

Vol. IV, No. 2

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March, 1975

#### MEETING NOTICE

Date: March 20, 1975

Place: The Stanwich Club, 888 North Street, Greenwich

Cocktails: 12 noon Luncheon: 1 PM

Program: 1. The new pension law-Specialist in the field.

2. The IRS (Income Tax) and the Superintend-

ent-Public Accountant.

There will be two speakers who will cover the above subjects. It should be of interest to all. Our Insurance Agent, Morrissey Associates will also be

in attendance.

Our Host: Ray Twombly

Please return post cards which were mailed with February issue of Tee to Green, or call Ray Twombly 203-869-1812. You may sign for luncheon and drinks.

Directions - Take Merritt Parkway to North Street Exit, take North Street north to The Stanwich Club which is on the right.

#### COMING EVENTS:

Rockland C.C. Ron Boydston April 29

May 20 Quaker Ridge G.C.

June 19 Pelham C.C. Terry Mulligan

tentative - Winged Foot or Century July

MGCSA family picnic August

September Superintendents Invitational, Fenway G.C.

October 17 MGCSA Field Day, Westchester C.C.

November Annual meeting December Christmas Party

#### WELFARE:

We are trying to make more rapid contact with members who are ill or hospitalized, births etc. Please contact Richard Gonyea, welfare chairman or Dan Cancellieri or Roger Morhardt. We must hear from you to be effective.

#### SYMPATHY:

The MGCSA extends are sincere sympathy to the Vadala family on the passing of Bruno's father.

#### NATIONAL NEWS GCSAA:

Palmer Maples Jr. CGCS was elected President of the GCSAA at the annual meeting in New Orleans. Richard Malpass was elected Vice President. The following were elected to the board of directors: George Cleaver, Gordon Witteveen and Louis D. Haines. Remaining on the board are:

Mel Lucas, Charles Tadge, Ted Woehrle and past President Charles Baskin.

Those who did attend the 46th annual Turfgrass Conference and show were treated to an excellent educational program under the concurrent sessions which were offered for the first time. It certainly was a varied program which gave you an opportunity to choose the lecture you wanted to attend. The Exhibitors had one of the best facilities we have ever had. Although total attendance was down slightly, more superintendents attended than at any other previous Turfgrass Conference and Show. The preconference Seminars also were excellent and many from our area attended: Bob DePencier. Ron Boydston, Harry Nichol, Bob Alonzi, Joe Alonzi, Mike Maffei, Sherwood Moore, Garry Crothers. We're hoping to bring a Seminar to this area later in the year. For those who have not attended one, they are certainly well worth it. It is hoped that in the near future seminars will be a part of the certification program. If you pass the seminar it will be a credit toward certification.

#### CONGRATULATIONS TO TED HORTON

Ted became certified by taking the test prior to the national conference. Woodie also took the test after the conference and the results are not known yet. To date about ½ the persons taking the test have not passed on the first attempt.

#### JOB WANTED: Groundsman or Cartman

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#### MEMBERSHIP DUES ARE DUE BY MARCH 15TH.

#### SOME THOUGHTS ABOUT FUNGICIDES By Ted Horton

Essentially, two types of fungicides can be used—Systemic and Contact in nature and each type has its advantages and disadvantages.

Dr. Richard Smiley, Turf Pathologist at Cornell University presented a paper last month at the Cornell Turfgrass Conference which I would like to briefly outline for you. The



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Ted Horton	Co-Editor

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Not copyrighted. If there is good here, we want to share it with all chapters — unless author states otherwise.

purpose of the paper was to "expand our knowledge of the systemic fungicides and to help us understand why specific methods of application must be used for their efficient use." The paper impressed me and I would suggest that you try to get a copy if possible.

#### Systemic vs. Contact Fungicides

Contact fungicides such as Dyrene, Daconil, Thiram, Fore and others are sprayed onto leaf blades to prevent fungi from infecting the turf. The contact fungicides must be reapplied frequently to protect newly emerging portions of the leaf. Spray which is not uniformly distributed over the leaves still provides a point of entry for the fungi. These protectant chemical seldom kill the fungi which have penetrated the leaf, and they are therefore inefficient against the spread of existing infections. They are generally effective against a wide range of pathogens but they do not protect the root and crowns of the turf. Contact fungicides act by poisoning energy production processes. They are formulated so that they will not enter the plant tissue, because if they did, they would be as toxic to the plant as they are to the fungi on the surface.

