FALL 1980–VOL. TWO

BORDER CITIES
GOLF COURSE SUPT. ASSOCIATION
MICHIGAN

A PATCH of GREEN

Official Publication of the
Michigan & Border Cities Golf Course Superintendents Association

MICHIGAN & BORDER CITIES GOLF COURSE SUPERINTENDENTS ASSOCIATION

"A PATCH OF GREEN"

Published monthly by the
MICHIGAN AND BORDER CITIES GOLF COURSE SUPERINTENDENTS ASSOCIATION

Circulation: 1,250

Ted Woehrle, CGCS, Oakland Hills C.C.
James Timmerman, Orchard Lakes C.C.
CO-EDITORS

Printed At
BLAKEMAN PRINTING COMPANY
31823 Utica Road
Fraser, Michigan 48026
Phone: (313) 293-3540

This Month's Advertisers...

TURF TRUCKSTER SYSTEM.

Because the flexibility of the Cushman Turf-Care System saves you time and money. Here's how!

The System is built around the rugged, versatile 18 hp Turf-Truckster, 3-or 4-wheel model. With this one power source and options, you can haul, spray, spike, spread and top dress. And save as much as 35% on equipment in the process.

Because, instead of buying separately powered units for each job, you buy only the Turf-Truckster and the modular Cushman accessories you need. So you pay less in total for equipment... and have only one power unit to maintain.

CUSHMAN® TURF-CARE EQUIPMENT

OMC-Lincoln, a Division of Outboard Marine Corporation
6201 Cushman Drive
P.O. Box 82409
Lincoln, Nebraska 68501

But that's not all.

The System is also a time saver that can cut your labor costs. Accessories mount on the back of the Turf-Truckster. Your men do their work quickly, efficiently... and then move on to the next job at speeds up to 22 mph. There's less wasted traveling time, so you get more work out of each hour of labor cost.

The Cushman Turf-Care System. Versatility, superior performance, economy. It's a tough system to beat.

Write today for your free Cushman Turf Care Catalog.

You can't beat the system.

CALL NOW
For a demonstration and price quotation.
(313) 338-0425

CUSHMAN TURF-CARE EQUIPMENT

GOLF CAR DISTRIBUTORS

1980 W. Wide Track Drive (U.S. 10)
Pontiac, Michigan 48058
Phone: (313) 338-0425

Anthracnose – Rediscovering The Wheel

By J.M. Vargas Jr.
Associate Professor
Michigan State University

Anthracnose, caused by Colletotrichum graminicola (Ces) Wils., is an important disease on annual bluegrass, fine leaf fescue and perennial ryegrass. Anthracnose was originally described as a disease of annual bluegrass (Poa annua L.) in 1954 by J. Drew Smith (3). He demonstrated its pathogenicity and included excellent photo micrographs (pictures taken through a microscope) of the infectious process in the article. Couch (1), in his book on turfgrass diseases, described anthracnose as an important disease on many turfgrasses, although not annual bluegrass. However, in a more recent article, he reversed his earlier opinion and now believes C. graminicola is only a saprophyte (2). Vargas and Detweiler (6) and Vargas (4,5) found severe anthracnose infections associated with the loss of annual bluegrass fairways and greens during the warm summer weather. Collectotrichum graminicola was isolated and subsequent inocculation experiments in the laboratory supported Smith's (3) earlier conclusions that C graminicola was a pathogen on annual bluegrass and caused the disease called anthracnose. This research was not published per se since the pathogenicity of Colletotrichum on annual bluegrass was demonstrated 20 years before. To publish date showing C. graminicola to be a pathogen of annual would be equivalent to someone publishing an article on how he had rediscovered the wheel in light of Smith's earlier work (3) and the fact that it was described as a disease in Couch's Diseases of Turfgrass.

The significant discovery was not that C. graminicola caused anthracnose on annual bluegrass, but that something other than direct high temperature kill or "wilting" was responsible for annual bluegrass loss during high temperature stress. Anthracnose appeared at the time to be the major factor responsible for the annual bluegrass loss (4,5,6,7,8). This belief was based on the large amounts of anthracnose (acervuli) present on the diseased plants, inoculation studies with C. graminicola and the fact that the only other pathogenic fungus isolated was Helminthosporium sorokinianum (syn Drechslera sorokinianum), the cause of leaf spot. H. sorokinianum was originally ruled out as a major factor because the benzimidazole systemic fungicides (benomyl, thiophanate-methyl and thiophanate-ethyl), which gave excellant anthracnose control, were reported not to be effectie against Helminthosporium disease whereas laboratory bioassays showed the benzimidazole fungicide to be very effective against C. graminicola. It was logically concluded based on these facts that anthracnose was the major cause for the annual bluegrass dying.

