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Evaluation of Grazing Options During Summer for Growing Heifers – Year 2

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Summary

Developing methods to provide high quality forage through most of the year is important for cattle operations. The purpose of this study was to determine forage management options to offset the summer "slump" with fescue. Four grass pasture treatments (10 pastures total; 4 acres each) were used in a completely randomized design and stocked with growing heifers (n = 49; initial wt 473 ± 60 lb). Pasture treatments consisted of novel fescue (FES), crabgrass (CRAB), bermudagrass (BERM), and sorghum-sudan interseeded into novel fescue (SS-FES). Heifers were weighed and grazed on pastures from April to September (153 d). Heifers on FES were continuously grazed. All other pastures were rotationally grazed. Sorghum-sudan was interseeded into fescue pastures in May. Average daily gain (ADG) for the entire grazing period was not different between pasture systems. In contrast to the previous year, there were no differences in heifer gain, ADG, or gain per acre for any of the grazing treatments.

Introduction

Fescue is a cool-season hardy grass that can withstand intensive grazing. Approximately 60% of the annual forage production occurs from March-May. Then fescue has a "slump" during the summer when production is stopped, the plant goes into reproductive phase, and animal performance can be negatively impacted. In an ideal production system, high quality forage needs to be provided to cattle year-round to maximize overall production. One method to offset the "summer slump" with fescue is for producers to provide warm-season pastures and cool-season pastures and rotate cattle between the two during their respective growing season. However, that requires at least doubling the acreage or reducing the cow herd by half. Another opportunity to improve fescue forage quality during the summer would be an addition of warm-season perennials such as clovers. Biomass production increase may be small, even though forage quality is improved. Therefore, producers are interested in adding warm-season annual grasses which produce substantial biomass into cool-season perennial pastures to maximize land usage.

The purpose of this study was to evaluate different grazing options for summer for growing replacement heifers.

Experimental Procedures

Ten, 4-acre pastures were used in this study. Three pastures of crabgrass (CRAB), three pastures of bermudagrass (BERM), two pastures of Max-Q fescue (FES), and two pastures of Max-Q fescue interseeded with sorghum-sudan (SS-FES) were stocked with weaned heifers. Heifers on the FES were stocked with 4 head per pasture through the entire grazing period and allowed to graze the pasture continuously. The FES pastures were fertilized with 60 lb of nitrogen (N) per acre in February and 40 lb N/acre in September. Heifers on the SS-FES pastures were stocked with 7 head per pasture from April to July, and rotationally grazed the pasture in 3 paddocks. Heifers on SS-FES grazed for 14 days on each paddock to try to keep the swath height close to 2 inches. At the end of May, the paddock that was just grazed (paddock 1) was also mowed to 2-inch height, and 25 lb/acre of sorghum-sudan was drilled into the standing fescue. Then 14 days later when heifers were removed from paddock 2, the paddock was swathed to 2 inches and drilled with sorghum-sudan. After sorghum-sudan was interseeded, 46 lb N/acre was applied. Once the sorghum-sudan was 2 feet tall, 4 heifers were rotated to the paddock and allowed to graze for 10 days before being rotated to the next paddock. The SS-FES pastures were fertilized with 40 lb N/acre in September. Heifers on the BERM pastures were stocked at 5 head per pasture and rotationally grazed between 2 paddocks with 28 days between rotations. The BERM pastures were fertilized with 50 lb N/acre in mid-April. Heifers on the CRAB were stocked at 4 head per pasture and rotationally grazed between 2 paddocks with 28 days of grazing per paddock. Five pounds of crabgrass seed was broadcast onto the pastures in April with 50 lb N/acre. The CRAB and BERM pastures were also fertilized with 50 lb N/acre in mid-June.

Heifers were placed on pasture on April 26, 2021. Heifers were weighed going to pasture after a 3-day rumen equivalence diet consisting of 50:50 blend of DDG:wheat middlings at 2% of body weight, and weighed on two consecutive days. All heifers were weighed July 26, 2021, and September 29, 2021.

Heifer average daily gain, total gain, and gain per acre were determined for each grazing period.

Results and Discussion

In contrast to previous years and in contrast to hypothesis, grazing the heifers on warm season forages during the summer of 2021 did not result in changes of measures of gain as compared to grazing a novel endophyte fescue pasture. Potentially the similarities in gains can be explained by the weather patterns of 2021. In general it was quite a bit cooler than normal in early summer, which hampered the growth of the crabgrass and bermudagrass pastures. For the sorghum-sudan interseeded pastures, one pasture had particularly good growth of the sorghum-sudan, whereas the other pasture had limited to no growth. Weather variability highly influences forage systems production and thus this project will need to be continued for several more years before making recommendations about grazing systems.

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Table 1. Gains for cattle based on type of pasture

	Pasture type					
Item	**FES**	**BERM**	**CRAB**	**SS-FES**	**SEM**	***P*-value**
Initial weight (April), lb	490	489	490	431	19	0.07
July weight, lb	622	630	623	554	19	0.01
Gain/acre April-July, lb	132	140	132	122	8	0.55
ADG, April-July, lb/d	1.48	1.58	1.49	1.37	0.10	0.55
September weight, lb	699	695	737	696	20	0.41
Gain/acre July-September, lb	76	65	114	90	13	0.13
ADG July-September, lb/d	1.21	1.04	1.81	1.43	0.22	0.13

FES = novel fescue. CRAB = crabgrass. BERM = bermudagrass. SS-FES = sorghum-sudan interseeded into novel fescue.