Kansas Agricultural Experiment Station Research Reports

Volume 6
Issue 4 *Southeast Research and Extension Center Agricultural Research*

Article 2

2020

Including Legumes in Bermudagrass Pastures

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K-STATE Research and Extension

2020 SEREC Agricultural Research

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Summary

Use of legumes in wheat-bermudagrass pastures did not affect summer cow gains in 2019, but did reduce the quantity of nitrogen fertilizer required.

Introduction

Bermudagrass is a productive forage species when intensively managed. However, it has periods of dormancy and requires proper management to maintain forage quality. Legumes in a bermudagrass sward could improve forage quality and reduce fertilizer usage; however, legumes are difficult to establish and maintain with the competitive grass. Clovers can maintain survival once established in bermudagrass sod, and may be productive enough to substitute for some N fertilization. This study was designed to compare dry cow performance on a bermudagrass pasture system that included ladino and crimson clovers (Legume) vs. bermudagrass alone (Nitrogen).

Experimental Procedures

Eight 5-acre 'Hardie' bermudagrass pastures at the Mound Valley Unit of the Kansas State University Southeast Research and Extension Center (Parsons silt-loam soil) were assigned to Legume or Nitrogen treatments in a completely randomized design with four replications. All pastures were interseeded with 100 lb/a of 'Everest' wheat on September 25, 2018. Legume pastures that had been previously interseeded with 'Will' ladino clover were interseeded with 21 lb/a of crimson clover using a no-till drill on September 25, 2018. Nitrogen pastures were fertilized with 50 lb/a of nitrogen on January 30 and May 7, 2019, and all pastures received 50-30-30 of N-P_2O_5-K_2O on July 13, 2019.

Thirty-two pregnant fall-calving cows of predominantly Angus breeding were weighed on consecutive days and assigned randomly by weight to pastures on March 29, 2019. Final cow weights were taken on consecutive days before removal from the pastures on August 15, 2019 (139 days).

Results and Discussion

Cow performance data are presented in Table 1. Cow gains and gain/a for the Nitrogen and Legume treatments were similar ($P > 0.05$).

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Table 1. Performance of cows grazing wheat-bermudagrass pastures interseeded with wheat and fertilized with nitrogen or interseeded with legumes, Mound Valley Unit, Kansas State University Southeast Research and Extension Center, 2019

	Management system	
Item	Nitrogen	Legumes
Number of cows	16	16
Number of days	139	139
Stocking rate, cows/a	0.8	0.8
Cow initial weight, lb	1223	1224
Cow final weight, lb	1576	1524
Cow gain, lb	353	300
Cow daily gain, lb	2.54	2.16
Cow gain, lb/a	283	240

Means within a row followed by the same letter do not differ ($P < 0.05$).