

LATE WINTER COOL-SEASON ANNUAL FORAGE PLANTINGS FOR SPRING PRODUCTION

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Introduction:

Cool-season annual grasses complement bermudagrass pasturelands in the southern United States. Common examples include annual ryegrass, wheat, and oats. These species are typically sown into dormant bermudagrass stands in the fall to provide forage for winter and early spring. They can produce 2000 to 6000 lb acre⁻¹. Flexibility in planting and utilization dates, as well as ease of establishment make these species popular with southern producers.

Objective:

To identify the optimal planting date for late winter-planted annual forages in terms of forage production and composition.

Jonesboro Municipal Airport station, Jonesboro, Arkansas, U.S.A.							
Mean Air Temp (°F)				Precipitation (in)			
Month	2021	2022	2024	Month	2021	2022	2024
February	32.8	40.5	50.5	February	1.6	4.4	2.7
March	54.3	51.3	53.9	March	7.9	3.9	3.0
April	58.5	58.9	64.0	April	2.6	6.9	2.7
May	67.3	70.9	59.9	May	3.7	3.8	4.8
MEAN	53.2	55.4	57.1	MEAN	15.9	18.5	13.2

Table 1. Temperature and precipitation for Jonesboro, Arkansas,

Materials and Methods:

- Conducted at the Arkansas State University in Jonesboro, AR (Years: 2021, 2022, and 2024).
- Bermudagrass forage was 2-3" at planting.
- Sprayed 2 qt. acre⁻¹ 41% glyphosate + 0.25% non-ionic surfactant in January.
 - Late plantings were sprayed again prior to planting with 1 pt. acre⁻¹ of glyphosate.
- Fertilizer applied:
 - 80 lb acre⁻¹ N as urea at planting.
 - 40 lb acre⁻¹ N in late April.
 - P205 & K20 were applied to soil test recommendations.
- Four winter annual forages no till drilled.
- Planting dates: 2021, 2022, & 2024
 - Early – Feb 25, Feb 15, & Feb 15.
 - Mid – March 11, March 10, & March 12.
 - Late – March 30, March 29, & March 27.
- Plots were harvested in late May.
 - Canopy heights and stand percentage were taken prior to harvest.
- Forage was gathered, weighed fresh, and then a representative grab sample was dried to constant weight to calculate the harvested forage mass.

Results:

WEATHER DATA (Table 1).

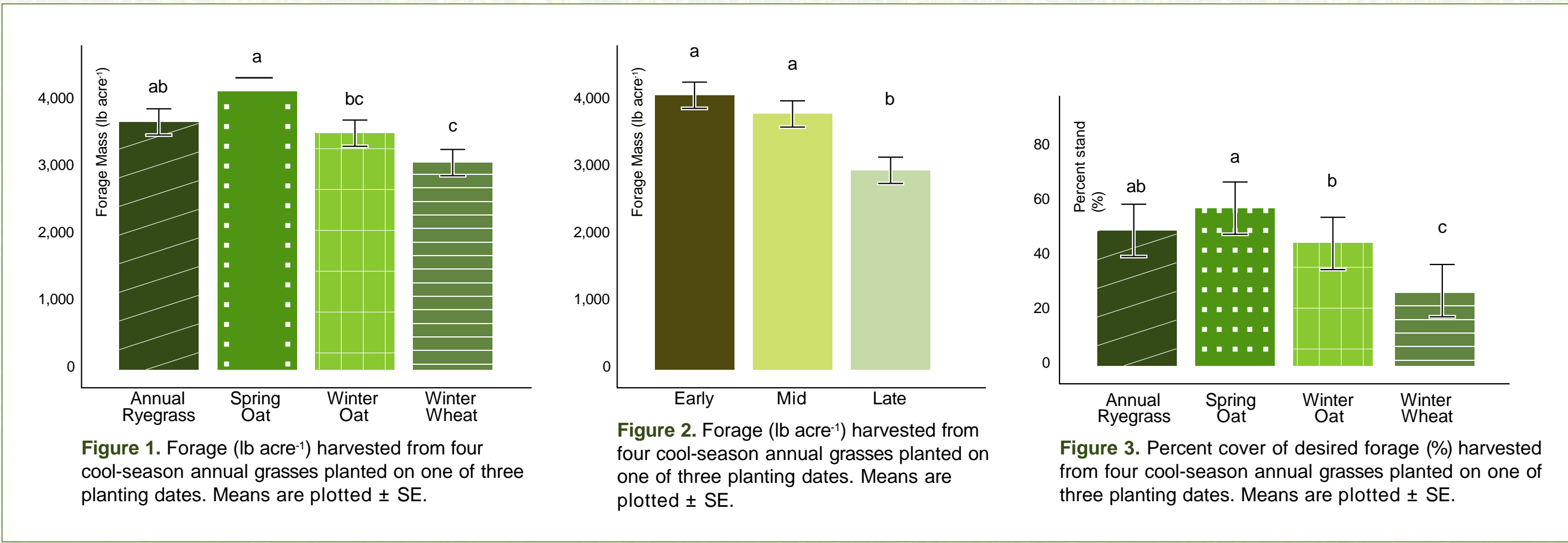
- Monthly temps were less variable in 2022 & 2024 than in 2021.
- Total precipitation was lower in 2024 than in 2021 & 2022.

FORAGE PRODUCTION

- Species selection and planting timing influenced forage accumulation across all years.
- Winter wheat was the least productive species (Figure 1).
- Early and mid-planting dates had similar levels of forage accumulation (Figure 2).
- Late plantings had lower levels of forage accumulation than the early or mid-plantings.

STAND CHARACTERISTICS

- Annual ryegrass, spring oat, and winter oat had similar stand percentages across all three years (Figure 3).
- Planting timing had no effect on the stand percentage of the sown species.
- The stand percentage results seen here are likely the result of inadequate sod suppression during the aggressive winter weed growth period.
- Late planting were more susceptible to weed competition.



Conclusion:

This experiment suggests that the optimal planting period for these species is between late February and mid-March in the southern U. S. A. Future work might identify the flexibility of the harvest date for these cool-season annual grasses to balance annual and bermudagrass growth in these complementary systems.

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