

Mississippi Annual Cool-Season Forage Variety Trials, 2023

INTRODUCTION

Varieties of several forage crop species are evaluated every year in the Mississippi Agricultural and Forestry Experiment Station's (MAFES) small-plot forage trials. Entries are provided by seed companies as well as forage and breeding programs at state universities. Experimental and commercially available varieties are tested at one or more locations across Mississippi. All entries from privately owned companies are tested on a fee basis. Some varieties may be added by the MAFES forage variety testing program as a reference for comparison purposes. In addition, varieties of interest may also be added when applicable. Testing was conducted at the following locations: MAFES H.H Leveck Animal Research Center Forage

Unit (Mississippi State campus), MAFES Black Belt Experiment Station (Brooksville, MS), MAFES Coastal Plain Experiment Station (Newton, MS), and MAFES McNeill Research Unit (McNeill, MS).

Data presented in Tables 2-12 are used to evaluate the performance of each forage crop within its respective trial. Mean and harvest comparisons were statistically evaluated by using the least significant difference (LSD) test at the probability level of $\alpha = 0.05$. The LSD value represents the minimum amount of dry matter yield (lb DM/A) that must be observed between any two varieties to determine if the difference was due to the variety's performance alone. Sources of seed are presented in Table 13.

PROTOCOL

Annual ryegrass, small grains, and annual clover trials across the state were established between October and November of 2022. At all locations, soil samples were taken and analyzed by the Mississippi State University Soil Testing Laboratory. Trial areas were amended with lime and fertilized with phosphorus (P_2O_5) and potassium (K_2O) according to the soil test recommendations for individual species. Grass trials were additionally fertilized with 50 lb N/A at planting and after the 1st harvest using urea ammonium sulfate (33-0-0/11S). Plots were 6 ft x 10 ft and planted using an ALMACO (Nevada, IA) precision cone seeder on a prepared seedbed. The trial design was a randomized complete block replicated four times. The seeding rates used are presented in Table 1. Individual trials were harvested when 75% of the plots achieved 15 inches of growth. All plots were harvested to a three-inch stubble height. Plots were harvested using a Winterstieger Cibus F (Winterstieger AG, Ried, Austria) equipped with a forage plot harvester reel type header that collected a 4.8 ft x 10 ft swath to calculate the total yield. A subsample was collected and dried at

130°F until a constant weight was achieved to calculate DM concentration. Data were analyzed using the General Linear Model (PROC GLM) of SAS and mean separation was conducted using LSD at $\alpha = 0.05$.

Table 1. Recommended seeding rates for cool-season forage crops.

Type	Species	lb/A PLS
Annual Grasses	Rye	100
	Oat	100
	Triticale	100
	Ryegrass	30
Annual Clovers	Arrowleaf	10
	Berseem	25
	Balansa	4
	Ball	3
	Crimson	30
	Persian	8