

*James B. Beard*  
AUGUST 1984



# A PATCH of GREEN

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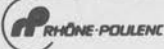


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**COLD INJURY BECOMING MORE APPARENT--**AS we continue into the summer months it is evident that many of the less cold-hardy plants suffered extreme winter kill from the 15 degrees F. to 25 degrees F. temperatures experienced this past December. Pyracantha, contoneaster, holly, rhododendron, ornamental peach and cherry--and the list goes on--are showing extensive injury. Symptoms vary, depending on the degree of injury. The more common cold injury symptoms include: a) dead plants; b) partially dead plants; c) individual dead stems; d) delayed leafing out; e) new growth suddenly wilting and dying with the onset of hot weather. This last symptom is likely to become very common in the next few months. (Excerpt from Purdue University, Plant Diseases No. 5) --C. STEPHENS, BOTANY 7 PLANT PATHOLOGY

### CORRECTING COLD

**INJURY DAMAGE--**If your plants suffered from winter injury, the following steps will reduce permanent damage to the plants involved: 1) Prune only the obviously dead or damaged branches. 2) Fertilize the damaged trees or shrubs with a complete fertilizer, such as 10-6-4. The fertilizer can be spread on the ground surface under the area where the branches extend (drip line) in the early spring so the rains will wash it into the root zone. 3) Winter-damaged trees and shrubs should be watered during dry weather thoroughly with a sprinkler, or use a root lance for deep watering. 4) Branch die-back may occur after growth starts in the spring. This is

caused by damage to the cambium, and these branches should be pruned out as they die. (Excerpt from Purdue University, Plant Diseases No. 5) --C. STEPHENS, BOTANY 7 PLANT PATHOLOGY

### FRIT FLY TO BE STUDIED IN OHIO

The frit fly, *Oscinella frit* (L.), is a small black fly often present in large numbers on golf courses and seen by golfers when it lands on white clothing or golf balls. Recognized as a nuisance to golfers, the frit fly larvae can and do cause damage to turfgrass, especially greens, collars, and aprons. Adults lay eggs that hatch into small maggots which tunnel into grass stems to feed on growing tissues. Little is known about the insect; in fact, it has never been studied on turfgrasses in the U.S. Research is currently underway to study the biology, seasonal life history and distribution of this pest on golf course turf. The work is being conducted by Mike Tolley, Ohio State University Ph. D. graduate student, under the guidance of Dr. Harry D. Niemczyk, Professor of Turfgrass Entomology at OSU's Ohio Agricultural Research and Development Center, Wooster. The project is being supported, in part by the Ohio Turfgrass Foundation.

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# Poa Annua Management or Control: The Superintendent's Dilemma

MR. STANLEY J. ZONTEK  
Director  
NORTH-CENTRAL USGA GREEN SECTION  
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One of the most difficult decisions facing the golf course Superintendent in the more Northern cool, humid parts of the country is . . . do you fight **Poa annua** or do you live with it? As early as 1948, Dr. Fred Grau, then the National Director of the USGA Green Section, published an article entitled, "**Poa annual-Friend or Foe**" Even then annual bluegrass was recognized as a type of grass that, when it is alive and growing, can be a true friend but, in the tradition of Jekyll and Hyde, when it dies, it can become an enemy.

The reason for this Love/Hate relationship is fairly easy to understand. **Poa annua**, but its very nature is basically a winter annual plant. That is, its seeds which are produced in the spring germinate in the fall and the new seedlings rapidly develop into a mature grass plant. Going dormant over winter annual bluegrass breaks dormancy early in the spring and later develops the profusion of seedheads that completes the life cycle for this type of plant. Thus, physiologically, after the seed-head production period **Poa annua** had completed its life cycle and is

ready to die come the heat and humidity of the summer season. Winter annual plants like **Poa annua** simply do not tolerate heat stress very well.

However, today's golf course superintendent by using a combination of management practices including proper irrigation, fertility management, pesticides, proper mowing procedures, soil cultivation to relieve compaction, etc., can more or less successfully help the **Poa annua** plant to survive the summer season making a winter annual plant into a biennial. As long as weather is moderate during the summer, a **Poa annua** maintenance program can be relatively successful.