Based on subsequent research three factors are now believed to be responsible for annual bluegrass loss during the warm summer weather where the symptoms are a yellow-bronzing of the turf, followed by tan to brown withering and eventually, death. The term used to describe this disease complex is HAS decline of annual bluegrass - Helminthosporium leaf spot caused by H. sorokinianum, Anthracnose caused by C. graminicola and Senescence or the dying of a plant due to "old age". Research is currently underway to evaluate these factors to determine the role each plays in HAS decline of annual bluegrass during heat stress periods.

The key environmental factor in the development of HAS decline appears to be high nighttime temperature or this is not to say high daytime temperature or high humidity are not predisposing factors, but unless 70 degree plus temperature is experienced for 2-3 nights in a row, severe HAS decline epidemics will not occur. The past two seasons (1978-1979) the daytime temperatures were above 85 degrees many times including several days above 90

degrees, but HAS decline was not serious. A widespread problem occurs because the warm nightime temperatures did not occur. HAS decline was only a problem in 1978-79 where no fungicides at all were used, where annual bluegrass herbicide control programs were being used, where phytotoxic fungicides were applied during warm weather, or where poor soil and air drainage were present, but, there has not been a severe HAS decline epidemic since 1977 in the northern areas of the cool season grass regions.

Preventing annual bluegrass loss through the use of fungicides meant a golf course superintendent no longer had to stand by and helplessly watch his annual bluegrass die during the warm summer weather. Nor did he have to feverishly rush around syringing or irrigating to prevent his annual bluegrass from "wilting", only to have it die anyway. He could treat his annual bluegrass with a fungicide and have it survive the warm summer weather.

For the scientific community, it meant a re-evaluation of annual bluegrass as a potential desirable turfgrass species and the subsequent research on its fertility requirements, mowing requirements, cultural requirements, disease and insect problems. This has now begun, even if begrudgingly, and even if sometimes only through the pressure from golf course superintendents associations for answers on how to maintain bluegrass. This pressure is understandable when you consider the superintendent has been bombarded with annual bluegrass chemical controls for the past 50 years, none of which have been very successful. The reasons include: 1) lack of chemical efficacy, 2) lack of thorough research on these herbicides before they were introduced, and 3) the belief that a chemical is going to selectively remove a "weedy" grass species from an environment it is adapted to and replace the weedy grass with an unadapted "desirable" species without changing the management regime. Such reasoning is ludicrous and has directly contributed to past failures. If annual bluegrass could be removed selectively and prevented from returning through the use of herbicides what grass is going to replace it? If it is replaced with Kentucky bluegrass maintained at 1/2 inch mowing height and irrigated frequently to maintain soft fairways, then the question has to be, what will replace the Kentucky bluegrass when it dies if annual bluegrass is prevented from doing so? Creeping bentgrass? Poa trivialis? Or perhaps bare soil? The problem is not the annual bluegrass, but the cultural regime under which the turf is being maintained. Annual bluegrass is simply replacing Kentucky bluegrass which is not adapted to close mowing and frequent irrigation because it is adapted to such a management regime and no chemical is going to change that! The selective herbicide may prevent the annual bluegrass from returning but it will not prevent the Kentucky bluegrass from leaving.

What is wrong with annual bluegrass? Nothing. It is not better or no worse than any other cool season turfgrass species. They all have their strong and weak points. Annual bluegrass is adapted to the 1/2 inch mowing height and frequent irrigation regimes employed on golf courses where the golfer insists on low-cut soft fairways. It does have its share of disease problems, but so do all the other turfgrass species. (Table 1). If a healthy annual bluegrass turf is to be maintained, these diseases have to be treated. The same is true of all the other species. If the diseases on annual bluegrass are not controlled, it will die and the voids will be filled in when the annual bluegrass reseeds itself. If disease prevention is not practiced on the other species they will also die and the voids in the turf will be filled in by another bluegrass.Therein lies the difference. Kentucky bluegrass, creeping bentgrass and perennial ryegrass only die once. Annual bluegrass dies year after year after year if its disease problems are not treated. The fact that the other turfgrass species died is forgotten because they only died once. The problem did not occur year afte year. The fault is never placed on the disease that caused the "desirable" turfgrass species to be lost, the fault is placed on the annual bluegrass which replaced it. Annual bluegrass didn't make the

Continued on Page 12

PROFESSIONAL APPLICATOR MUST KNOW MIXING BASICS

by: Paul A. Sartoretto, PH.D.

