

UNIVERSITY OF MINNESOTA

**Improvement of *Poa Annua* var *reptans* for Golf Turf**

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The project is on schedule for evaluation, seed production and introduction of five of the original eight superior lines of *Poa annua* var. *reptans* and *P. supina*. The seed production field established in 1990 at Pickseed West in Tangent, Oregon was harvested in July of 1991. Seed from these lines was allocated for a breeder's seed planting in Oregon and seeded golf course management plantings were established in Minnesota. The breeder's seed planting was seeded on October 12 and seed from this planting will be harvested and used in 1992 to increase the breeder's seed supply and allow for more widespread evaluation of the selections.

One hundred fifty selections were collected from 23 locations were added to the program in 1991; however, emphasis is being placed on *Poa annua* var *reptans* #42, #117, #184, #208, and #234 for further evaluation, naming and introduction. Selections #117 and #208 received the highest laboratory cold tolerance ratings while all five performed well over the winter in the field trials. Several new selections and F1 hybrids continue to exhibit characteristics that would qualify them for the next breeding cycle. Two selections exhibit truly exceptional color, density, and persistence.

The excised stem-mist emasculation (ES-ME) technique has been fully employed in the crossing program and has enabled completion of many difficult crosses this year. Seedling plants show more spreading vigor than vegetatively established plants. When progeny from the same parents were evaluated, stolons spread, on average, one third more on first-year plants compared to those on vegetatively re-established second-year plants. Fifty different crosses were performed to develop F<sub>1</sub> hybrids and over 2,000 offspring were evaluated. Several of these hybrids have superior characteristics and are uniform among plants. Several F<sub>2</sub> hybrids also show promise with improved vigor, density, color, texture, and uniformity. Selections #184 and #117 are superior parents for use in the production of desirable F1 hybrids. Surprisingly, interspecific crosses between *P. annua* (2n=28) and *P. supina* (2n=14) resulted in fertile and promising progeny. However, four of our plants, all of which are dense, dwarf, dark green, desirable plant types have only 14 chromosomes (1/2 the expected number). This could open the door to much easier inheritance research with *P. annua* and *P. supina*.

Three distinct flowering types, day neutral, cold + short day (spring), and short day were identified. Some crosses segregated to a 3:1 ratio of seasonal to day neutral habit which may indicate a simple single gene, two allele system of inheritance for spring flowering types. This information will be extremely valuable for future breeding efforts. Other research indicates that fourteen-year-old *P. annua* seed had 50% germination, demonstrating the potential value (or problems) of the current *Poa* seed bank in the soil.