

The original statement of purpose of the USGA Turfgrass Information Center was to provide efficient and effective access to all published and processed materials reporting the results of research affecting turfgrass and its maintenance. Three goals were identified as necessary for the successful completion of the Project.

1. Michigan State University continues to acquire, maintain, and preserve all appropriate printed and processed materials reporting on research related to turfgrass growth, development, and maintenance.
2. Bibliographic access to the turfgrass collection is provided by on-line access to the Project's retrieval system. The Turfgrass Information File is housed in an ALPHA MICRO computer, using STAR software. Both the hardware and software work well. By June 30, 1986, 8,300 records were in the database.
3. Michigan State University Library continues to search telephone requests on demand and provide a custom bibliography to users, provide loans or appropriate photocopies for those needing access to the collection, and to finalize arrangements for direct remote access to the file, including software and documentation.

MICHIGAN STATE UNIVERSITY - Dr. Paul E. Rieke  
Principal Investigator

Hollow and Solid Tine Cultivation Effects  
on Soil Structure and Turfgrass Root Growth

1986 Grant - \$5000 [fourth and last year]

Hollow and solid tine cultivation effects as influenced by soil compaction and moisture content during cultivation were evaluated on the basis of soil structural qualities and root growth.

As expected, compaction resulted in pronounced detrimental effects on soil structure and root growth. Both cultivation methods resulted in positive and negative effects on soil structure. Cultivation increased the amount of large soil pores with hollow tine coring being the most effective in producing this response. Regardless of compaction level, solid tine cultivation increased the amount of intermediate sized pores when compared to hollow tine cultivation. Therefore, hollow tine cultivation produced the most beneficial changes in soil porosity.

Soil strength within the zone of cultivation [surface 2-3 inches] was reduced after cultivation. Initially, solid tine cultivation was more effective in loosening the surface soil than hollow tine cultivation, however this effect was reversed by the end of this study. Water conductivity rate dropped dramatically after cultivation,

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