Best Management Practices for the Conversion of Established Bermudagrass to Buffalograss

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Objectives:

1. Examine the effect of seeding rate on the establishment of seeded buffalograss.
2. Examine the effect of various seedbed preparation techniques (verticutting, aeration, and topdressing) on the establishment of seeded buffalograss.

Start Date: 2008
Project Duration: two years
Total Funding: $6,000

Growing concern over the sufficiency and variability of present water supplies in western Texas and other areas of the arid southwest led to the examination of several reduced-input turfgrass species for water conservation. Buffalograss [*Buchloe dactyloides* (Nutt) Engelm.] is a warm-season turfgrass that shows excellent drought, cold, and salinity tolerance. Increasing awareness and acceptance of buffalograss as a viable turfgrass option in arid environments requires investigation into conversion techniques for its establishment.

Research was conducted at the Texas Tech Turfgrass Research Station during the summer of 2008 on an established bermudagrass rough. The parameters evaluated included four seedbed preparation treatments and two buffalograss seeding rates. Bermudagrass was sprayed with glyphosate at 2.4 kg ai/ ha using small-plot spray equipment two weeks prior to seedbed preparation. All plots were scalped following herbicide application and subsequent desiccation of bermudagrass.

Seedbed preparation treatments consisted of verticutting in two directions, verticutting plus topdressing (0.6-cm layer), verticutting plus topdressing plus aeration (hollow-tine), or no seedbed preparation. 'Texoka' buffalograss was examined at seeding rates of 101 or 146 kg/ha and was planted on June 17, 2008. A starter fertilizer was applied at seeding and all plots were lightly brushed to ensure good seed-to-soil contact. Plots were irrigated daily by an automated irrigation system that applied approximately 3.8 cm of water per week. Plots were mowed once a week to a height of 5.1 cm with a rotary mower.

Treatments were arranged in a randomized complete block design with four replications of treatments. Buffalograss conversion was visually evaluated weekly for the first 2 months and monthly thereafter using a scale of 0 (no cover) to 100% (completecover). Buffalograss turfgrass quality was assessed on a similar time frame using a scale of 0 to 9, where 9 is considered to be optimal turf quality and 6.5 the minimum acceptable level.

Buffalograss germination was minimal regardless of treatment and competition from bermudagrass regrowth became evident one month after seeding. Bermudagrass had recovered fully from glyphosate applications by the conclusion of the trial (October 15, 2008) and occupied a majority of each plot. Differences in buffalograss establishment did not exist between the two seeding rates regardless of seedbed preparation treatment. However, verticutting, aeration, and topdressing treatments increased buffalograss cover by 10% 2 months after seeding compared to no seedbed preparation.

Percent buffalograss cover never exceeded 15% regardless of seedbed preparation or seeding rate treatments at the conclusion of the trial. Due to low buffalograss conversation, turfgrass quality ratings were not taken. Further research is necessary to identify chemical treatments to reduce the regrowth potential of bermudagrass and increase the establishment of buffalograss from seed.

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Summary Points

- Bermudagrass was difficult to control chemically and grew back from glyphosate treatments 3 to 4 weeks after buffalograss seeding.
- Bermudagrass germination was minimal regardless of treatment and competition from bermudagrass regrowth became evident one month after seeding.
- Differences in buffalograss establishment did not exist between the two seeding rates regardless of seedbed preparation treatment.
- Verticutting, aeration, and topdressing treatments increased buffalograss cover by 10% 2 months after seeding compared to no seedbed preparation.
- Percent buffalograss cover never exceeded 15% regardless of seedbed preparation or seeding rate treatments at the conclusion of the trial (October 15, 2008).
- Due to low buffalograss conversation, turfgrass quality ratings were not taken.