

# PROGRESS IN DEVELOPING IMPROVED ANNUAL BLUEGRASS

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Poa annua is one of the most maligned of grasses. Most people consider it a weed of the first order that threatens their professionalism. It is interesting to note, however, that it makes up the majority of the golf turf in the northern part of the continent. It is one of the most ubiquitous (found everywhere) of grasses. It is circumglobal, found all over the world, in both the northern and southern hemispheres. It is found in the mountains and plains; it is found on isolated islands in the oceans; it is found in warm as well as cold climates. It is also one of the most adaptable of species. After all, what other grass will flower and seed when mowed at 1/8"; grow in sun or shade; grow in well aerated as well as poorly drained soils; will fill in any open spot in turf; will invade even some of the best of bentgrass greens within a few years. I don't know of any other grass that will do all those things.

Some of you know that I strongly support an ecological approach to turf management and have long been a proponent of doing a good job of growing annual bluegrass, if that is what you have. After all, if you have tried everything to get rid of it and it is still around, it has to be one tough customer. I think it appropriate: "If you can't beat 'em, join 'em".

Poa annua appears to have originated in the Mediteranean area; some think during one of the early glacial periods. It evidently has been spread by man where ever he went in the world. I suspect that it arrived on this continent with the settlers in the Virginia Colony around 1570. It is possible that it arrived even earlier than that with the Viking and/or Irish explorers some time between 800 and 1200 AD on the East Coast. At any rate, it has been here long enough to become naturalized.

Interestingly, it is difficult to find any truly annual Poa annua. It acts like a winter annual in the South, but it acts more like a biennial in the cooler situations. And, in most populations that I have seen there are substantial numbers of perennial types. One attractive thing about poa annua is that it is one of the most variable grass species and variability is what the breeder works with.

It is important to realize that we are talking about the first breeding cycle with poa annua ever. We are moving toward a 1993 target that we hope to meet with some very promising materials.

## Progress:

We now have small replicated samples of 6 perennial type annual bluegrasses and 2 Poa supinas (a perennial, possibly one of the parents of Poa annua) under evaluation at 18 golf course sites around the country.

It may be useful to describe the process we are following in developing improved types of Poa annua. Steps in the process include: 1) collection of either seed or plants; 2) evaluation of the collection for turf, pollination

and perennial characteristics; 3) increase materials that survive initial evaluation; 4) space plant progeny; 5) conduct self, sib and cross pollinations; 6) establish mowing and disease trials; 7) conduct hardiness and heat stress evaluations; 8) make selections and evaluate under a range of golf course conditions; 9) establish seed and vegetative production trials; 10) the process branches here, one branch recycling back into controlled crosses and starting over; the other moving materials into seed production and introduction of varieties.

We are currently into items 7, 8 and beginning into 9 with materials from our early collections and pollinations. One of the major hurdles will be seed production because many of the best perennial "poas" seed only one time during the year.

We have collections from Canada, Europe and about one-half of the states. We have found that some of these materials are highly self pollinated while others are highly cross pollinated. We have found that some of these materials will not cross with each other while others produce the most seed with sibling crosses. We have found self incompatibility and some male sterility. All of these are important to the breeder but are of no importance to golf.

We have found habits of growth that vary from very dwarf to very vigorous stolon producers. There are materials that maintain very dark green color with very little fertility while others are light green. Some selections have produced very deep roots with rootzone temperatures of 85F at night and 115F during the day for six weeks. We have found that stolons can be stored for at least 22 weeks at temperatures between 32F and 40F and produce strong rooting responses. Some of our selections appear resistant to dollar spot while others are not affected by algae.

The project is sponsored by the University of Minnesota and the USGA Research Foundation with additional support from the O. J. Noer Foundation and many golf course superintendents. The Poa annua breeding project is progressing very well toward its objectives.