



Dormant Sprigging of Bermudagrass and Zoysiagrass

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INTRODUCTION

Many bermudagrass and zoysiagrass cultivars cannot be seeded and are commonly planted vegetatively using sprigs, especially for sod production or in sand-based systems such as athletic fields and putting greens. Traditionally, sprig-planting has been accomplished during the warm-season growing months when soil temperatures are capable of initiating and promoting growth. However, this often results in an extended grow-in period and can significantly reduce the use of the turf in the first growing season.

OBJECTIVE

The objective of this study was to determine if vegetative sprigs of bermudagrass and zoysiagrass could be established earlier in the year, during the dormancy phase, to hasten establishment.

MATERIALS & METHODS

Table 1. Description of experimental site, planting and maintenance practices. See also Photo 1	
Site	University of Arkansas Agricultural Research and Extension Center, Fayetteville, AR
Species	'Tifway' bermudagrass, 'Meyer' zoysiagrass
Plot size	3.05 x 1.37 m
Field preparation	Tilled to a depth of 10 cm and leveled
Sprigs process	Sprigs for the experiment were shredded using sod. The sod of the two species were washed free of soil and then shredded into sprigs.
Sprigging	Plots were planted by spreading sprigs on the native silt loam soil, topped with 1 cm native soil, and rolled with turf tires and light roller
Irrigation	As needed to promote vigorous growth
Mowing	Plots were mowed weekly at a height of 2.5 cm with a reel mower
Fertilization	Monthly applications of urea at 2.5 or 5.0 g N m ⁻² for zoysiagrass and bermudagrass, respectively



Photo 1. Plot establishment in summer

TREATMENTS

- 2014 Planting Dates: March 28 (dormant), May 30 (spring) and July 22 (summer) (Photo 1).
- Sprigging Rates: 30 m³ ha⁻¹ (low), 60 m³ ha⁻¹ (med), and 90 m³ ha⁻¹ (high).
- Replications: three replications per Date x Rate plots.

DATA COLLECTED

- **Turfgrass coverage:** monitored weekly using digital image analysis (Richardson et al., 2001) to evaluate establishment rates.
- **Biomass:** A 10-cm diam. turf sample was taken from each plot every four weeks. **Above-ground biomass** above the soil was collected using scissors. **Below-ground biomass**, including stolons and rhizomes in the sample, was washed free of soil over a sieve. All biomass was dried in an oven at 50 °C for 48 h and weighed.

RESULTS

Bermudagrass Coverage (Figure 1)

- Bermudagrass planted either in dormancy (March), in spring (May) or in summer (July) reached full coverage within one season.
- Coverage of bermudagrass planted in spring (May) was only 3% at the beginning of June while bermudagrass planted in dormancy (March) had fully established.
- It took 10 weeks, 5 weeks, and 5 weeks to reach full establishment with dormant (March) planting, spring (May) planting, and summer planting (July) respectively (Fig. 1).

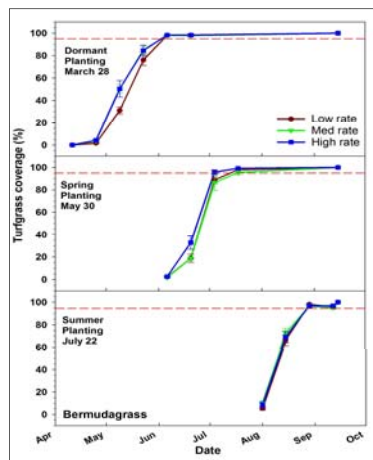


Figure 1. Coverage changes of bermudagrass. Error bars represent standard deviation from the mean. Red dashed line represents 95% coverage.

Zoysiagrass Coverage (Figure 2)

- Zoysiagrass grew slowly in April and May after establishment with dormant sprigs in March. Coverage increased significantly in June as temperatures warmed.
- Dormant sprigs took 20 weeks to fully establish in mid-August while coverage of zoysiagrass planted in spring (May) and summer (July) were only 50% and 5%, respectively, in mid-August.
- At the end of growth in October, coverages of the spring planting and summer planting reached 85% and 55%, respectively, which indicated that zoysiagrass planted in spring (May) or in summer (July) could not establish a full stand in one season (Fig. 2).

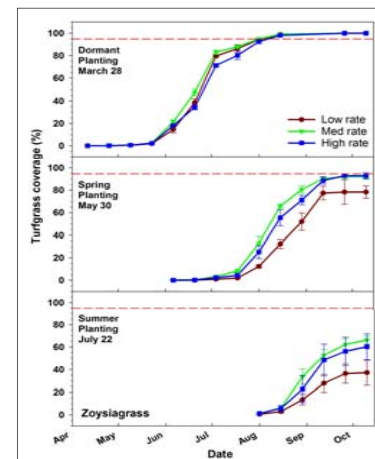


Figure 2. Coverage changes of zoysiagrass. Error bars represent standard deviation from mean. Red dashed line represents 95% coverage.

Biomass (Figures 3 and 4)

No differences in biomass among the three different sprigging rates were found in either bermudagrass or zoysiagrass (Fig. 3 and 4).

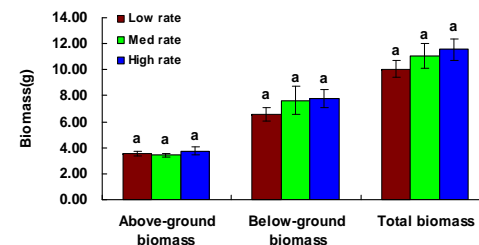


Figure 3. Biomass of bermudagrass 5 months after March planting.

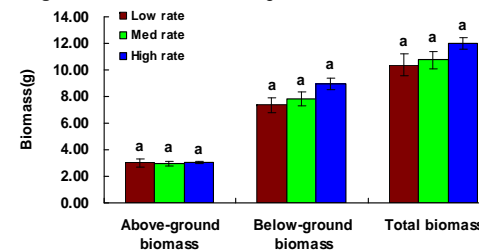


Figure 4. Biomass of zoysiagrass 5 months after March planting.

CONCLUSIONS

- Sprigging rate had minimal effects on bermudagrass and zoysiagrass establishment.
- For both species, excellent results were obtained with dormant sprigging, suggesting that early planting can result in earlier sod harvest or turf use compared to spring or summer plantings.
- For zoysiagrass, it appears that full coverage can be reached in the first season if dormant planting dates are used.