All of this is well and good except for two basic weaknesses of annual bluegrass. They are, this grass' general inability to tolerate heat or cold weather stresses. **Poa annua** is the first of our major cool season grass species to winterkill. It also exhibits poor tolerance to summer heat stress. Therefore, the golf course superintendent in this part of the country is faced with several hard realities when he must deal with

CONTINUED PAGE 8



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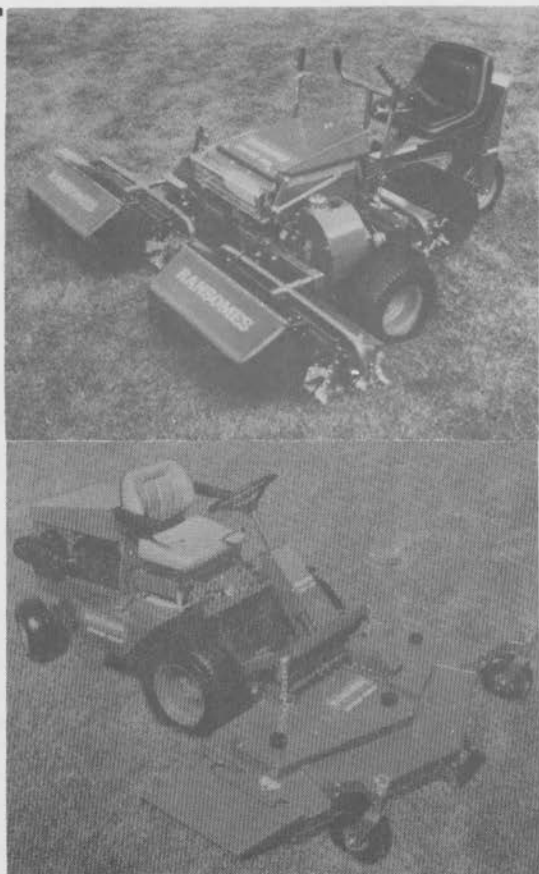
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Super Dilemma, cont.

**Poa annua** They are:

A) **Poa annua** is extremely prolific and aggressive so, if it is not already, it can soon become the principal type of grass especially on the fairways that the golf course superintendent has and therefore must either manage or work towards controlling. High **Poa annua** populations in a turf stand can be an inherited problem and a good case can be made to "live" with **Poa annua** especially if it already predominates in a turf stand.

B) Until recently, there never really was an totally effective, inexpensive or entirely controllable means of **Poa annua** control. There still may not be any program that meets all of the above criteria, but even a few years ago, **Poa annua** control on large acreages of turf was not all that practical. Realistically, then, there truly was no effective means of **Poa annua** control and many good turf managers have had no choice but to live with **Poa annua** in the absence of an effective control program.

C) By accepting the reality that the majority of the low cut, in play turf on the golf course is **Poa annua** the golf course superintendent faces the real

possibility of losing all or part of this annual bluegrass turf either through winterkill or loss during unusually hot summers like the record breaking summer of 1983. Other factors such as water restrictions, irrigation pump failures (which are of lessor concern on permanent grass golf courses), now become critical factors in the survivability of **Poa annua** on that golf course during the summer stress period.

Unfortunately, even the most competent golf course superintendent has no real control over such factors as a record breaking heat wave, extended dry spells, pump or irrigation well failures, local restrictions on water usage, winter injury from desiccation, ice damage, crown hydration, etc... all the factors that can contribute to **Poa annua** turf loss, often regardless of the efforts of the golf course superintendent, his crew, budget of the golf course or all the other work that was done to help keep **Poa annua** alive. When conditions "right", **Poa annua** can die.

It is a hard fact that **Poa annua** does not tolerate extremely hot or cold temperatures. When these extreme temperatures arise, especially during extended periods of time, **Poa annua**

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can and will be killed . . . sometimes you can't do much to prevent or avoid it. This is where the golf course superintendent with a lot of **Poa annua** on his golf course wishes he didn't have it!