The systemics differ in chemistry from the contact fungicides. They are designed to be absorbed by the plant. They work by inhibiting biosynthesis processes in the cells and can be used effectively only because fungi have higher metabolic rates than turfgrass plants and therefore can not tolerate as much of the material as the turf can. But, this shows that excessive use of the systemics can lead to phytotoxicity to the turf itself.

#### **Attributes of Systemics**

Systemics have many valuable attributes and they are really the bright lights in our turfgrass disease control future:

1. most are relatively safe to humans and other animals.

- 2. when applied as a soil drench they are capable of protecting root and crown tissues from disease.
  - 3. they require less frequent applications than contacts.
- 4. they enter the plant and can act curatively to kill fungi which have already infected the leaf.

#### Disadvantages of Systemics

- the systemics presently in use are more selective than the contacts.
- 2. efficient utilization of the full potential of a systemic is only achieved through a precisely controlled **drenching process** of application.
  - 3. toxic to earthworm.
  - 4. upset balance between mites and predator mites.
- allows some to the lesser diseases to flourish eg. Fairy Ring.

#### How the Systemics Work

Benomyl and the thiophanates are not in themselves the active fungicide material. These chemicals are first altered by a chemical hydrolysis reaction which initiates their effectiveness against the fungi. Hydrolysis can occur in the bag, in the soil or in the plant. The speed of root absorption and the relative effectiveness of these fungicides inside the plant parallels their respective rates of hydrolysis.

#### Application Techniques vs. Efficiency of Control

Systemics may be used as foliar sprays or as soil drenches. But, foliar application of systemic fungicides offers no protection to roots and to newly emerging leaf tissue—rendering the systemic only slightly more effective than the contact.

For the best effect, the fungicide has to be applied in proper quantities of water to the soil. It is helpful to wet the grass thoroughly before starting the application, and again during the job if the areas that were treated first are tending to dry. Drenching with ½ to 1 inch of water should begin immediately after the application is completed, perhaps applying the chemical during a light rain. If the systemics are allowed to dry even briefly on the leaf blade, in the thatch, or at the soil surface, a very large amount of the efficiency will be lost.

#### Timing of the Application

The optimum time to apply systemic fungicides is at the beginning of the rapid phase of epidemic buildup. Again we should refer to the disease timing chart.

#### **Fate of Systemic Fungicides**

After absorption, the systemic fungicides are only translocated upward. The fungicide remaining in the leaf clippings probably becomes ineffective for future protection of living plants. Some fungicide in sandy soils may be leached below the plant roots. The material which is absorbed to soil is degraded very slowly meaning that heavy repeated applications may accumulate to reach phytotoxic concentrations after a number of years.

#### **Fungal Resistance to Systemic Fungicides**

Because the systemics are rather specific we can expect resistant fungal strains to develop. Systemics with different modes of action will be developed in the future. To help prevent resistance from developing try not to overuse the systemic materials. If you must use the systemics, as in the case with root infecting fungi which cause Fusarium Blight and Stripe Smut, reduce your use of systemic fungicides against other diseases which can be controlled with contact materials.

## RESEARCH REVIEW by Wayne C. Morgan DISPLACEMENT OF FERTILIZER POTASSIUM WITH GYPSUM

reprinted from Divot News, September 1974

#### BIOLOGICAL CONTROL OF TURFGRASS DISEASES

Minimizing disease potential is a goal which concerns many of us involved with the growing of turfgrasses. In a recent article in the June, 1974, issue of the Golf Superintendent magazine, some excellent information relating to their research results on this subject was provided by the authors, Drs. R.M. Endo and P.F. Colbaugh. Some fine photographs and charts are contained in the original article in the Golf Superintendent.

Whenever temperature and moisture conditions are favorable and certain parasitic fungi are present, fungal disease may develop on susceptible turfgrass varieties. Behaving in this manner are the obligate parasites, such as the rust and powdery mildew fungi, rather than facultative fungal parasites such as the Helminthosporium leaf spot and Sclerotinia dollar spot fungi. With the exception of the rust and powdery mildew fungi, all other fungal parasites affecting turf are facultative parasites.

