

Establishment and Management of Seeded Bermudagrass in the Transition Zone

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Objectives:

1. The overall goal of this project is to generate a set of best management practices for establishing seeded bermudagrasses in the transition zone.
2. To test whether herbicides may be effectively used to control weeds in newly established seeded bermudagrasses.
3. To test whether charcoal banding will allow the use of pre-emergent herbicides to establish seeded bermudagrass.
4. To test the effect of seeding date and rate on morphology and freeze tolerance of newly seeded bermudagrass.
5. To test the effect of post-emergent applications of fertilizers and growth regulators on newly seeded bermuda grass morphology and freeze tolerance.
6. To correlate post-planting growing-degree days with morphological development and freeze tolerance of seeded bermudagrasses.

Start Date: 2000

Project Duration: 3 years

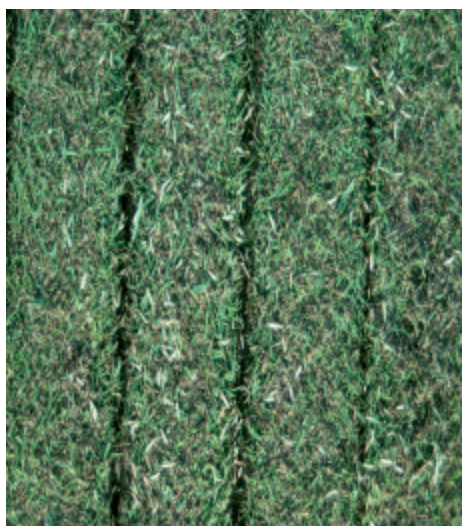
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Several high-quality seeded bermudgrass (*Cynodon dactylon*) cultivars have been recently introduced to the turf market. This research effort addresses two significant problems impeding the widespread use of seeded bermudagrass cultivars in the transition zone: weed control and first-year winter survival.

The objectives of our studies are to: 1) determine how post-emergence and pre-emergence herbicides may effectively be used to control weeds in newly-established seeded bermudagrass, 2) determine the effects of seeding date and seeding rate on morphology and freeze tolerance of newly seeded bermudagrass, and 3) determine the effects of N fertilizers and growth regulators on the morphology and freeze-tolerance of newly seeded bermudagrass.

All studies included the seeded bermudagrass cultivars Princess, Jackpot, Mirage, Mohawk and Nu-Mex Sahara and the experimental line, OKS 91-11, unless otherwise indicated.

A post-emergence herbicide study was initiated on June 1, 2000, using the bermudagrass cultivar 'Princess'. At seven, 14, and 28 days after seedling emergence, individual plots were treated with one of seven post-emergent turf herbicides at recommended rates, including MSMA, dicamba, metsulfuron, 2,4-D,



Several seed establishment techniques and planting dates for the new seeded bermudagrass cultivars are being evaluated at University of Arkansas.

chlorypyralid, diclofop, quinclorac, and an untreated control.

Significant herbicide injury was observed with diclofop, metsulfuron, dicamba, and 2,4-D over the first 14 days after application. However, the injury completely dissipated by 30 days after treatment.

The first-year data from this study suggest that common post-emergence herbicide programs can be effectively used on newly seeded bermudagrasses, but some injury can be expected from specific chemicals such as diclofop, 2,4-D, dicamba, and metsulfuron.

A pre-emergent herbicide study was also completed during the 2000 growing season. This establishment study was unique in that the seeds were applied in rows

spaced 12 inches apart. Three herbicides were examined in this study, including oxadiazon, prodiamine, and diuron.

Charcoal banding was an effective means of germinating bermudagrass seeds in the presence of pre-emergence herbicides and the rows of bermudagrass produced a significant cover in approximately six weeks. Plots that were seeded without charcoal banding and treated with the same herbicides failed to germinate.

Studies were also initiated to examine the effects of planting rate, planting date, and post-planting management on morphology and freeze tolerance of seeded bermudagrasses. All cultivars mentioned above were evaluated in the seeding rate and date trials, while 'Princess' was used in the post-planting, management study.

All studies were successfully established during the 2000 growing season and are nearing complete dormancy at the time of this writing. The critical data on morphology and freeze tolerance will be collected over the next four months and will be reported in the 2001 summary.

Summary Points

- Post-emergent herbicide study revealed several broadleaf and grass herbicides could be used during seeded bermudagrass establishment.
- Charcoal banding will allow the use of pre-emergence herbicides to establish seeded bermudagrasses.
- Seeding date has a significant impact on morphology and freeze tolerance on newly seeded bermudagrass.