Management of Dual-Purpose Wheat Varieties in the Southeastern U.S.

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Introduction

• Dual-purpose wheat systems improve established cropping rotations by diversifying on-farm income.
• These systems are popular in the Southern Great Plains region but are underutilized in the Southeast.
• Dual-purpose wheat has the potential to be incorporated into established cropping rotations of the Southeast.
• Provide additional flexibility in on-farm decision making.

Experimental Design

• Randomized Complete Block Design
• 4 replicates (n = 4)
• 3 grazing treatments
• No Grazing (NG), Low Frequency (LF) and High Frequency (HF)
• 4 wheat varieties
• AGS 2024, Pioneer 26R41, Generic Feed Wheat, and GA Gore (Seed’)

Methods

• 12-30’ × 30’ plots were delineated with electric fencing
• Plots were established at 120-lb PLS/A
• Plots were fertilized with 120-lb/A N and 40-lb/A P and K to soil test recommendations
• 25 cow-calf pairs were used to mob-graze plots at 4-week intervals
• At each grazing, 3 – 1.1 ft² before grazing (Pre-G) and after grazing (Post-G) destructive forage samples were taken.
• Samples were dried at 113°F for 72 h at the Auburn University Forage Lab.
• Near Infrared Spectroscopy was utilized to determine total digestible nutrients, neutral detergent fiber, acid detergent fiber and crude protein.
• Data were analyzed using Proc GLIMMIX of SAS 9.4 (SAS Institute, Cary, NC), α < 0.05.

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Results

Forage Yield
• Year 1 Pre-G AGS forage yield was greater (P < 0.01) than all other varieties (1,390 lb/A vs. 944 lb/A, respectively).
• Year 2 Pre-G forage yield was greatest for AGS and Feed (P = 0.32) compared to all other varieties (3,203 lb/A vs. 2,561 lb/A, respectively).

Forage Quality
• Feed, Seed and Pioneer had greater (P < 0.01) crude protein (CP) than AGS for Year 1 (31.6 vs. 30.1%, respectively).
• Grazing frequency did not affect CP values for Year 1 or Year 2 (P > 0.05 and P = 0.61, respectively).
• Year 1 concentration of NDF was greatest for AGS (39.1%) compared with all other varieties (34.9%, P < 0.01).
• NDF concentrations were greatest (P = 0.93) for AGS and Feed in Year 2 (51.7%).

Grain Yield
• Pioneer, in Year 1, had the greatest grain yield but was not different from AGS (51.3 Bu/A vs. 46.7 Bu/A, respectively; P = 0.41).
• Seed had the least grain yield for Year 1 (20.0 Bu/A, P < 0.01) and Year 2 (9.03 Bu/A, P < 0.01).
• Grazing frequencies were significantly different (P < 0.01) for Year 1 and Year 2.
• NG being the greatest (61.9 Bu/A) and HF being the least (13.2 Bu/A) for Year 1.
• However, Year 2 grain yield was greatest for the LF treatment (44.4 Bu/A, P < 0.01).

Conclusions

• Dependent on variety, LF grain yields were competitive with NG yields in Years 1 and 2.
• Forage-type varieties can produce competitive grain yields.
• High forage quality allows for maintenance grazing for cow-calf herds (60 -70% TDN, 15-20% CP) and potential gains for stocker herds.
• Seed-type wheat varieties may not be a viable option for the Southeast.

Literature Cited