

Establishment and Management of Seeded Bermudagrass in the Transition Zone

Michael D. Richardson
University of Arkansas

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-emergence 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 bermudagrass 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

Total Funding: \$43,007

Several high-quality seeded bermudagrass cultivars have been recently introduced to the turf market. All studies included the seeded bermudagrass cultivars Princess, Jackpot, Mirage, Mohawk, Nu-Mex Sahara and Yukon, unless otherwise indicated.

A post-emergence herbicide tolerance study was initiated using the bermudagrass cultivar, 'Princess'. At 7, 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, chlpyralid, 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 had completely dissipated by 30 days after treatment. After 2 years of data, these studies indicate that common post-emergence herbicide programs can be effectively used on newly seeded bermudagrasses, even though injury can be expected from specific chemicals such as diclofop, 2,4-D, dicamba, and metsulfuron.

A pre-emergence herbicide study was attempted during both the 2000 and 2001 growing season. This establishment study was unique in that the seeds were applied in rows on 12-inch spacings. The main objective was to determine whether a band of activated charcoal, applied directly above the seed row, could effectively deac-



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

tivate pre-emergent herbicides and allow germination and establishment. Three herbicides were examined in this study, including oxadiazon, prodiamine, and diuron.

Charcoal planting was an effective means of germinating bermudagrass seeds in the presence of pre-emergence herbicides and the rows of bermudagrass could produce a significant cover in approximately six weeks. However, these studies were attempted many times during both the 2000 and 2001 growing seasons and it was difficult to produce consistent results. It is believed that seed planting depth may have been the cause of some of the problems observed in these studies. However, attempts to plant the seed very shallow often led to movement of the seed following rain or irrigation.

Studies were conducted 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 and 2001 growing season.

Seeding date had a significant effect on winter survival in the 2000 test, with April and May planting dates having higher recovery than June or July planting dates. Yukon exhibited much higher winter survival than any of the other cultivars and was successfully established as late as July 15. Seeding rate had no effect on winter survival in these trials. Late-season applications of the growth regulator, Primo, significantly reduced winter survival of 'Princess' bermudagrass, while late-season N fertility had no effect on winter survival.

Summary Points

- Charcoal planting was an effective means of germinating bermudagrass seeds in the presence of pre-emergence herbicides and the rows of bermudagrass could produce a significant cover in approximately six weeks. However, these studies were attempted many times during both the 2000 and 2001 growing seasons and it was difficult to produce consistent results.
- Seeding date had a significant effect on winter survival in the 2000 test, with April and May planting dates having higher recovery than June or July planting dates.
- Late-season applications of the growth regulator, Primo, significantly reduced winter survival of 'Princess' bermudagrass, while late-season N fertility had no effect on winter survival.