D) The vast majority of golfers don't know and most probably don't care what type of grass is being grown on that golf course. They only know that when the turf is green, it must be alive and all is well with the golf course superintendent and his turf management program. On the other hand, if some **Poa annua** is lost and the grass is dead and brown, then something must be wrong with either the grass or the care that the grass has received. This may be over simplistic a bit, but one reality is that the golf course superintendent is responsible for the turf quality on the golf course and if that quality isn't good, then the average golfer wants to know why and, if there is a problem, how to best control it.

#### PRO ANNUA CONTROL

Summer just like the one just experienced where substantial losses of predominant **Poa annua** turf occurred renews the debate of **Poa annua** main-

tenance or control. Do you live with it or do you try and control it? It is interesting that you almost never hear this question following a good year with little or no **Poa annua** turf loss. Stressful years, be it winter injury or a hot summer, brings on the debate.

Fortunately, for the first time in some years, the golf course superintendent has some workable alternatives to either maintain or control annual bluegrass. New techniques, chemicals and equipment which will be discussed later in these proceedings are now available to give the golf course superintendent and his membership some relatively clear cut choices to make on whether or not to live with all of the strengths and weaknesses of **Poa annua** or to begin programs to suppress and hopefully eventually control **Poa annua** from large turf areas, including and especially on fairways.

These new control programs center around some new growth regulating materials like Rubigan (a combination fungicide/herbicide), EL-500 (a growth regulator to be marketed as Cutlass)

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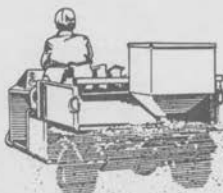


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#### Super Dilemma, cont.

and Embark (another growth regulator), plus other new compounds including Prograss.

Old materials including the arsenicals are also returning to the market. The pre-emerge herbicides continue to have their place in suppressing **Poa annua** seed germination. Finally, and perhaps as important as any of the above, is the use of solid management practices including good soil aeration, irrigation, fertility, seeding along with some of the before mentioned chemicals and the use of lightweight mowing equipment and clipping removal. This final kpoint is important. Today there is conclusive evidence that the use of lightweight mowing equipment and clipping removal contributes to an increase in permanent grasses especially bentgrass in combination/**Poa annua** fairways. All of the scientific reasons for this phenomenon are not clearly understood but the fact remains, where golf courses have adopted this program along with a sound overall fairway management program, the population of bent increases and the amount of **Poa annua** decreases. It is a fact!

Therefore, the golf course superintendent and his club officials for the first time in many years has an effective program (it will take some time and money as there are no overnight cures) to suppress and substantially control **Poa annua** on fairways. Today it is possible to control annual bluegrass with combinations of equipment, clipping removal and management program on fairways along with the use of good management and some of the now or old chemicals on greens . . . also to achieve **Poa annua** suppression and control.

#### POA ANNUA MAINTENANCE

Some of the new management programs to be discussed by our distinguished panelist superintendents deal with **Poa annua** maintenance. In this part of the country, an excellent case can be made for maintaining and accepting **Poa annua** as the predominant turfgrass species especially on fairways. Since the publishing in 1978 of **Research Report No. 352, ANNUAL BLUEGRASS (Poa annua L.) Description, Adaptation, Culture and Control,**

from the Michigan State University Agricultural Experiment Station, East Lansing, Michigan 48823, we now have a much clearer understanding of what **Poa annua** is along with all of the strengths and weaknesses of this type of grass. Even though **Poa annua** is grouped together as one species, the research report shows a number of sub-species and generally highlights how much we really didn't know, but how much we now do better understand the annual bluegrass species. If you don't have this bulletin, and you are interested in either **Poa annua** maintenance or control, you should acquire it from the above address. It contains a wealth of information on annual bluegrasses never before published. Perhaps by reviewing this information, the golf course superintendent can adjust his management program to accent its strengths and work towards minimizing **Poa annua's** weaknesses.

Some of these programs to help maintain **Poa annua** include:

A) A good soil aeration and cultivation program. **Poa annua** or any other grass species does not grow well in compacted soil. Its rooting systems are restricted by this tight soil. Therefore, good soil aeration allows for a deeper and more fibrous rooting system and this generally makes for stronger grass plants regardless of the species and a better all around environment for the stronger and healthier growth of the grass plant.

