

UNIVERSITY OF NEBRASKA - Dr. Terrance P. Riordan,  
Principal Investigator

Breeding, Evaluation and Culture of  
Buffalograss

1985 Grant - \$20,000 (Second year  
of support)

Buffalograss Collection

Since the initiation of the Buffalograss Development project at UN-L, 708 buffalograss plants have been collected throughout the Great Plains region. During the summer of 1985, 519 plants were collected and either have been planted in an evaluation area at the Agricultural Research and Development Center near Mead or are being held in the greenhouse to be planted next spring. Forty-eight plants have been selected from the collection area for having qualities acceptable for turfgrass. Criteria for selection were density, horizontal growth, color, leaf height, seed production, inflorescence height (tall females, short males), breeding ability, extended fall color and overall aesthetic quality.

Buffalograss Plant Breeding

Three sources of commercial buffalograss seed, Texoka (Nebraska source), Texoka (Texas source) and Sharp's improved (Kansas source) were transplanted into the field for evaluation. Plants were rated for color, turf quality, leaf height and rate of cover. Sex was also determined when possible. The most outstanding plants are being vegetatively increased in the greenhouse and will be used as parents in the breeding program.

A breeding plan or strategy has been developed which will allow for both vegetative and seed production, hybridization and inbreeding, and development of either male and/or female plants. Experience will be necessary to select the best system.

The male and female plants selected for the breeding program have a superior color, turf quality, and better rate of cover than that of the base population. These plants also have a higher initial leaf height (better agronomic vigor) and a lower final unmowed leaf height. The percentage of female plants selected suggest that turf-type characteristics are sex linked. However, both good males and good females are required in the breeding program.

A test planting using three males and eight females was made during September. This planting was carried out to evaluate procedures and also to generate seed from the better female

parents. In this planting eight outstanding female clones are surrounded by three outstanding male clones. This plan allows for random pollination by the males and seed collection from each female.

#### Buffalograss Seed Treatment Evaluation

Buffalograss seed is relatively expensive and is slow to germinate and establish. The major reason for this is that multiple seeds are enclosed by a very hard burr. The main objective of this evaluation was to determine if scarification in a Waring blender would enhance germination and establishment. Laboratory results showed the 2-second treatment germinating more rapidly and with higher numbers than the other five treatments. In the field study the 2-second treatment was superior to all treatments including the check, decreasing the initial germination time and producing more seedlings, providing an earlier developing and denser stand compared to the no treatment stand. This lends itself to greater ease in establishing a buffalograss turf. Plans are to work with Ag. Engineering to develop a method for similarly treating buffalograss seed in large quantities.

#### Buffalograss Establishment Study

The data collected from this study was used to determine whether there was a significant difference between plugs with an established root system (pre-rooted plugs, PRP) and regular plugs (non-pre-rooted plugs, NPRP). In general, the PRP treatment produced more stolons much sooner, established much more quickly, and had a better initial adaptation to transplanting (color measurement) than the NPRP treatment. These results could be very significant in a vegetatively propagated grass and open up a new way of marketing buffalograss.

#### Buffalograss Culture

Herbicide evaluation studies on buffalograss since 1983 have given the following results: (1) Buffalograss shows a decrease in tolerance to increased rates of 2,4-D and combinations of 2,4-D, MCPP and dicamba, and (2) Combination treatments had a synergistic effect when compared to 2,4-D, MCPP and dicamba treated individually.

UNIVERSITY OF NEBRASKA - Dr. Robert C. Shearman,  
Principal Investigator

#### Turfgrass Cultural Practices and their Interactive Effects on Rooting

1985 Grant - \$23,000 (Second year  
of support)