#### OBLIGATE AND FACULTATIVE PARASITES

The two kinds of parasites differ in that obligate parasites obtain their food only from living plants and are incapable of breaking down dead plant or animal remains, while facultative parasites are able to obtain food from both living and dead plants.

It is the difference, we believe, that makes it common for facultative fungal parasites to be biologically suppressed in turfgrass so that disease occurs only erratically. The obligate parasites, on the other hand, are not suppressed appreciably by saprophytic microorganisms because they seldom come in contact with competitive and antagonistic microorganisms.

The life cycle of obligate parasites is as follows:

- 1. Spares of the rust fungi are produced within the microorganism-free interior of the host plant;
- 2. The spares become airborne where they normally encounter few microorganisms;

3. The spores germinate and infect vigorously growing leaves and stems, which bear low populations and saprophytic microorganisms.

In contrast, facultative parasites of turfgrass are subject to biological influences throughout their lifetime because they are constantly being exposed to antagonistic forces and to competition from other turfgrass microorganisms in these ways:

- 1. The density and short prostrate growth habit of turfgrass places the earial portions of the plant in contact or in close proximity to the microbiologically active crop debris and soil.
- 2. The plants are constantly being exposed to microorganisms by means of foot traffic, by maintenance practices such as mowing, fertilization and irrigation, and by the varied activities of such creatures as earthworms, nematodes, birds, and insects.
- 3. Depending on the depth of the grass debris, a variable amount of the stems and roots will be covered by the biologically active crop debris.
- 4. Because of the extreme plant density, nutrients diffusing from fresh as well as dead grass clippings may stimulate microbial activity on the root surfaces as well as the microorganisms inhabiting the docomposing crop debris.
- 5. Facultative fungal parasites usually survive in the soil and crop debris as well as in infected plants. Surviving propagules of the parasites in the soil and crop debris are exposed directly to the activities of saprophytic microorganisms and their survival is related, in large measure, to the intensity of microbiological activities in the surrounding environment.

#### INCIDENCE LOW: WHY?

Diseases caused by facultative fungal parasites occur only sporadically and infrequently. This is difficult to explain since even a small lawn consists of millions of low-lying plants of similar genetic background and disease susceptibility. The crowded plantings, dense turf canopy and surface litter favor the prolonged retention of high humidities, of guttation fluid, and of dew and the even temperatures required for fungal growth and rapid plant-to-plant spread of the disease.

Much debris collects around the turfgrass plant: glass clippings, dead or dying lower leaves, stolons, rhizomes, roots and tillers, all in various stages of decomposition. For convenience, we will hereafter refer to this debris as litter.



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As fresh clippings are constantly added to the litter during the growing season, an effective and continuing source of substrates is provided for the litter-inhabiting microorganisms that actively compete with the fungal parasites for food. Most facultative fungal parasites survive in and on the litter and at times may colonize it, especially if the tissues were infected prior to their addition to the litter. Since the litter is a source of food for the parasites as well as the thousands of different kinds of saprophytic litter-inhabiting microorganisms, we believe that the parasites usually lose out in this unevenly waged combat and exist in or on the moist litter in an inhibited or dormant state.

#### EVIDENCE OF BIOLOGICAL COMPETITION

Observation and experimentation suggest that the saprophytic microflora can play a major role in influencing the incidence and severity of facultative fungal parasites that attack turfgrasses. Experiments using ten different facultative fungal parasites of turfgrass indicated that more disease was produced on plants grown in sterile soil than on plants grown in untreated field soil.

Several workers have domonstrated that soil moisture deficiency is associated with an increased amount of turfgrass diseases caused by the dollar spot fungus, by the greasy blight fungus, and by the Fusarium blight fungus. Field studies in California demonstrated that Helminthosporium leaf spot and foot rot are most severe within temporarily drought-stressed areas of Kentucky bluegrass. The Helminthosporium fungus spores did not germinate on grass clippings that were kept moist but if the grass clippings were first air-dried and then remoistened, the spores germinated, colonized the clippings, and sporulated abundantly.