Programwise, depending upon the soil type and amount of compaction present, two to four aerations per year may be in order. It is also interesting to note that we are now seeing more and more golf course superintendents using putting green aerators on their fairways. These machines seem to punch more and deeper holes besides bringing up more soil which acts as a topdressing. This operation is extremely slow and laborious, but the results to date have been excellent.

Finally, soil cultivation especially early in the fall during this peak seed germination time for **Poa annua** can help to stimulate seed germination to fill-in any voids resulting from the summer season and to generally rejuvenate the

CONTINUED PAGE 15

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#### Super Dilemma, cont.

stand of grass. Thus, to encourage **Poa annua**, it is advisable to aerate, slice and to cultivate the supper soil layer early in the fall.

B) A good irrigation program. Such things as withholding irrigation early in the spring in order to encourage a deeper rooting system is always a good idea. Then, once irrigation does begin, try and apply light and more frequent applications of water **never** flooding or over saturating the soil (this can shorten the roots). Then, when air temperatures rise above 83°-85° F or when the first moderate wilt appears, begin lightly syringing the grass. The key here is to apply just enough water to cool the leaves of the grass plant. One turn of the sprinkler head should do it. In reality, there really is no reason to apply any more water during a syringe. It is a cooling operation. Obviously, an automatic irrigation system with a good syringe cycle is an indispensable tool to have available when you are attempting to keep **Poa annua** alive during the summer stress season. It should be stressed that good water control must be exercised, never under irrigating nor over irrigating the turf. They both are equally as bad.

C) A good fertility program. One of the natural tendencies of **Poa annua** is to develop an extensive rooting system in the thatch layer during the summer. These surface or adventitious roots can be the primary water and nutrient absorption sites of the **Poa annua** plant during the summer stress season when the roots of annual bluegrass are extremely shallow anyway. Realizing this, the golf course superintendent should plan on applying light (1/16th to 1/4 pound) applications of fertilizer periodically during the summer. The key element here is to apply light rates (you don't want to over stimulate the grass) of fertilizer whether it is a liquid application or a granular fertilizer that has enough bulk (low analysis, high bulk fertilizers like Milorganite are an option) to be effectively spread at these light rates. Also, it seems advantageous to apply more than just nitrogen alone. All the other micro and macro nutrients, especially iron, are also required. The idea is to supply the annual bluegrass

plant with just enough plant food to keep it growing at a reasonable rate and to avoid nutrient deficiencies during the time of the year when its rooting system is extremely shallow. One way to observe this is to note the color of the annual bluegrass. If it is a dark green color, then nutrient deficiency is not a problem. If it begins to lose color and becomes a chlorotic yellow/green color, then you know that either nutrients are deficient, the grass plant is under stress or disease is active. A careful summer fertility program thus can help avoid the problem of chlorosis and perhaps can help keep the **Poa annua** growing stronger and healthier during the summer season which makes it naturally more resistant to diseases as well as other types of stress.

D) A good pesticide application program. It should go without saying that to help keep the predominantly **Poa annua** stand of grass alive during the summer, a good chemical application program is required. Insects like the **Ataenius** Beetle grub, Japanese Beetle grub and for the first time this year, Cutworms and Sod Webworms can and will cause damage to the turf. Fortunately, there are any number of good insecticides to control these problems both as a quick-kill and also as long residual insecticides.

Fungicides also need to be applied to control diseases such as Dollar Spot, Brown Patch, Pythium Blight and Anthracnose when these diseases are active. Remember, use management practices like aeration, balanced fertility, proper irrigation and a good mowing program to grow a strong grass plant that could be naturally more resistant to plant diseases . . . but when these diseases are present, then plan on applying the proper pesticides at the correct rate in enough water for good coverage and thus good control. It should also be pointed out that some of the newer classes of pesticides like Bayleton, Subdue, Banol, Rubigan, etc. probably work better as preventative materials vs. curatives. Also, as with any good fungicide application program, be sure to alternate materials between systemics and contacts. This helps to avoid fungal resistance problems besides ap-

CONTINUED NEXT PAGE

#### Super Dilemma, cont.

plying occasionally a good general biocide.