Concluded From Last Issue

Rule Number 4 states that soluble fertilizers and trace elements can be added individually or mixed, provided that the amount will not exceed one ounce solid per gallon tank spray mix. The author has used two ounces per gallon, and has not experienced any burning at the higher rate, but prefers the lower rate. The components that fall into this category are solubles such as urea, ammonium nitrate, ammonium sulfate, muriate of potash, ammonium phosphate, ferrous sulfate, chelated iron, epsom salts, etc.

Exceptions to the rule governing compatibility of solubles is as follows: Heavy cations such as mercury and cadmium fungicides and Paraquat and Disquat are incompatible with heavy anionic herbicides such as DSMA, MSMA, 2,4-D, MCPP, MCPA and DICAMBA. Precipitation will take place in the spray tank. These combinations are not likely to be used because selective weed killers such as Paraquat or Diquat, and the applicator is not likely to use a soluble fungicide such as cadmium or mercury.

There are quick methods to check compatibility. When solubles are mixed with water in the proportion to be used in the spray tank, the solution should remain clear for the number of hours anticipated for spraying.

Emulsifiable concentrates should disperse throughout the water in a stable emulsion without incurring an oily layer separation on standing. The emulsifiable concentrates should be added last, after all solubles and wettables have been added. (However, I strongly urge not to tank mix emulsifiable concentrates).

Thirdly, when wettable powders are components of a tank mix, after standing awhile, the mixture should be sieved through at least a 100 mesh screen. If residue appears on the screen, agglomeration or precipitation has taken place, signaling incompatibility.

These tests can be run in a convenient quart glass jar. The sieve screen should be wet with water with some surfactant added before sieving.

Soluble iron or magnesium salts might remain clear in the glass jar for about an hour and will then begin to hydrolyze in hard water or in water that hs a pH of 7 or above. They will decompose to oxide precipitates that are of no value. Whenever possible, use chelated forms of iron and magnesium which will not hydrolyze. They are more expensive, but one can use far less and be able to count on their effectiveness.

Coincidentally, herbicides also fall into two classes - solubles and insolubles. The soluble herbicides are post-emergent in nature whereas the insol-

ubles are preemergent in activity. The insoluble preemergents are safe to apply because by their very nature they slowly release the active toxicant by hydrolysis in the soil (although certain preemergents exhibit some phytotoxicity on certain species and cultivars; however, these cautions are covered on the labels).

The rate of release of active toxicants is sufficient to kill the germinating weed seedling and, strangely enough, insufficient as a rule to kill the mature weed plant. The rate of release will determine the length of residual activity of the product. Each individual preemergent has its own time release schedule. The residuals range anywhere from 45 to 90 days, with an average of about 60 days.

It should be noted that one important factor which will materially alter the residual is oil structure. Absorption of the hydrolytic toxicant by soil particles dictates different rates for different soils. Label directions must be carefully followed. But the parent pre-emergent compound is an insoluble, thus nonburning.

Pre-emergents should be applied before the weed seed germinating season begins, which is usually in March, April or May depending upon that portion of the country. Preemergent chemicals can be tank mixed andsprayed as a wettable powder or can be applied with a granular carrier as a spreader.

It is obvious that wettable pre-emergent powders will not present a phytotoxic problem at the time of application, however some preemergents will release the toxicant rapidly and pose a phytotoxicity to certain types of grasses such as bentgrass. Some applicators will split the rate of application of a preemergent wettable powder in half when treating bentgrass greens and put on two applications a month apart.

