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President's Message

April is a month of frenzied activity for golf course superintendents. Not only do the normal maintenance activities have to occur but also clean-up from the ravages of winter and the possibility of having to finish projects that were started last fall, add to the endless list.

It is also the first scheduled golf event of the season for MAGCS. I would like to take this time to remind everyone that many of the clubs we visit have dress codes for their members. We as invited guests are expected to conform to these rules. At most clubs the very minimum requirement is slacks and a sport coat. There are some meetings where special circumstances dictate more casual attire and some clubs may request a tie as well as a coat. Meetings with special requirements will be noted on the announcement card sent out prior to each meeting date.

In February MAGCS participated in the Chicagoland Flower and Garden show at the Rosemont Expo Center. Due to unusual circumstances this was put together rather quickly but it still met with some success. In addition to manning an informational booth on home lawn maintenance, we were also co-sponsors of a charity miniature golf hole. Participants, for a few of two dollars got three chances to make an uphill putt of approximately thirty feet. A successful effort was rewarded with a fifty dollar gift certificate to a local restaurant. All participants were given a ten dollar gift certificate. All proceeds were donated to the American Heart Association in our name along with two other co-sponsors.

Our efforts in this endeavor cost us nothing except the time put in by our members. Those that participated felt we achieved a lot of good publicity. It was felt that with some more advanced notice in the future we could do a much better job and make this a real plus for the Association.

One final note on the flower show. One of the most interesting comments I received was from a lady guest. She told us that the superintendent from her club was the best in the world. Bruce Serling (sic) Sering from the Glenview Club. I guess she just had Bruce mixed up with Rod Serling from the Twilight Zone; a common mistake.

Director's Column



Staying with the Times

by Joel Purpur, River Forest Golf Club

Advances in modern technology are definitely modifying our profession, but are we as Superintendents changing with the times?

Over the past ten years we have implemented many new strategies due to technological advancement in areas from new equipment to pesticides. Ten years ago public perception of pesticide usage on golf courses was not a major issue, but today it is front page news with an unsettled future. We must stay well informed on all current topics and prepare for future issues.

With more and more members playing at clubs throughout the country, they will continue to try and bring new ideas home. Some of these ideas may have a place at your home club, but others may be better left where they originated. If we stay current with new trends and research them properly, we can either implement a new idea with many of the rough spots ironed out right off the bat, or convincingly defend our ground and continue current methods. We know each course has different conditions and limiting factors, but our committees may not and must be informed of all consequences to assure their confidence in us professionally.

Attending local and national seminars are prime opportunities to stay up to date as the hot topics are usually on the program. If topics are not formally presented, someone with expertise is usually in attendance for one on one questioning.

Sometimes I think we occasionally pre-judge a topic or speaker and may visit a trade show or take a break only to miss out on valuable information and ideas. Even though many charts and graphs in a presentation can be somewhat dry, most of the time that is where the most important points and comparisons are spelled out for us from years of research, which can directly affect maintenance programs or how effectively we use our budget dollars. But put up a slide of some hairy disease symptoms and everyone is on the edge of their seat!

Attending local association meetings is also very important. Some form of education is usually on the agenda. Even though the actual education portion of the meeting may be less than an hour, conversation with fellow superintendents talking shop is also valuable.

University field days give out a wealth of up to date information as well as updates on new experiments and future issues. Even though sometimes it can be tough to get away, try and make it a priority.

Take advantage of our trade magazines which we sometimes take for granted. Even though technical articles are not real exciting all of the time, I try and make it a point to read at least one article a day which doesn't take much time or get boring.

With rapid advancement in biotechnology, chemical and mechanical engineering, who knows where we'll be ten years down the road. In these times of change, we must change with the times by taking advantage of all the opportunities to stay well informed.

The Cause of Black Layer in Golf Greens: An Alternative Hypothesis

by L. L. Burpee, The Guelph Turfgrass Inst.
and A. Anderson, The Ontario Ministry of
Agriculture and Food

Over the past several years, dark-coloured layers have been observed in the profile of many golf greens throughout North America. These layers, which impede root penetration, may form anywhere from 0 to 10 cm or more below the surface, and they are usually associated with conditions of high soil moistures. At least two hypotheses have been proposed as explanations for why "black layers" form. One hypothesis, formulated by Dr. Clinton Hodges of Iowa State University, focuses on algae and their mucilaginous by-products as causes of poor infiltration of water through "black layers". A second hypothesis, proposed by Drs. Branham, Rieke and Vargas of Michigan State University, suggests that the "black layer" is composed of insoluble precipitates formed by the reaction of hydrogen sulfide with metal ions. The hydrogen sulfide is produced by anaerobic bacteria that proliferate under conditions of low oxygen (i.e. high moisture).

