
TIMELY TURF TOPICS

from the USGA Green Section

POA ANNUA—FRIEND OR FOE?

By FRED V. GRAU

DIRECTOR, USGA GREEN SECTION

Annual bluegrass is best known by its scientific name, *Poa annua*, which, among golf course superintendents, frequently is shortened to "Po'anna." This grass has a number of remarkable characteristics which force us to place it in the class of desirable turf plants rather than in the weed category where it is placed so often. Let us review these characteristics, pro and con, and attempt to arrive at a logical conclusion.

PROS

Poa annua stands close cutting. It thrives at 3/16 inch on putting greens. It thrives in fairway turf cut at 1/2 inch.

thrives on compacted soils. The compacted condition of many soils under turf has destroyed most of the turf grasses which we try to grow.

..thrives in shade or sun.

..adapts itself virtually on a worldwide basis where moisture conditions are adequate.

reseeds itself naturally.

• produces a highly desirable turf for many uses so long as it is growing.

• is soft and easy to cut.

• has an attractive color.

.. thrives under continuous moisture.

CONS

Poa annua is an annual grass which disappears during extremes of heat or drought but returns spontaneously with the return of moisture and more temperate climate. The disappearance of *Poa annua* in summer is the only black mark against this grass where excellent turf in summer is needed.

It would seem that our desire to berate *Poa annua* and to class it as a weed is to admit our inability to grow a companion grass with it which will provide desired turf conditions when *Poa annua* is resting. It also represents our failure to modify the conditions which do not permit the growth of the turf grasses which we would like to grow. Perhaps the answer is a *dual* approach.

It is obvious that the demands of golfers to have *green* turf have greatly encouraged *Poa annua* by virtue of the large quantities of water applied to turf to "keep it green." Under natural conditions bluegrass, fescue and bent become brown during their resting stage when summer drought hits. The playing quality of brown turf is unimpaired, but golfers dislike brown, crackly grass so a water system often is installed. Once a water system is installed, the tendency is to use it to excess. Green committee chairmen have been known to say, "Why do we have this \$30,000 water system if we don't use it?" This is the first step to a *Poa annua* turf which, because it is poorly understood, is unsatisfactory.

With increased use of water, the soil is saturated most of the time and the grass must be mowed more often. Heavy machinery operating frequently on wet soil causes compaction by forcing the air out of the pore spaces. With reduced air in the soil, the perennial turf grasses disappear and *Poa annua* and weeds are free to develop unhindered by competition. When *Poa annua* produces seeds in early spring and the plants become yellow and die, crabgrass, knotweed and clover are the logical invaders. Then golfers protest about the condition of the course, forget-

ting that, in large measure, they have been responsible.

There never have been sufficient funds to conduct the extensive research needed to answer many problems induced by the demands of specialized uses of turf grasses. Part of our trouble today is inadequacy in our research program and in the service or extension teaching. Production of turf is a highly specialized form of agriculture, and it is therefore entitled to a legitimate share of funds for agricultural research.

We can cite many instances of nearly ideal combinations of *Poa annua* with other turf grasses. They suggest avenues of practical research which can be of lasting benefit to the millions of taxpayers who love and enjoy good turf. It is hoped that several experiment stations, working with the USGA Green Section, may make a coordinated approach to this national problem.

Modifying Soil Conditions

This approach to the *Poa annua* problem is direct, but we do not have the data on which to base definite recommendations. In general we know that, by relieving soil compaction by cultivation, and by aerating the soil to provide more natural growing conditions, we can do a better job of growing the turf grasses we would like to have. This principle is basic to all types of turf the world over.

To reduce *Poa annua*, it is necessary to reduce moisture in so far as it is practicable and feasible. *Poa annua* will not thrive when moisture is deficient, but we cannot control natural moisture.

Research in progress at present may help us to give better recommendations on modification of soil conditions. Meanwhile, we urge wider, more frequent use of soil-conditioning machines which aerate the soil but do not interfere with use of the turf areas.

Other Turf Grasses

Poa annua disappears when the soil becomes dry, when temperatures rise and when the grass finishes seeding. There are exceptions, of course. In Minnesota it may

be possible to hold *Poa annua* turf throughout the summer. In Washington, D. C., this is very unlikely.

What are some of the turf grasses that thrive under the same conditions as *Poa annua* grasses and that are at their best when *Poa annua* is at its worst, and vice versa?