E) A good general management program. Remember common sense points such as not cutting during the heat of the day (cut in the early morning or better yet, cut during the late afternoon and evening), correcting drainage problems, proper mowing heights and using lightweight mowing equipment. This final point needs to be emphasized. It is becoming very clear that heavy mowing equipment, for a variety of reasons, places extra stress on the **Poa annua** plant. Where lightweight mowing equipment has been used on predominantly **Poa annua** turf, this annual bluegrass, seems to tolerate the summer heat stress better. This is an observation on this author's part but during this difficult summer season, on fairways where lightweight mowers were used, the annual bluegrass held up better and experienced significantly less turf loss than on fairways at other golf courses where heavier equipment was used.

It should be pointed out that when you want to maintain **Poa annua**, clippings need to be necessarily removed. They can and it is beneficial to remove them, but it is where there is a desire for a conversion from **Poa annua** to bent fairways that clippings must and should be removed. Solely for **Poa annua** maintenance, clipping removal is optional.

F) Public Relations. As mentioned earlier, the average golfer probably doesn't know what type of grass there is on the golf course. Therefore, it should follow that it is in the best interest of the golf course superintendent to communicate clearly what is the goal of their golf course management program for specific turf areas including fairway maintenance. This can and perhaps should be written out and understood by the Committee structure within the club. If it is the goal of the club to live with **Poa annua**, then this should be clearly stated along with the realization that there are weaknesses with this type of grass plant and there is the real possibility that turf can be lost over the winter or during the summer just because of the genetic weaknesses of

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annual bluegrass and **not** necessarily due to a poor management program. In my opinion, this is a key point. It should not be the decision of the golf course superintendent alone to live with or attempt to control **Poa annua**. It must be part of the long range golf course management program and accepted and understood by all parties involved. On the other hand, if after considering all of the pros and cons and there is a desire to control **Poa annua** and accepting all that is involved with this type of effort, then this, too, should be a part of the long range goals and plans for the golf course.

Thus, in the pure sense of it all, the decision on **Poa annua** management or control should not be the decision of the superintendent alone. Too much is involved one way or the other. Obviously, the superintendent should have substantial input into this decision because he is the professional in charge of the turf on the golf course. However, in the end, the decision should be a joint one and then once the commitment has been made for either **Poa annua** control or maintenance . . . the commitment should be carried through to completion. You just can't ride the fence when it comes to **Poa annua** maintenance and control. If you want to maintain it, then you should do everything possible to keep it alive. If you want to discourage it, then you should do everything possible to encourage the growth of other grasses.

In conclusion, for the first time in many years, the golf course superintendent and his course have some viable alternatives to either live with or to control **Poa annua** on the golf course. No program is totally foolproof but in comparison to only a few years ago we as an industry have some a long way in developing program, equipment and chemicals to do a better job of either controlling or living with **Poa annua**. However, in the final analysis, this decision should be more than the golf course superintendent's alone. It should not be his dilemma. He can and should have club backing and understanding of what it to be done and a commitment to do it. In this way, **Poa annua** management or control becomes the super-  
CONTINUED NEXT PAGE



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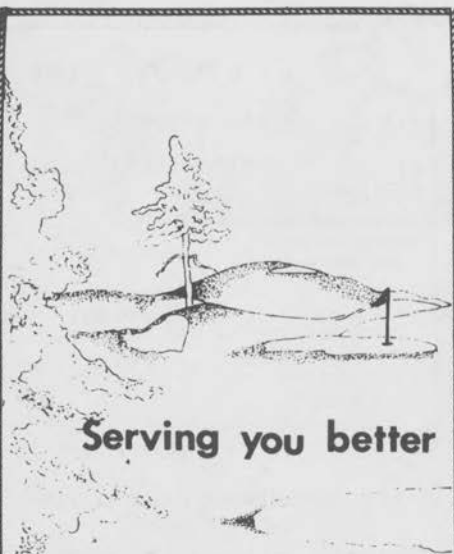
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**Super Dilemma, cont.**

intendent's and the club's dilemma, decision and goal. With what we know today, along with the tools available, **Poa annua** maintenance control or maintenance is not really a dilemma... it is a choice.

**CREDIT:** The proceedings of the eighteenth Annual Wisconsin Golf Turf Symposium, Milwaukee, Wisconsin, October 26-27, 1983

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