The inability of these spores to germinate was associated with microorganisms on moist litter, specifically, certain bacteria from the litter produced a gas that inhibited spore germination. The multiplication and growth of the litter-inhabiting microorganisms were drastically reduced by drying the litter. It was also demonstrated that air-dried litter following remoistening released a far greater concentration (300 per cent) of proteins and carbohydrates into water than did continually moist litter.

Thus, we believe that spores of the Helminthosporium fungus exist in an inhibited, inactive condition of moist litter. When the litter dries out, the inhibitory gas produced by certain litter-inhabiting bacteria disappears, and the bacteria and other microorganisms become dormant. Following irrigation, the spores on the remoistened litter germinated in the absence of the inhibitory gas, and a short period of time is required before the bacteria that produce the inhibitor can reestablish a suppressive environment.

Following germination, the spores of the Helminthosporium fungus grow very rapidly and vigorously because of the release of proteins and carbohydrates from the remoistened, formerly dry litter. The antagonistic and competitive saprophytic microorganisms also benefit from the released proteins and carbohydrates, but before they can reestablish an inhibitory environment the parasite has infected the leaf sheath. Thus, we believe that H. sativum develops following alternate cycles of wetting and drying. Research is in progress to determine if this same relationship applies to the Fusarium blight disease.

#### COMPETITION IS ABSENT

Snow mold diseases are common and destructive under snow cover in the northern United States and Canada. This may be because most of the saprophytic microorganisms are inactive at low temperatures while the snow mold fungi are unaffected.

Therefore, the various snow mold fungi probably develop in the absence of the competition and antagonism. In addition, freezing and thawing of dead and living grass tissues probably also releases abundant nutrients for the fast-growing snow mold fungi.

The opposite situation should also be investigated, since at very high temperatures (above 100 degrees F) the growth of the saprophytic microorganisms may also be reduced. This may permit high-temperature parasites such as Pythium aphanidermatum to grow in the relative absence of competition.

#### DOLLAR SPOT LIMITED

Finally, the limited size of patches of turf affected by the dollar spot fungus may be due to the competitive and antagonistic microflora. The Sclerotinia fungi commonly produce enzymes that break down components of plant cell walls. Since the affected cell usually dies, sugars may be released from the cell walls and various constituents may leak from the dead cells as well. This sudden release of nutrients may greatly stimulate the multiplication and activities of the saprophytic microflora which probably occur in fairly high numbers on the nitrogen-deficient turfgrass plants that are attacked commonly by the dollar spot fungus.

If the above hypothesis is correct, the increase in saprophytic microorganisms may then stop the further growth of the dollar spot fungus because the Sclerotinia fungus grows over the surface of plants as threads (hyphae), and the growing point of the threads may therefore be readily inhibited. We have placed plugs of the fungus growing on potato-dextrose agar on moist litter and on auto-claved moist litter. The fungus grew out over the moist litter for a distance of one-fourth inch but on the autoclaved litter the fungus completely colonized the litter.

#### BIOLOGICAL CONTROL IN FIELD

We believe that biological control of facultative fungal parasites is actually operating in turfgrass in the field. This is an important phenomenon that should be explored as a supplemental or additional method of control.

Our research with the Helminthosporium leaf spot disease suggests that control of this disease can be obtained simply through watering in such a way as to keep the litter moist but not sopping wet. If the turf canopy is dense, once-a-week watering in summer is sufficient even in Riverside, California, where the day temperatures frequently reach 95 degrees F. If the canopy is sparse, the root system short or the soil thin, several short weekly waterings may be necessary as well to keep the litter moist.

The research also indicated that the cause of the dry spots must be found and corrected — e.g., wind destruction of sprinkler patterns, insufficient overlap of sprinklers, uneven terrain, soil compaction, water repellency of the litter, too rapid delivery of water, etc. We have been successful in completely stopping the process of the Helminthosporium disease in several home yards and golf greens by recommending aerification of the dry spots and proper watering.

