

indicating compaction at the bottom of the cultivation zone restricted water flow.

Compaction stress decreased root growth while cultivation had a limited effect on root growth. Cultivation decreased surface rooting in non-compacted soil but had no influence on rooting in compacted soil in November, 1985. Cultivation in noncompacted soil tended to increase rooting in June of 1986 but again, had no effect on rooting in compacted soil. Throughout the study, hollow tine cultivation ranked equal to or higher than solid tine cultivation in visual quality.

UNIVERSITY OF MINNESOTA - Dr. Donald B. White
Principal Investigator

Breeding of Poa annua for Improved Cultivars

1986 Grant - \$15,000 [third year of support]

We are very encouraged by the progress made during the last year. New breeding material was added from California, Ohio, Minnesota and Europe. Seed collections have been made from original crosses and have proven to possess some desirable characteristics. Superior genotypes have been advanced one to five generations.

Two hundred fifty-one selections of Poa annua and Poa supina were germinated and grown in the greenhouse for transfer to field space planting. There was also the space planting of 1200 plants representing 145 selections established in the field in 1985. Overwintering, spring green up, summer and fall performance evaluations were also made.

A field planting of stolons of 15 different materials was established and maintained at putting green height. One clone [10-C] in particular stood out during the spring, summer and fall due to a dark green color, dense turf and limited flowering. At least three other clones exhibited limited flowering habits.

One hundred twenty-one F2 plants were started in the greenhouse and transferred to field planting for observation of growth characteristics and genetic variation. Twenty-two selected clones were grown in the greenhouse and interplanted into existing collar height conditions in the field to evaluate competitive ability, growth habit under competition and disease susceptibilities.

Breeding research in incompatibility and technique development in emasculation of florets, flower suppression, stolon viability in storage, hardiness, tissue culture, selections and other practices are being explored. The project is at a point where increased support could be very productive in terms of shortening the time to

introduction of an improved Poa annua. Research progress is being made which is beyond what could be normally expected under current support conditions. The 1986 results have been very satisfying.

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

Breeding, Evaluation and Culture
of Buffalograss

1986 Grant - \$18,000 [third year
of support]

A. Overall Objective Accomplishments

This project has been active for slightly less than two and one-half years, but significant progress has been made toward the overall objective of the USGA/GCSAA project. At this time, buffalograss clones have been identified which have an improved turf quality suitable for golf course roughs, but still have the lower energy requirement advantages of buffalograss. Although we are still early in our breeding improvement project, progress to-date has been better than any of us expected. Selected clones have better turf quality than anticipated, they are possibly adapted to a larger area of the country than originally thought, and propagation by seed or vegetative means seem very feasible.

B. Plant Collection and Evaluation

One hundred and forty-one turf-type buffalograss clones were collected in Kansas in 1986. These were collected under both dry and wetland conditions. These will be transplanted to the field during 1987. An additional 82 buffalograss clones have been selected for additional evaluation from the 1985 plantings. These clones will be vegetatively increased into larger replicated turf plots. Ten clones have been identified as the best buffalograss plants in our program at this time.

C. Buffalograss Plant Breeding

During 1986, a seed increase planting and synthetic plantings were made. Seed will be harvested from these areas late in 1986 and again in 1987. Individual plant hybridization will be made in the greenhouse during spring 1987.

D. Mill Seeding Rate Study

This study has shown that the multiple noted caryopses can be efficiently removed from the hard to germinate buffalograss burr. In the field these hulled seeds germinate much more rapidly and at a higher rate than the burrs.