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Effect of Treating Tall Fescue Pasture with Mefluidide on Performance of Grazing Steers¹

Lyle Lomas² and Joe Moyer²

Summary

Mefluidide (Embark®) delays maturity and suppresses seed head formation in grasses. Mefluidide treatment increased the crude protein content of fescue pasture and improved daily gain of grazing steers by 14.3% (.21 lb per head daily).

Introduction

Mefluidide is a relatively new plant growth regulator, which is capable of improving forage quality and subsequently increasing weight gains of livestock. It increases forage quality by delaying maturity and suppressing seed head formation. In 1984, the Environmental Protection Agency approved an experimental use permit for evaluation of mefluidide on tall fescue, orchardgrass, and smooth brome grass in Kansas. Using that permit, we evaluated the effect of treating tall fescue with mefluidide on performance of grazing steers.

Experimental Procedures

Four 5-acre Kentucky 31 fescue pastures with an average *Epichloe typhina* endophyte infestation level of 85% were used to evaluate the effect of mefluidide treatment on grazing steer performance. All pastures were topdressed with 80-40-40 lb of N-P₂O₅-K₂O per acre on February 6, 1984 and with 50 lb of N per acre on September 13, 1984. On April 17, 1984, 1 pint of Embark 2-S® in 30 gallons of water (with X-77 surfactant) was applied per acre to two of the pastures, using a field sprayer with flat fan nozzles. At the time of application, the fescue was approximately 4 inches tall. The two untreated pastures were designated as controls.

Thirty-two Angus x Hereford steers were implanted with Ralgro®, wormed with Tramisol®, and randomly assigned to the four pastures, eight steers per pasture on April 17. Grazing was initiated on control pastures on April 17, but steers were not allowed to graze the mefluidide-treated pastures until May 1 because of the 14-day grazing restriction following mefluidide application. Those steers grazed smooth brome grass and then were reweighed before they were turned onto the fescue. Initial and final weights were taken following a 16-hour shrink without feed and water. Forage samples were analyzed for crude protein throughout the study. All steers received 150 mg of Rumensin® in 2 lb rolled milo per head daily and were reimplanted with Ralgro® on August 21. The study ended on November 27, 1984.

¹ Mefluidide and partial financial assistance were provided by 3-M Agricultural Products, St. Paul, MN.

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Results

A summary of the effect of mefluidide on fescue crude protein content is presented in Table 5.1. Mefluidide increased ($P<.05$) average crude protein content of fescue pasture with the greatest increase occurring in late June.

Steer performance results are shown in Table 5.2. Steers on mefluidide treated pastures gained 14.3% more (.21 lb per head daily) than controls and tended to shed their winter hair earlier in the summer. Pastures treated with mefluidide produced 37 lb more steer gain per acre than untreated controls. Mefluidide application resulted in 90 to 95% fescue seed head suppression.

If approved for use, mefluidide may be a useful management tool for producers that graze fescue during the summer months.

Table 5.1. Effect of Mefluidide on Fescue Crude Protein Content.

Date	% Crude Protein, Dry Basis	
	Control	Mefluidide
May 3	20.1	21.6
29	9.6	10.6
June 12	7.9	10.8
26	11.4 ^a	15.4 ^b
July 10	6.5	7.2
25	8.4	9.4
Aug. 6	9.6	10.3
Sept. 28	13.4	15.6
Oct. 19	22.6	21.0
AVERAGE	12.2 ^a	13.5 ^b

^{a b} Means with different superscripts differ significantly ($P<.05$).

Table 5.2. Effect of Mefluidide on Grazing Steer Performance.

Item	Control	Mefluidide
No. Steers	16	16
Initial Wt., lb	416	446
Final Wt., lb	746	799
Total Gain per Steer, lb	330	353
Days on Trial	224	210
Average Daily Gain, lb	1.47 ^a	1.68 ^b
Stocking Rate, steers/acre	1.6	1.6
Liveweight Gain, lb/acre	528	565

^{a b} Means with different superscripts differ significantly ($P<.01$).