#### NUMEROUS PUBLICATIONS FOR SUPERINTENDENTS NOW AVAILABLE FROM GCSAA HEADOUARTERS

As a service to its membership, and other interested individuals, the Golf Course Superintendents Association of America has a wide variety of publications available, most of which are cost-free. Some of these publications are available to non-GCSAA members for a nominal charge, some are not available to non-GCSAA members.

The following is a listing of publications which are currently available from the headquarters office:

A Meaningful Combination . . . You and GCSAA. (no charge, available to all persons). This newly designed booklet fully describes the Association, listing the many benefits of membership and contains all membership application materials.

The Golf Course Superintendent, His Qualifications, His Responsibilites, His Requirements, (no charge, available to all persons). Originally written for superintendents to give their green chairman, it has been re-written so that anyone interested in golf can better appreciate the professionalism of the golf course superintendent's position.

Golf Course Superintendent Career, (no charge, available to all persons). This new flyer replaces GCSAA's "Careers In Turf," and is designed to provide information about the profession to potential students and those considering becoming superintendents.

Your Next Step . . . GCSAA Certification Program, (no charge, available to all persons). A brochure describing the Association's Certification Program, its benefits to the individual and the profession, it contains a wealth of information about the program and an application request form is included.

GCSAA's 1975 Conference and Show Brochure, (no charge, available to all persons). Two versions of the 1975 Conference and Show brochures are available. One version is designed for those interested in exhibiting, while the second is for those interested in attending the Conference and Show. The second version, termed the member brochure, provides complete information about the annual event and includes all necessary registration materials.

The exhibitor's brochure contains a description of the show, a floor plan, rules and regulations, a space contract and other pertinent information.

The Golf Superintendent magazine, (personal subscription and two member-directed complimentary copies are included with GCSAA membership, normal subscription rate is \$5.00 annually). The official journal of the Association and the profession, the ten-times a year magazine offers information of both a technical and practical nature as well as profession and fraternal news.

#### **Limited Distribution Publications**

GCSAA Pesticide Usage Reference Manual, (available only to GCSAA Pesticide Seminar I participants until March 1, 1975 at which time it will be available on a cost basis). This 150-page publication offers information to prepare the superintendent for the state-level pesticide applicator's licensing and/or GCSAA Certification Program.

The Golf Course Superintendents Public Relations Handbook, (available only to recognized chapter secretaries, no charge). The 16-page booklet details methods to utilize in

organizing a chapter oriented public relations program. In addition to considerable information, samples of news releases are included.

Golf Course Superintendent's Guide to OSHA Regulations, (available only to GCSAA members, no charge). This general guide to the OSHA regulations which most concern golf course operations, offers valuable information without the legal jargon and volume of the original regulation. It is however recommended that the complete regulation document and updating material be referred to when technical questions arise. All About OSHA, a US Department of Labor publication, is also sent with the Superintendent's Guide. This second publication provides background information about the internal workings of OSHA.

Business Card Order Form, (available only to GCSAA members, no charge). Personalized business calling cards are offered through this pamphlet. In addition to an actual sample of the card, a variation for the non-superintendent member is shown. Complete ordering instructions are given along with

Proceedings of GCSAA's Conference and Show, (available to GCSAA members for \$3.00 each and non-GCSAA members for \$10.00 each). Copies of the educational program presentations for the 1973 Boston Conference and the 1974 Anaheim Conference are currently available.

GCSAA Membership Directory, (available to GCSAA members for \$2.00 and non-GCSAA members for \$25.00). Copies of the 1974 and 1975 editions are currently in supply. These directories provide complete information about the Association, its history, past presidents, annual conferences, members of that year, etc.

#### Career Publications Being Prepared

Two publications are currently being prepared for distribution by the GCSAA which will be career oriented. One of the publications will assist superintendents seeking a new position, while the second will assist courses in acquiring the services of a competent superintendent. Final publication dates have not been set.

#### Requesting Publications

Anyone interested in receiving any of the publications which are available to them should make their requests directly to the GCSAA Headquarters, 1617 St. Andrews Drive, Lawrence, Kansas 66044.

reprinted from Fore Front, December 1974

#### CHECK LIST FOR HOST SUPERINTENDENTS

If you are to be a host for one of the Mid-Atlantic meetings here are some tips that may help you in planning for the meeting.

