

SUMMARY OF FESCUE TRIALS CONDUCTED IN 1985 AND 1986 AT BUSHLAND, TEXAS

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PROCEDURES:

With the financial assistance of TCFA, two experiments were conducted to determine the effects of the fescue endophyte fungus on the health and performance of yearling steers in the feedlot. In 1985, 36 steers were grazed on pastures containing low, moderate, or high levels of fungus for 150 days at Watkinsville, GA. In October, cattle were transported to the USDA-TAES research feedlot at Bushland, TX, and fed in pinpointers until slaughter (estimated backfat thickness of 0.5 in.). During the first 28 days in the research feedlot, cattle were scored daily for runny noses, runny eyes, etc., and an average morbidity score was determined. In 1986, cattle were grazed on the same pastures for 120 days and transported to Bushland in July. In addition, six steers from Bermuda grass pastures were included. All other procedures were identical to the 1985 experiment. All cattle used in the experiments were of Angus breeding.

RESULTS:

Experimental results are presented in Tables 1 and 2. In both years, cattle from the high fungus pastures had faster daily gains and better feed/gain ratios than cattle from the low fungus pastures, although the differences were not significant in 1986. This improved performance was apparently due to compensatory gain in the cattle from the high fungus pastures. It was hoped that cattle in Experiment 2 would be exposed to heat stress during the early portions of the feeding period; however, the weather at Bushland was relatively mild during this period, especially considering that the cattle were moved from Georgia during the hottest, driest summer in over 50 years. Therefore, the cattle were not exposed to extreme heat stress during the 1986 experiment.

In both experiments, no cattle were treated for respiratory disease; however, cattle from the high and moderate fungus pastures tended to have higher morbidity scores than cattle from the low fungus pastures. This suggests that in younger animals that are more susceptible to respiratory infections, calves from high fungus pastures may be more prone to respiratory disease than cattle from low fungus pastures.

Cattle were slaughtered at similar backfat thickness; therefore, carcass characteristics were not affected by level of fungus in the pasture. However, cattle from the high fungus pastures tended to have lower marbling scores and, thus, lower quality grades than cattle from the low fungus pastures.

Analysis of blood samples indicated that the endophyte fungus carried over for several weeks in the feedlot; however, it did not significantly affect performance during the first 2-4 weeks in the feedlot.

Table 1. Performance of cattle arriving in October 1985.

Item	Fescue endophyte fungus level		
	Low	Moderate	High
No. of cattle	12	12	12
Pay weight, lb.	733	689	623
Kill weight, lb.	1016	999	1001
Transport shrink, %	10.8 ^a	12.0 ^b	13.3 ^c
Days on feed	108	117	120
Daily gain, lb.	3.19 ^a	3.06 ^a	3.56 ^b
Dry matter intake, lb./d	20.7	20.0	19.6
Feed DM/gain	6.49 ^a	6.45 ^a	5.46 ^b
Calculated ADG, lb./d	3.30	3.28	3.30
Dressing %	63.2	64.2	63.4
% Choice	100	92	83
Fat thickness, in.	0.50	0.49	0.52
Yield grade	3.2	3.0	3.0
Health score ^e	1.50	2.33	3.67

a, b, c Means in same row without a common superscript differ ($P < 0.05$).

^d Calculated by Net Energy System.

^e Calves were given 1 point for nasal or ocular discharge and 2 points for a rectal temperature $> 104^{\circ}\text{F}$. Performance data is calculated from the on-truck weight in Georgia.

Table 2. Performance of cattle arriving in July 1986.

Item	Level of fungus in pasture			Bermuda grass
	Low	Moderate	High	
No. of cattle	12	12	12	6
Pay weight, lb.	627	607	563	647
Kill weight, lb.	1012	1007	990	1065
Transport shrink, %	7.85	6.95	6.71	3.3
Days on feed	102	102	108	102
Daily gain, lb.	3.48	3.64	3.67	3.78
Dry matter intake/lb.	21.6	21.3	20.8	23.7
Feed DM/gain	5.77	5.47	5.33	5.90
Calculated ADG, lb.	3.59	3.59	3.62	3.90
Dressing %	63.1	63.6	63.6	63.6
% Choice	83.3	66.7	75.0	66.7
Fat thickness, in.	0.42	0.42	0.38	0.52
Yield grade	2.62	2.72	2.50	3.08
Health score	7.3	10.0	7.9	10.5