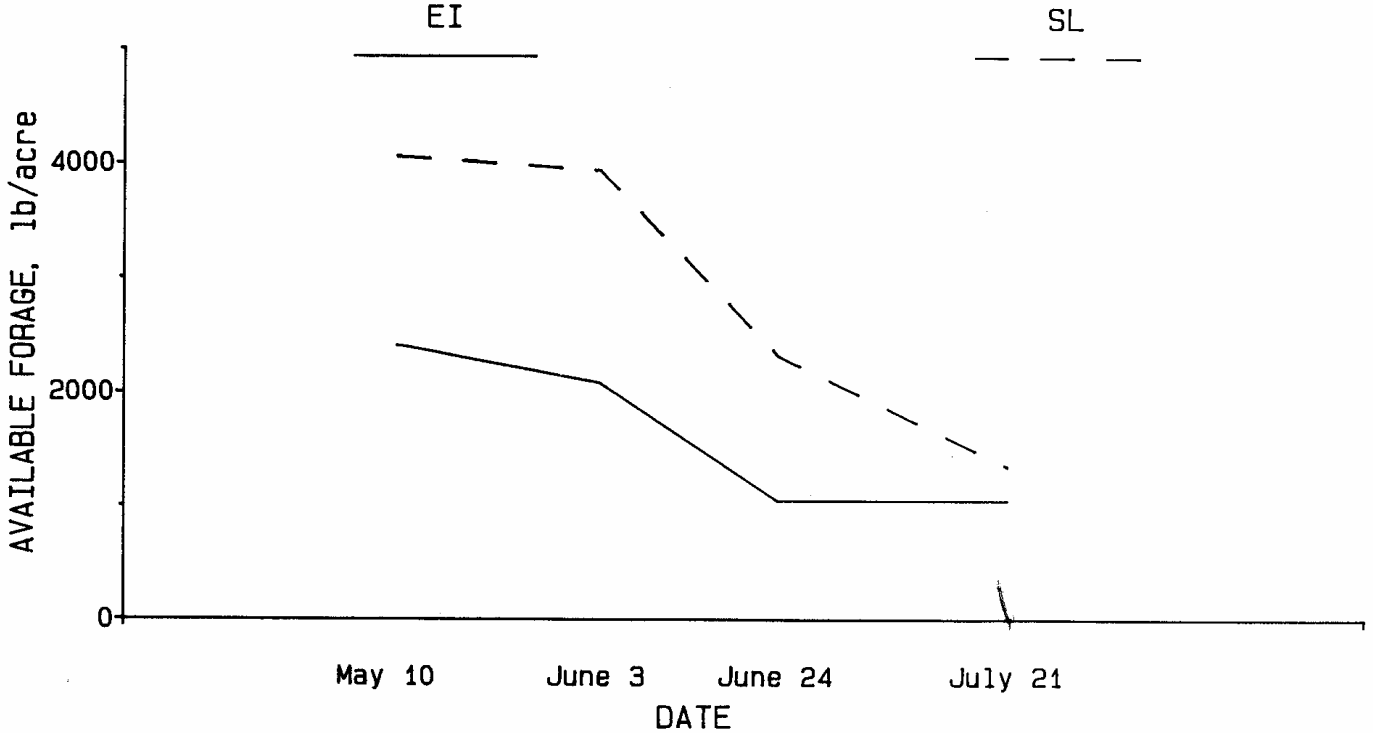

Figure 14.4. Forage availability from smooth bromegrass pastures that were either early-intensive (EI) or season-long (SL) grazed.