Elements of both hypotheses may explain the biology and chemistry of "black layer", but what about the physical properties of the layer? Surely a unique physical environment must develop before algae and/or anaerobic bacteria can proliferate. Therefore, we propose that the origin of "black layers" can be traced to the movement and accumulation of silt and clay particles into distinct strata within the profile of a golf green. The silt and clay originate from sand topdressing that has not been washed and screened properly. The layers of fine particles create a perched watertable resulting in poor water infiltration and the possibility of waterlogged conditions developing within the layer(s). These conditions of high moisture and low oxygen provide an excellent environment for the growth of the bacteria and algae referred to in the first paragraph.

This summer we will be conducting an OTRF-supported research project to determine if "black layers" are associated with strata that contain a high concentration of silt and clay particles. The objectives of this project are: 1. To identify the physical properties (e.g. particle size distribution, bulk density, pH) of "black layers" in golf greens; 2. To compare the physical properties of "black layers" with the physical properties of strata that lie above and below "black layers"; and 3. To attempt to correlate the formation of "black layers" with the concentration of silt and clay in topdressing materials.

Credit: Greenmaster July/August '87

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1988 Golf Tournament Houston, Texas

by Ed Fischer, CGCS

Those of us who played in the GCSAA's 1988 golf tournament in Houston, Texas were treated to four great golf courses. Each of the courses had its own distinct characteristic, ranging from the very difficult TPC course to the less difficult courses of the Kingwood Country Clubs, Marsh and Lake courses and let's not forget the North course at the Woodlands, which I am told was possibly the best course of the four.

The hospitality of the Texas Superintendents was great, from the Bull sessions, to the get acquainted party held on Super Bowl Sunday. Those of who haven't played in this tournament start saving your pennies for next year, when we play some of the great courses in the desert of Southern California. I can't begin to tell you how much fun you will have, the competition on the golf course is really secondary, to the good times had by all. If you don't make plans to take part in the tournament in Palm Springs next year you are making a big mistake.

1988's winners were:

- Al Pondel, net winner of the Green flight
- Brad Johnson, gross winner of the Red flight
- Bill Kraft, net winner of the Seniors II flight
- Dudley Smith, 3rd place net Seniors II flight
- Randy Wahler, 6th place gross Black flight
- Tim Davis, 4th place net Black flight
- Ed Fischer, 5th place net Black flight
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Tim Davis, Ken Goodman, Craig Marifia, Ed Fischer P. S. We also had a D.Q. amongst us!!!

Prayer Breakfast Pictures from Houston



Guest speaker, Mike Adkins and John Ebel



Tim Kelly addresses the group

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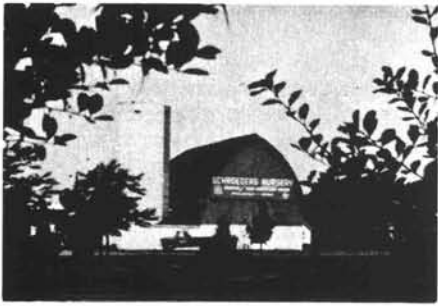
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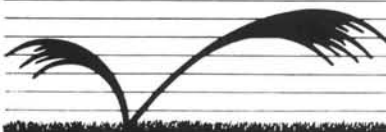
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Houston GCSAA Equipment Show Pictures



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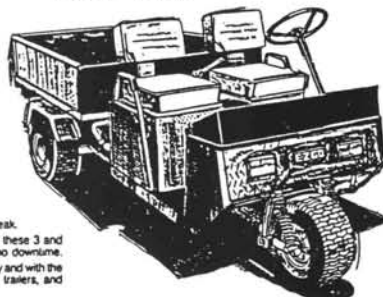
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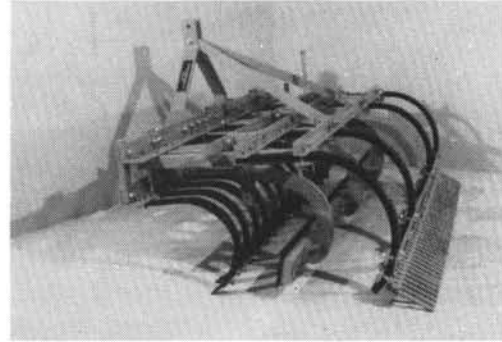
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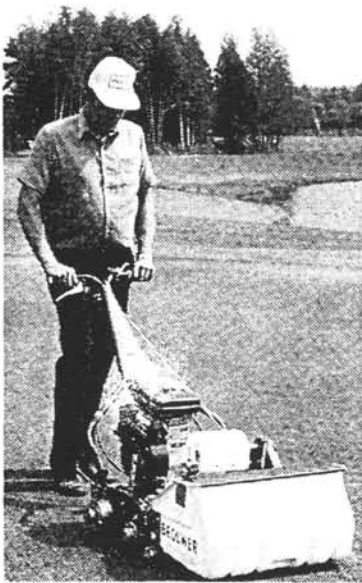
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New Chemical Weapons for Fighting Poa Annu in Bentgrass Polystands

