EFFECT OF SUPPLEMENTAL GRAIN SORGHUM AND OVERSEEDING WITH LADINO CLOVER ON GRAZING AND SUBSEQUENT FEEDLOT PERFORMANCE OF STEERS EARLY-INTENSIVELY GRAZED ON *ACREMONIUM COENOPHIALUM* - INFECTED TALL FESCUE PASTURES

***K. P. Coffey*[1], *J. L. Moyer*[1], *L. W. Lomas*[1], *and F. K. Brazle*[2]**

Summary

Eighty mixed breed steers (avg. wt. 560 lb.) were used to evaluate the effect on grazing gain and subsequent feedlot performance of different management options for steers early-intensively grazing *Acremonium coenophialum*-infected tall fescue pastures. Steers were allotted to pastures of infected fescue pastures or infected fescue overseeded with ladino clover and received no supplement or were offered grain sorghum at .25% of their body weight. Neither supplementation nor overseeding affected grazing or feedlot performance. However, grain supplementation on overseeded pastures reduced subsequent feedlot feed efficiency ($P < .10$). These management options did not substantially affect grazing or subsequent feedlot performance by steers early-intensively grazing infected fescue pastures.

(Key Words: Tall Fescue, *Acremonium coenophialum*, Ladino Clover, Grain Sorghum.)

Introduction

Most of tall fescue in southeast Kansas and the southeastern U.S. is infected with the endophytic fungus, *Acremonium coenophialum*. Cattle grazing infected tall fescue typically show toxicity symptoms that include poor performance and intolerance to heat. Although many management options have been tried to alleviate the toxicity, few have proven successful. Previous work at the Southeast Kansas Experiment Station (SEKES) has shown that approximately 70% of the performance reduction may be offset by overseeding ladino clover in infected pastures. However, those data were collected on cattle grazing from April until November. We were uncertain how ladino clover would contribute to gains of steers grazing in spring.

In another study, feeding grain sorghum (.25% of body weight) to steers grazing infected fescue improved pasture gain without reducing subsequent feedlot performance. However, grain sorghum supplementation for steers grazing fescue-ladino clover pastures has not been evaluated. Our objectives were to determine the effects of grain sorghum supplementation and ladino clover overseeding on grazing and subsequent feedlot performance by steers early-intensively grazing infected tall fescue pastures.

Experimental Procedures

Eighty mixed breed steers grazed eight 5-acre pastures at the Mound Valley Unit of the SEKES during 1990 and 1991. Steers were vaccinated against IBR, BVD, PI_3, BRSV, Leptospirosis (5 strains), pinkeye and 7-way blackleg, dewormed, and then allotted to one of the experimental pastures. Five additional steers were included to establish a stocking rate of 2 head/acre; double the typical stocking rate. Steers grazed the pastures from April 25 to June 20, 1990 and from March 29 to June 18, 1991.

[1]Southeast Kansas Branch Experiment Station, Parsons.

[2]Southeast Area Extension Office, Chanute.

We used four 70% infected, tall fescue pastures and four infected pastures that were overseeded with ladino clover. All pastures received a fall application of 40 lb N, 40 lb P_2O_5, and 40 lb K_2O per acre, and infected pastures received an additional 80 lb N/acre in January of each year.

At the end of the grazing period, steers were dewormed, implanted with Synovex S®, and placed in feedlot pens with pasture replicates maintained. Steers were fed 80% ground grain sorghum, 15% corn silage, and 5% protein supplement[3] (DM basis) for 179 days in 1990 and 154 days in 1991. Beginning and ending pasture and feedlot weights were taken following a 16 hr shrink. At the end of the feedlot period, steers were slaughtered at a commercial plant, and carcass data were collected following a 24 hr chill.

Results and Discussion

Differences were detected between years, but interactions between year and forage type or supplementation were significant ($P < .10$) only for carcass backfat and rib eye area. Therefore, data were pooled across years.

Ending pasture and feedlot weights, and gains and subsequent feedlot DM intakes were not affected by either supplementation or clover overseeding (Table 1). However, control steers that had grazed overseeded pastures were more efficient in the feedlot than their supplemented counterparts. Feedlot feed efficiency of steers grazed on infected pastures was not affected by supplementation. Rib eye areas and yield grades from control steers were intermediate between those from steers supplemented on overseeded pastures and those supplemented on infected pastures, with those that had grazed overseeded pastures having larger rib eye areas and lower yield grades. Other carcass components were similar among combinations.

In previous work at SEKES, steers grazing overseeded pastures gained more during the grazing period than those grazing infected pasture. After a feedlot period, their carcasses also had greater backfat and higher yield and quality grades. That trend was not repeated in this experiment.

However, the grazing period of the previous study was over 200 days in each of 3 years; the ladino clover had more time to exert its benefit. In the present study, the grazing period may have been too short for the ladino clover to provide an advantage. Higher stocking rates in the present study also may have contributed to the differences.

Limited amounts of supplemental grain sorghum previously have improved pasture gain of steers spring-grazing tall fescue, without impairing subsequent feedlot performance. We saw no grazing gain improvement from supplementation in this experiment, but feeding grain sorghum to steers grazing overseeded pastures reduced subsequent feedlot feed efficiency.

Therefore, neither of the management options we evaluated appeared to substantially affect grazing gain on fescue pasture or subsequent feedlot performance.

[3]49% crude protein supplement containing 400 g/ton monensin.

Table 1. Effect of Supplemental Grain Sorghum or Overseeding with Ladino Clover on Grazing and Subsequent Feedlot Performance and Carcass Characteristics of Steers Early-Intensively Grazing *A. coenophialum*-Infected Tall Fescue Pastures

	Fescue-Ladino clover		Fescue	
Item	Control	.25% BW Milo	Control	.25% BW Milo
Pasture phase				
No. head	20	20	20	20
Initial wt., lb.	560	560	560	560
Final wt., lb.	627	640	633	624
Total gain, lb.	67	80	73	64
Daily gain, lb.	1.03	1.19	1.11	1.00
Feedlot phase				
Initial wt., lb.	627	640	633	624
Final wt., lb.	1200	1170	1173	1160
Total gain, lb.	572	530	540	536
Daily gain, lb.	3.51	3.25	3.32	3.29
Daily DM intake, lb.	22.8	24.3	23.8	23.2
Feed/gain	6.60[b]	7.63[a]	7.30[ab]	7.18[ab]
Carcass data				
Hot carcass wt., lb.	735	729	726	716
Dressing %	61.3	62.2	61.9	61.5
Backfat, in.	.41	.36	.41	.46
Rib eye area, in.[2]	13.7[ab]	14.3[a]	13.5[ab]	12.8[c]
Quality grade[1]	9.7	10.0	10.2	10.0
Yield grade	2.5[ab]	2.2[b]	2.5[ab]	2.8[a]

[1]9 = Select$^+$; 10 = Choice$^-$.
[a,b,c]Row means differ ($P < .10$).