

Germplasm Development and Management of Buffalograss Varieties

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Objectives:

1. Acquire additional germplasm through collection and recombination of germplasm already in our collection.
2. Evaluate germplasm with superior turfgrass characteristics including mowing tolerance, color, length of growing season, insect resistance, establishment and recovery of vigor, sod strength, combining ability, and seed production.
3. Obtain inheritance data on important traits, conduct genome size and molecular marker analyses, and evaluate the impact of inbreeding and genetic diversity on variety development.

Start Date: 1998

Project Duration: 5 years

Total Funding: \$200,000

Changes have been made in the buffalograss breeding and evaluation project at the University of Nebraska-Lincoln during the past year. Dr. Terrance Riordan has moved in to an administrative position within the Department of Agronomy and Horticulture, and Dr. Bob Shearman has assumed leadership responsibility for the project.

A buffalograss working group has been formed. This group involves the disciplines of plant breeding and genetics, biotechnology, entomology, plant pathology, and agronomy. This working group will set the priorities for future breeding, evaluation and management efforts in the buffalograss project.

The 2003 National Turfgrass Evaluation Program (NTEP) trial was initiated in July. We entered a vegetative selection, NE 95-55. NE 95-55 is dark green, tolerates low mowing heights (0.5 inch), and forms a dense turfgrass stand. It was selected from lines that demonstrated good resistance to chinch bug; however, actual resistance to

chinch bug activity is not known at this time.

Seventy lines were evaluated in replicated field studies for turfgrass performance and seed production characteristics. These lines were advanced as selections from low mowing height evaluations conducted from 1998 to 2001. NE-95-55 was a vegetative selection from the 70 replicated lines. The best materials from this evaluation will be advanced as vegetative selections or as lines to develop seeded-types. In 2002, we made a number of new selections from various sites based on turfgrass performance and drought resistance characteristics. We have collected burs from large bulk crossing blocks. The caryopses have been removed from these burs and planted in the greenhouse. These materials will be placed in space plantings in the field next spring and will be evaluated for turfgrass performance and seed production characteristics.

Buffalograss dormancy in the late fall and spring limits its acceptance and use. Fine fescues have desirable drought resistance and low maintenance characteristics, and offer minimal competition with buffalograss during its optimal growth period, making them a desirable candidate for overseeding buffalograss turfs in an attempt to enhance color retention in the spring and fall. We have conducted overseeding trials with fine-leaved fescues (i.e. hard, blue sheep, and Chewings) in an effort to enhance fall color retention and spring green up.

To date, sheep fescue/buffalograss mixtures have given the best turfgrass color and quality. Overseeding in the fall resulted in better turfgrass color, cover, and quality than similar attempts done in the spring. Overseeding with fine-leaved fes-



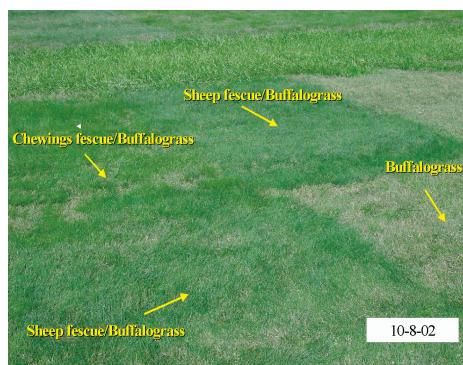
Sales of Legacy buffalograss reached an estimated \$600,000 in 2002.

cue to enhance fall and spring color retention appears to be promising.

More field research will be needed to determine the impact of species competition on buffalograss and fine fescue populations. In addition, research on cultural practices necessary to retain desired turfgrass performance is needed, before recommending overseeding as a mean of color retention and enhancement.

Summary Points

- Breeding efforts to develop adapted varieties of native buffalograss for commercial use as low-maintenance turf has resulted in Legacy sales of \$232,000 in 2001 and an estimated \$600,000 in 2002. More than 80% of this material is exported to other states.
- Extensive drought conditions experienced during the 2002 growing season increased interest in buffalograss turf usage.
- The 2003 National Turfgrass Evaluation Program (NTEP) trial was initiated in July.
- Overseeding trials with fine-leaved fescues (i.e. hard, blue sheep, and Chewings) were conducted in an effort to enhance fall color retention and spring green up.



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