#### With your Golf Professional —

Date of meeting Time of golfers arrival How many players expected? Will caddys be available? How many golf carts will be needed? Arrange with pro shop: Register players

Collect Money

Figure and chart scorecards Negotiate prizes

#### **CHECKLIST** continued

#### With Clubhouse Manager —

Date of meeting

Will lunch be available

Will signing privileges be allowed, if not, cash, script, or whatever.

Price of dinner, including tax and gratuities

Number expected for dinner

What percent allowance on number estimated for dinner.

Plan menu early in advance of meeting.

Anyone playing golf will be expected to stay for dinner.

Head table facing membership to provide enough seats for Mid-Atlantic Officers (3) speaker (1) and for guests of host. Provide for small table next to head table for use by the tournament chairman.

Projector, screen, and PA system for speaker, if needed.

#### With Locker Room Attendant -

Date of meeting

Will lockers be available?

Towels, showers, shoe shine, etc.

#### With Newsletter Editor -

Provide background information on yourself and points of interest about your golf course.

Provide directions to club (if not easy to follow, draw map to accompany directions).

Indicate — When golf course open.

Caddies and cars available. Lunch available and where, signing privileges allowed? Time of cocktail hour and dinner.

Name of speaker and his topic.

\*\*The newsletter information is needed a full month in advance of your meeting.

reprinted from Mid-Atlantic Newsletter

#### 'DEFECTOR' TO LEAD THEM

One of our own, so to speak, has been elected president of The American Society of Golf Course Architects.

Goeffrey Cornish, he of the intriguing Fiddlers Green address in Amherst, touches us two ways. First, he is a "friend" of the New England Golf Course Superintendents Association. And, then, he is a "defector" from the superintendents' ranks. "Oh yes," he chimes. "I served two years as the course superintendent at the St. Charles Country Club in Winnipeg. I have been associated with the game of golf in all ways. Did a little playing, had a handicap of seven... once."

Cornish's high post among those referred to as those "battling designers" gives him an opportunity to spread the main message of the golf course architect, that his product and the maintenance of same by the superintendent form a major impact on the environment.

It is a matter of fact that the 12,000 golf courses in the United States now occupy more land than the state of Rhode Island. Cornish reminds that the golf course represents one of the rare open space entries that will be "open" forever. He also drops the call that golf courses in urban areas are the last resort for many species of wildlife.

According to Cornish the golf course construction business is beginning to catch up with the design of the layouts, meaning that there will be a slight tailoff the architectural level. The reason for this lag with our present declining economy is the planning period involved. Some of the courses under construction today were set down on their blueprint stage two and three years ago.

Despite an expected decrease in the future, presently new course construction and refurbishing of older courses continue at a high level in New England—specially in Massachusetts where the firm of Cornish and Robinson (Bill who is Geoff's architectural associate) currently has a hand in the bulk of business.

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THE POWERHOUSE

The lineup of new courses in New England includes Iyanough Hills, Hyannis; Quashet River, Mashpee; Heritage at Plymouth; The New Wollaston CC, Milton; The New Walpole CC, Walpole; new nine at Fall River CC; Greylock Glen, Adams; Nepsic CC, Glastonbury, Conn.; new nine Eastman Lakes, New Hampshire.

Some long established layouts, particularly in Connecticut are in the process of having their faces lifted. They are New Haven Municipal; Keney Park, Hartford; Goodwin Park, Hartford; Stanley Municipal, New Britain and Hartford Golf Club, Hartford.

Cornish's individual contributions to the golf architectural field mount with the turning of each spring. With Robinson, Geoff has been in the thick of the rise of some 150 courses which are now in play or scheduled to open in 1975.

He lists the Golf Club at Aspetuck (Easton, Conn.) as his own personal gem. Aspetuck is a "men-only" club and therefore is shunning publicity these days of libs and what not. It's so private (only 100 members) no one knows about it. It is cut between ledge with a beautiful natural background which is breathtaking, according to Geoff.

