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 32 oz/A using small plot spray equipment five weeks prior to seedbed preparation. A second application (32 oz/A) was applied after bermudagrass began to regrow (one week prior to seeding).

All plots were scalped following herbicide application and subsequent desiccation of bermudagrass. Seedbed preparation treatments consisted of verticutting plus topdressing (0.25 inch layer), aeration (hollow-tine) plus topdressing, topdressing alone, or no seedbed preparation. 'Texoka' buffalograss was examined at seeding rates of 3 or 4 lbs/1000 ft^2 and was planted on June 1, 2009. 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 2 inches of water per week. Plots were mowed once a week to a height of 2 inches 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% (complete cover).

Chemical control of bermudagrass was more successful in year two when glyphosate was applied in split applications. Bermudagrass regrowth during the duration of the trial was minimal. Buffalograss establishment increased when seed was applied at the higher rate (4 lbs/1000 ft^2) regardless of seedbed treatment.

Verticutting, aeration, and topdressing treatments increased buffalograss cover by 34 to 56% and 57 to 77% when seeded at 3 and 4 lbs/1000 ft^2, respectively, 3 MAP (months after planting) compared to no seedbed preparation. Percent buffalograss cover 3 MAP was 71, 81, and 86% for topdressing, aerification plus topdressing, and verticutting plus topdressing treatments seeded at 4 lbs/1000 ft^2, respectively.

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.

Summary Points

- Chemical control of bermudagrass was more successful in year two when glyphosate was applied in split applications. Bermudagrass regrowth during the duration of the trial was minimal.
- Buffalograss establishment increased when seed was applied at the higher rate (4 lbs/1000 ft^2) regardless of seedbed treatment.
- Verticutting, aeration, and topdressing treatments increased buffalograss cover by 34 to 56% and 57 to 77% when seeded at 3 and 4 lbs/1000 ft^2, respectively, 2 MAP (months after planting) compared to no seedbed preparation.
- Percent buffalograss cover 3 MAP was 71, 81, and 86% for topdressing, aeration plus topdressing, and verticutting plus topdressing treatments seeded at 4 lbs/1000 ft^2, respectively.