by Dr. R. T. Kane, Turfgrass Advisor
Univ. of Illinois & CDGA

Use of new growth retardants and herbicides to reduce **Poa annua** competitiveness in bentgrass polystands is rapidly gaining momentum on Chicago-area fairways. Many superintendents are now including applications of the growth retardant paclobutrazole (Scott's TGR) in fairway **Poa** control programs. Many have also experimented with flurprimidol (Elanco's Cutless), and with the herbicide ethofumesate (Nor Am's Progress).

Results so far have been highly variable, since unusual weather (heat, heavy rains) and poor growing conditions have injured treated **Poa annua** and other fairway grasses. Everyone should realize that these chemical products are still in early developmental stages, and many factors for their successful use have yet to be determined. For example, different application rates and timings will be used at area courses because of variations in growth response due to climatic differences, soil type and drainage differences, biotypes of grasses involved, shading, etc.

Gradual conversion of **Poa**/bent fairways and maintenance of high percentage bentgrass populations are the goals of fairway management programs which incorporate the use of retardants and/or herbicides. Generally, this means a 3 to 5 year program that must also include the use of other management strategies such as triplex mowing and clipping removal, regular intensive aerification, balanced fertility, reduced irrigation, and overseeding. Also, there should be a minimum of 50-60% bentgrass already present before beginning a gradual conversion program, otherwise extensive losses of **Poa annua** may make playing conditions unfavorable (=intolerable).

Growth Retardants

Although they differ in chemical structure, both TGR and Cutless have the same mode of action in plants. TGR is a triazole derivative similar in structure to the fungicides Bayleton and Banner, while Cutless is classed as a pyrimidinemethanol, along with the fungicide Rubigan. These products reduce leaf growth rates and affect other metabolic processes in plants by interfering with gibberellin synthesis. Gibberellins are plant growth hormones that influence cell elongation and shoot growth. Root growth appears to be less affected by these gibberellin inhibitors.

Cutless and TGR may prove useful in bentgrass conversions, since **Poa annua** is much more sensitive to their growth reducing effects. However, timing of application is important to maximize these effects and to promote bentgrass dominance. Generally, early spring and early autumn treatments are recommended, when soil temperatures are in the 55 - 75°F range and plants are under low environmental stress. Late spring applications should be avoided, since early hot spells (as in '87) may result in excessive injury to treated turf. Also, late fall applications should be avoided since little bentgrass encroachment will occur under cool temperatures and shorter day lengths.

Yellowing and stunting are the responses most often observed on **Poa annua**, with treatment effects lasting up to 6 weeks. The length of the inhibition period may vary depending on application rate, weather, and other factors. Also, **Poa** seed heads can be suppressed (but not eliminated) by TGR and Cutless,

(cont'd. on page 10)

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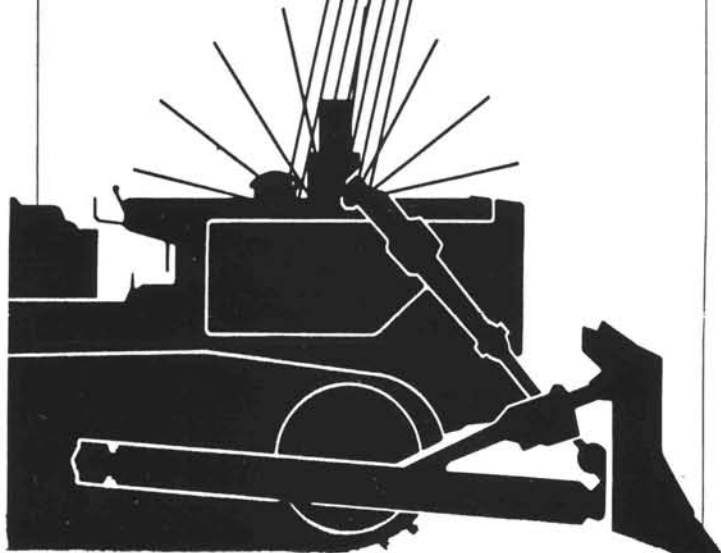
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with appropriate application timing. Yellowing of **Poa** can be offset in some cases by iron applications, but after all, yellowing and stunting are expressions of the desired plant growth retardation. Lower application rates should be tested when yellowing or stunting of **Poa** is too severe.