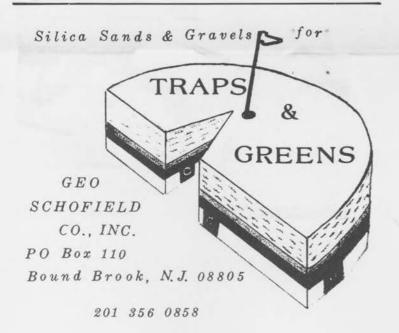
One of his most unusual ventures takes him to Northern Greece where he is designing an exclusive course there. "When it is completed," Cornish quips, "it will have an added hazard of its own. The only way to get to the course is by yacht!"

The affable Cornish looks upon Robert Trent Jones as the patron saint of the golf course architectural profession. Oddly, he chooses The Country Club, Brookline as the greatest course he's seen. Oddly, because the course was designed by a Crimean War captain—one Charles Blair MacDonald—certainly not a member of the ASGCA.

Thus, congratulations are in order for one of our own. Geoff Cornish certainly will serve his group well. His professional reputation must be regarded as a forerunner to his success as commander-in-chief of those "battling designers."

Gerry Finn

reprinted from New England GCSA Newsletter, March 1975





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## The New Sticker-Extender That Prolongs Pesticide Effectiveness.

There's no doubt that today's pesticides do an everbetter job in fighting turf and plant problems. And there's no doubt that Exhalt 800 Sticker-Extender prolongs that effectiveness. Gives you longer action. Prevents wash-off. Cuts your costs substantially over a season.

Exhalt 800 encapsulates and holds pesticides where you want them—on the turf and plant foliage. It flexes with leaf growth, for longer action. Even if it rains an hour after application you still get full extender activity! Full pesticide effectiveness.

Simple and economical to use. A pint per 100 gallons of solution. Readily water-soluble, just add while agitating and keep agitating during use. Rinses out easily using just water; residue will not clog.

residue will not clog.

Exhalt 800 is the new way to stop pesticide wash-off.

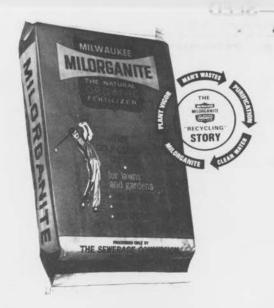
To prevent pesticide build-up in the soil. To keep costly pesticides working longer on plants and turf. To cut down the labor costs of more frequent applications.

Find out more. Write for our literature. Distributed by Andrew Wilson, Inc., Union, New Jersey.



Exhalt800

Kay-Fries Chemicals, Inc. Crop Protection Division Stony Point, N.Y. 10980



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## the super-natural organic fertilizer!

What do we add to Milorganite?
Nothing!
Everything's already there — naturally!

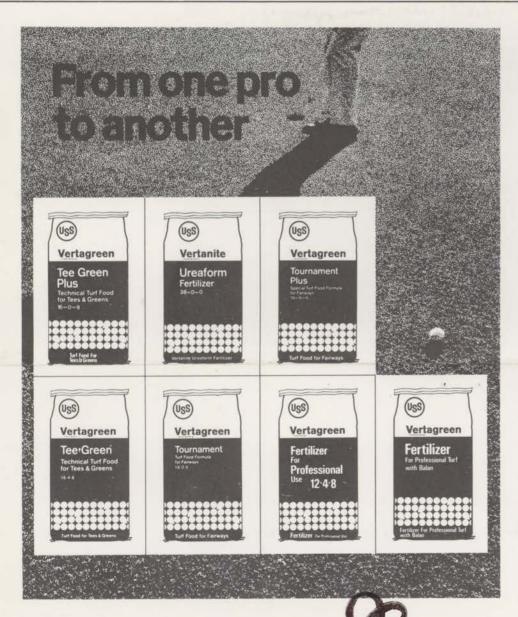


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As a professional in turf management you know more about your course and grounds than anyone else. And you are constantly looking for ways to improve them, physically and aesthetically.

As professionals in turf care products, the people at USS Agri-Chemicals know fertilizers and chemicals. Like you, we are constantly striving to improve our products. And we have.

By working together as professionals, we can develop a turf program for you that is second to none.

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- All with guaranteed amounts of calcium, magnesium, sulfer, zinc, manganese, boron, copper and chelated iron.
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- A complete selection of the nation's leading herbicides, fungicides, insecticides and nematicides.