The problem of phytotoxicity is an important factor when dealing with soluble postemergent herbicides. As a general rule the phytotoxicity index (safety factor) is narrow for all postemergent chemicals. Yet they are used rather extensively and effectively, provided the rates of application are followed closely. The tank mixing of two or three soluble postemergent herbicides is becoming more and more prevalent. This practice is useful because the applicator has found synergistic effect with combination; but, in doing so he must again apply rule number 2 which states that whenever solubles are dded to the spray tank the dosage rate should be cut proportionately, depending upon the number of solubles.

Surfactants or wetting agents should be treated as solubles. Wetting agents are usually added to the spray tank in order to reduce the surface tension of the water so that the spray comes out as finer droplets and wets the blades of the weeds or grasses giving a more uniform coverage. This also reduces the safety factor of soluble herbicides and promotes phytotoxicity. If a wetting agent is used, apply Rule No. 3. Cut the rate of the soluble herbicide. When used with insoluble fungicides, it is not necessary to reduce the rate.

Finally, there are two classes of chemicals which are infrequently used by applicators and by their very nature cannot be tank mixed. They are nem-

Continued on Next Page

Mixing Basics, Cont.

aticides, such as Dasanit and Nemagon, and general week and grass killers such as Phytar, Paraquat and Roundup.

When the applicator embarks on a new formula it would be wise for him to practice on small areas, preferably his nursery.

Also, according to the Federal Environmental Protection Agency, if a chemical applicator wilfully uses more than the recommended amount on the label and destroys turf, he is technically criminally libel.

But we are addresing ourselves to be applicators who are faced with multiple diseases and multiple weeds. In this situation, one single product is inadequate, and it becomes costly and somewhat ridiculous to spray each individual product separately. But never apply more than the ammount recommended on the label, and following the rules outlines in this paper, it is necessary to split dosages of solubles.

Solubility and Formulation

EC, S, SP Solubles		SP, F Insolubles		Soluble-Insolube Combinations
FUNGICIDES				
PMAS		Tersan 75	Fore	Calo-Clor
Caddy		Tersan LSR	Maneb	Kromad
Cadminate		Tersan SP	Zineb	Actidione RZ
Actidione TGF		Spotrete	Captan	Actidione Thiram
		Bromosan	Daconil 2787	Thimer
		Spectro	Dyrene	Cadtrete
		3336	Fungo	
		1991	RP26019	
INSECTICIDES				
Dursban	Malathion	Diazinon		
Diazinon	Proxol	Dursban		
Chlordane	Dylox	Sevin		
Sevin		Malathion		
HERBICIDES				
2,4-D	DSMA	Dacthal		
2,4,5-T	MSMA	Tupersan		
MCPP	AMA	Balan		
dicamba	Betasan-EC			
FERTILIZERS				
urea		ureaform		
ammonium nitrate		IBDU		
ammonium phosphate				
ammonium sulfate				
potassium nitrate				
muriate of potash				

This article was presented at the 1980 Canadian Turfgrass Show

LOOKING AHEAD:
Snow Mold Control

Snow mold describes a group of diseases that occur under snow cover or in the advancing margins as the snow melts. For many years it was believed that two fungi species were primarily responsible for snow mold turfgrass injury: Typhula blight (gray snow mold) caused by **Typhula incarnate** (syn. **T. Itoana**) and Fusarium Patch (pink snow mold) caused by **Fusarium nivale.** However, recent research have shown other fungi to be involved in snow mold complexes in the more northern regions of the western United States and Canada. These include **Typhula ishikarienses** (Typhula blight), **Sclerotinia borealis** (Sclerotinia patch) and an unidentified fungus belonging to the basidiomycete class of fungi (low temperature basidiomycete or LTB).

Good snow mold management begins early in the fall with the advent of cool weather. This is when the first fungicide application should be made, especially in areas where long periods of cool wet weather precede snowfall. In areas where snow covers the ground for two or three months the best time to make the final fungicide applications is when vertical growth ceases.

The other key to good snow mold control is to avoid late summer or early fall nitrogen application that leaves the turf in lush growing condition just prior to snowfall. Lush turfs are much more susceptible to snow mold than turfs that are in a hardened-off condition.

If the snow mold killed large turf areas, some form of cultivation may be necessary. Reseeding wil be necessary to reestablish creeping bentgrass and perennial ryegrass turfs. Annual bluegrass turfs should be spiked and aerified to allow germination of seed from the reservoir in the soil and thatch.

Editors note: This article is a condensed version of an article written by Joseph Vargas in the 1980 June issue of Golf Course Management.