For the most part, mature bentgrasses are unaffected by TGR and Cutless, although some stunting or yellowing has been reported. However, bentgrass seed germination and seedling establishment are greatly reduced by these products. If overseeding with bentgrass is included as part of the program, timing of growth retardant applications and overseeding becomes critical. For TGR, 6 weeks before or 2 weeks following the fall application is the recommended timing for overseeding with bentgrass. TGR has a short half-life in soil, so seeding 2 weeks after treatment may be the best route, since little or no possibility of phytotoxicity to the bent seedlings exist. I have no information on a seeding interval for Cutless, but this product does have a long residual in soil and is toxic to bent seedlings. Therefore, bentgrass overseeding may not be a viable alternative.

Use of growth retardants also influences the timing of other management practices, especially aerification and verticutting. These activities should be scheduled so that recovery is achieved before growth retardants take effect; for example, aerifier holes should be allowed to close somewhat before treatment with a growth retardant.

As mentioned previously, variability in response to applied growth retardants has raised concerns about usage rates, timing, and expectations as to turf quality post-treatment. Soil type, organic matter, thatch accumulation, and biotype of **Poa annua** can all contribute to variable responses, aside from inclement weather and incorrect application rates. Soil parameters are a special concern with TGR, since it is primarily root absorbed. Lower application rates of TGR are required on sandy, porous soils, while higher rates are in order on high organic matter soils or on thatchy turfs.

Also, the health and stress tolerance of the turf to be treated has to be considered. Treated turf has a reduced recuperative potential, so excessive wear can lead to thinning and loss of cover. Also, high temperature stresses that occur during the period of greatest growth regulation can cause outright death of **Poa annua**, as was observed in spring of '87. Finally, weak or shallow rooted bentgrass is also more sensitive to plant growth retardants and should not be treated.

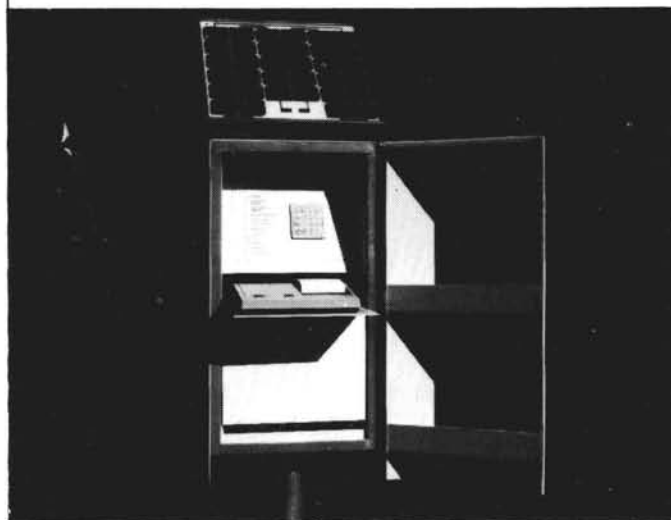
Herbicides

At present, only two or three herbicides are recommended for **Poa annua** control on bentgrass fairways — primarily Betasan (bensulide) and Prograss. Betasan has only pre-emergence activity on **Poa annua**, and is therefore of limited utility in converting fairways to bentgrass. On the other hand, Prograss has both pre- and postemergence activity against **Poa**, and has good selectivity toward bent, rye and Kentucky bluegrasses. Prograss is currently registered for use on fairways, and is being tested on putting greens.

Prograss applications are recommended for late summer and into fall, with multiple applications at low rates (3/4 lb. per acre) suggested. Prograss is absorbed by both foliage and roots of **Poa annua** and is active in soil for up to 6 weeks. Symptoms of Prograss toxicity on **Poa** include yellowing, thinning, and

(cont'd. on page 14)

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