

IMPROVEMENT OF POA ANNUA AND POA SUPINA FOR GOLF TURF

UNIVERSITY OF MINNESOTA
St. Paul, Minnesota

Dr. Donald B. White
Principal Investigator

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New materials were added to the program from Alabama, California, Texas, Rhode Island, and Minnesota. Several tall seeded accessions were collected in Northern Minnesota.

Severe drought and heat conditions resulted in identification of stress tolerant strains of Poa annua and Poa supina. Summer dormancy mechanisms were observed in several materials in the field. All these materials were collected, increased and established in a new field space planting.

Replicated plantings of 8 selections were established at 18 golf courses located in 16 different states for evaluation. Progeny testing is being conducted for heritability for materials up to the 7th generation from when received. Seed dormancy of up to 3 months was found in some biotypes. Stolons of Poa annua and Poa supina maintained viability throughout 24 weeks of cold storage. Chlorophyll (green color) was maintained in the dark cold storage in Poa annua for 12 weeks.

Poa annua was separable from Poa supina and pedigree relationships were distinguishable in some crosses and selfs. Papers on stolon storage, electrophoresis, reproductive biology in poas, and chemical suppression of flowering to maintain pure stands were or will be presented at Society meetings. Experiments demonstrated that Poa annua and Poa supina are resistant to the grass herbicide Sethoxydin.

The "floral pic" technique for isolation and control of crossing performed equally well whether the carbon sources were sucrose or fructose sugar. Approximately 1,000 matings and seed collections were accomplished with the floral pic technique and analysis of resulting data is underway. Analysis of data indicates that, with some biotype, more than twice as much seed is produced from sib crossing as with selfs or crosses. This information is extremely important to developing a seed production system.

Divergence - Incongruity (Barriers to crossing and hybridization) were found. The phenomena were found in materials that were collected from wide geographic areas. For instance, materials from Arizona will not cross with materials from western Canada and materials from New York did not cross as well as local materials with Canadian materials.

Twenty-seven different esterases* were found in 54 Poa annua biotypes while 23 were displayed by 10 Poa supina biotypes. the electrophoretic gels of the 64 biotypes displayed 46 different esterase patterns.

In addition to maintaining the vitality of the project, the work for 1989 will focus on seed production evaluations and problems and field evaluation of selected materials.

*Esterase -- any of a group of enzymes by whose action the hydrolysis of esters is accelerated.

Ester -- an organic compound, comparable to an inorganic salt, formed by the reaction of an acid and an alcohol.