

POA ANNUA CONTROL

By Norman Goetze

Department of Agronomy, Purdue University

Following the development of successful controls of crabgrass in turf, *Poa Annua* has become one of the most troublesome plant pests. It is particularly annoying whenever turf management is most intense, such as greens, tees and aprons. A practical control program will by necessity be based on a thorough understanding of the peculiar habits of the grass and how these habits influence its performance under various turf conditions.

Poa Annua is a species of the large genus of bluegrasses. Its name, *Annua*, would suggest that it is an annual plant. Some experiences have shown it to be a perennial plant, but most often it completes its life cycle in one year. It is further classified as a winter annual, which means that under undisturbed natural conditions the seeds would germinate in the Fall, the vegetative cycle would predominate in Winter and early Spring, and seeds would mature during longer days of late Spring and Summer. Unfortunately, golf course conditions are vastly different from normal and *Poa Annua* has been known to germinate at any time except during the middle of Summer. Most seedhead emergence and resulting death of vegetation occurs during late Spring and Summer. Changes in management can not effectively alter the re-opening cycle because such responses are influenced by day length.

In pure stands *Poa Annua* forms a dense cover, tolerates close mowing, and has a fast recovery rate. Its mid-summer failure in this area presents its use as a solid stand. When occurring in mixtures with bentgrasses and other bluegrasses, it is objectionable because its texture, color, density, and rate of growth are different than the desirable turf.

Cultural and mechanical controls have been relatively ineffective because of the rapid germination of more *Poa Annua* seeds in areas where the existing materials were removed. Some experienced turf men have been re-seeding bents or bluegrasses in late Summer before new *Poa Annua* germinates. They have been able to gradually reduce the severity of the infestation by these annual re-seedings.

W. H. Daniel has been a pioneer in the use of chemicals for selective *Poa Annua* control. His extensive testing of lead and calcium arsenate under a variety of turf conditions has clearly outlined the principles of the use of these materials. Bill has found that the arsenates are relatively immobile in the soil and will accumulate in areas near the point of application. When the young *Poa Annua* seedling roots reach the arsenate salts they pick up toxic quantities and develop characteristic yellowing before death. The delay in field results is thought to be caused by the limited root activity of the *Poa Annua* seedlings.

High soil phosphate levels tend to reduce the effectiveness of the arsenates and higher applications of the arsenates are required. If the soil phosphate level is unknown, Bill is suggesting 20 pounds of arsenate per 1000 sq. ft. If the effect is not too good during the first season, repeat applications of 5 to 10 pounds should raise the total concentration to an effective level. Higher concentrations contain excessive amounts of phosphates. Calcium accumulated at a weaker concentration. Consequently equal rates are most

effective prior to the period of most rapid germination, although no harmful period is known.

In the Fall of 1955 an intensive evaluation of 26 herbicides for *Poa Annua* control was initiated. The materials were applied at various seasons to determine their relative selectivity for *Poa Annua*. Gradually the number of promising materials was reduced because of adverse effects upon the bentgrass and bluegrasses or because of lack of *Poa Annua* control. We are currently testing five materials which offer real promise if we can learn to effectively use them.

Poa Annua control in putting green turf is a most difficult task because the closely mowed vegetation is ultra sensitive to certain oil emulsions. Four of the materials, Radox, Endothal, Trichlorobenzoic acid, and a substituted phosphoric amide are formulated as oil emulsions and may prove dangerous to greens. The possibility of using granules or pellets of these materials is currently under study. The fifth material, neburon, has looked quite good in earlier tests, but has not been consistent under all conditions. We are studying its action critically in the laboratory to learn more of the causes of its inconsistent action.

Endothal is the only material of the five under test that is currently on the market for turf use. It has the commercial name, clovericide, and is labelled for use on bluegrass turf. It can not yet be recommended for use on bentgrass greens. Repeated weekly applications are rather effective on clover and severely weaken the *Poa Annua*.

For the coming season, the materials commercially available will be lead arsenate, calcium arsenate, and endothal. For putting greens and other bentgrass areas, the arsenates are preferred. For larger areas of bluegrass infested with *Poa Annua*, endothal should be tried.

We only hope that more of the newer materials will be proven and available for your use in the near future.

— FROM THE GREEN BREEZE

GOLF FACTS THAT may have escaped you, forwarded by Leo Feser of the Orono golf course, Minneapolis, Minn. Orono golf course was the first public golf course in the state to have grass greens. First planting of bent grass on a golf course green was done in Washington, D. C., back in 1920. Woodhill and Interlachen were the first local courses to try bent greens. That was in 1922. The greens were a failure, though. The greenskeeper had to be a good horseman in the old days because all his mowers were pulled by horses. Minikahda was the first local course to use a power mower and that was a tractor-drawn rig. Toro Manufacturing devised the first tractor-drawn mower. The average golfer takes at least 50 steps on a green during the course of play. Multiply that by perhaps 200 players a day and you have 10,000 footsteps taken on a single green in a day. Some of the steps are taken in anger with spikes digging in and twisting. Many players throw burning cigarets on a green, too. Others toss clubs on the sensitive grass. If all the golf holes in the country were laid out end to end, tee to green, and were placed parallel to the nearest railroad track, you could start playing in Minneapolis, go west to Seattle, south to San Diego, east to Jacksonville, north to New York and back to Minneapolis and still have holes enough to play up to Duluth.