1. **BERMUDA GRASS**: Bermuda is one of the best turf grasses in existence. It has been damned for its persistence and aggressiveness, but of such, good turf is made. Bermuda grass is not confined to the southern States. There are large areas of excellent Bermuda turf on the campus of Michigan State College at East Lansing. Isolated areas of Bermuda strains occur in New Jersey, Pennsylvania, New York, Ohio, Iowa and other northern States. A casual observation of these areas indicates that some strains are natural companions of the bluegrasses. It is a "natural" because, when the bluegrasses are weakest during the heat of the summer, Bermuda is at its best. On many Bermuda putting greens in the South, *Poa annua* is the natural invader in the fall when Bermuda goes dormant. Golfers brag about the putting conditions on these greens during the winter. At Pinehurst, N. C., considerable progress is being made in growing bluegrass in Bermuda fairways. In this direction, the possibilities of combining a winter-hardy, good turf strain of Bermuda with bluegrass for fairways, tees, lawns, and other purposes are very promising.

2. **ZOYSIA GRASSES**: Less is known about the Zoysias than about the Bermudas, but in general their characteristics are similar to the Bermuda grasses, both in habit of growth and in their ability to produce excellent turf. Among the Zoysias are many strains, some of which have good combining ability with the cool-season grasses. As yet there is no seed of Zoysia grasses, but there is a great possibility ahead in combining Zoysia with a cool-season grass such as *Poa annua*, bluegrass, red fescue, bents or others. At the Audubon Country Club, Louisville, Ky., the Zoysia tees fill with *Poa annua* in the fall and provide

nearly **ideal** playing conditions throughout the winter. In the spring when temperatures rise, the *Poa annua* disappears and the *Zoysia* assumes command. Its great drought- and heat-resistance makes it a valuable turf grass.

3. **ALTA FESCUE** : Experiments with Alta fescue as a fairway or tee grass have not progressed far enough so that we can recommend it for these uses. It appears, however, to have excellent possibilities in this direction, particularly if finer-bladed strains are developed through breeding and selection. It, too, has the drought- and heat-tolerance of *Zoysia* and Bermuda; also it is able to grow better than do most grasses in compacted soil and under an excess or deficiency of moisture. There are already a number of observations which would indicate that where *Poa annua* is a severe problem, trial plantings of Alta fescue might be made with considerable confidence.

4. **BENTGRASSES** : Among the turf grasses, the bents require the most highly specialized management. They usually will not, however, thrive under precisely the same conditions under which *Poa annua* thrives. Where the soil is too compact, bentgrasses cannot compete with *Poa annua*. Where the soil conditions are modified, bentgrasses offer much help in combatting *Poa annua* **because**, with careful management through the summer, they can be encouraged to occupy the soil completely when *Poa annua* is dormant or dead.

In our present stage of research with turf grasses, we cannot yet say which of these possibilities offers the greatest promise. Perhaps it may be a combination of grasses. Our great problem area today, so far as fairways and tees are concerned, is the great Middle Belt across the country commonly referred to as the "crabgrass belt." This is the area where the southern grasses have not been encouraged to move northward and where it has been extremely difficult to grow good turf of the northern grasses.

Happily for the future of lovers of good turf, a coordinated effort is being made to discover the principles of combining

northern and southern grasses and to learn to manage the combination for best results. Work of this nature at present is being conducted at the Beltsville Turf Gardens, at Purdue University and recently in the St. Louis district through the University of Missouri.

Assistance in this phase of the program is being rendered by the Georgia Coastal Plain Experiment Station, where northern strains of Bermuda grass are being bred with good turf strains so that the progeny can be tested in northern latitudes. Additional work is being carried on at Belle Glade, Fla., and is contemplated at Raleigh, N. C. It is anticipated that further work of this nature will be conducted at Michigan State College, Pennsylvania State College and other northern colleges.

Vegetative planting of highly desirable strains of turf grasses is very much in the picture today because the difficulty involved in producing seed of certain species is almost out of the realm of immediate possibility. Without a doubt, machinery designed for rapid, economical planting of vegetative material into permanent turf areas will be developed in the near future. It is essential to maintain turf areas so that they can be used continuously, even when a new species is introduced into existing turf. Considerable progress already has been made in this direction.

Let us not despair, then, of *Poa annua* as a turf grass. Let us learn to use it and encourage it where it deserves encouragement and where we are able to grow it on a base of a sturdy, summer-growing turf grass.

Not all of this practical research can be accomplished at experiment stations. It is the responsibility of the golf course superintendent on every golf course in the country to take advantage of samples of new grasses offered to him and to make trial plantings under actual playing conditions. This is research in its final form. It is the practical, applied phase of research.

Superintendents are urged to keep in close contact with their State experiment stations for developments along these lines. Through coordinated effort, the answers can and will be found to virtually every problem in the production of better turf.