SEPTEMBER 1980 GCSAA BULLETINS

James E. McLoughlin recently began duties as GCSAA Executive Director. McLoughlin was Executive Director of the Metropolitan Golf Association for 14 years prior to accepting his new position.

Palmer Maples Jr., CGCS, GCSAA director of education, has served as Acting Executive Director since November when the association undertook a nationwide search for a new Executive Director. The search culminated in the ammouncement of McLoughlin's acceptance of the post in July.

GCSAA President Melvin B. Lucas Jr., CGCS, stated, "GCSAA looks forward to the years ahead. We feel Jim McLoughlin brings new dimension to the association and the golf world."

TORO

Toro Debris Handling Equipment for 1977

Two machines in one

Makes cleaning a breeze

With the Toro Vacuum/Blower you can clean up to a quarter-acre in less than an hour.

The 5-horsepower vacuum has a 30" vacuum head that rakes in leaves, twigs, and even cans. For better vacuum action, it has a flexible rubber lip on the vacuum head and seven height adjustments. The heavy duty bag can handle seven bushels and has a sturdy metal zipper. The vacuum is available in hand-propelled or self-propelled models, and with an optional attachment, hitches to the back of a tractor or rider-mower.

Both Toro vacuum models can be converted to a leaf blower in about 5 minutes — without costly optional equipment or tools. Just take off the vacuum head, attach the special discharge chute, rotate the impeller housing, and raking becomes a breeze!

As a blower, it uses a 100 M.P.H. "jet stream" to blow damp or dry debris into an easily bagged pile. The air discharge chute converts to straight ahead or side use, too. And, there's an optional hose kit to get in and out of . . . corners and tight places. The two and only Toro Vacuum/Blower. It's a product of over 60 years of experience in lawn maintenance equipment.

WILKIE TURF *Equipment Company*

P.O. BOX 749 • PONTIAC, MICHIGAN 48056
1050 OPDYKE ROAD • PHONE (313) 373-8800

ARE YOU INTERESTED IN JOINING THE *MICHIGAN AND BORDER CITIES GOLF COURSE SUPERINTENDENTS ASSOCIATION?*

FILL IN THE QUESTIONAIRE BELOW AND MAIL TO:

CHARLES GAIGE
LAKELANDS GOLF & COUNTRY CLUB
7390 Rickett
Brighton, MI 48116
Office 231-3003, Residence 227-4617

DATE _____

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

OR YOU MAY CONTACT THE NEXT GOLF COURSE SUPPLIER WHO CALL ON YOU AND GIVE HIM THE INFORMATION NEEDED FOR APPLICATION.

voids, it simply filled them in. The voids occured from diseases, insects, wear or mismanagement. If annual bluegrass had not filled in these voids some other "weedy" grass or broadleaf weed would have. The reason annual bluegrass persisted was because it was the species most adapted to the cultural regime under which the turf was being maintained.

Cultural regimes of the various turfgrass species can be seen in Table II. You will notice a cultural regime for perennial ryegrass is missing. Little research has been done to determine the optimum cultural system for growing perennial ryegrass in spite of the fact that it is widely recommended as a desirable turfgrass species, becuase of its improved mowability over common perennial ryegrass.

The other failure of annual bluegrass chemical control programs has been the lack of understanding of the turfgrass plant itself. There are two subspecies of annual bluegrass: Poa annua var. annua L. Timm., an annual type, and Poa annua var. reptans (Hauskins) Timm., a perennial type. The annual type is supposed to be a winter annual which germinates inn the fall, lives through the winter, produces seed in the spring and then dies.but in the cool season grass regions, seed production is usually followed by a resurgence of vegetative growth, suggesting that the perennial type is dominant. When death does occur, it is usually later in the season during warm weather stress. If it was a true annual or if the annual type was dominant, should not death occur soon after seeding? If it was a true annual, or if the annual type predominated, should annual bluegrass not die every year? Yet, on well-drained, adequately irrigated fairways, severe annual bluegrass loss occured only in 1975 and 1977 during the past five years in the upper Midwest and Canada. This is even true of areas where no fungicides were applied! If it was a true annual, should not all the plants die everywhere every year? The fact is that most of the plants present in a fairway or greens do not die every year. All the annual bluegrass plants are not lost on a fairway green even in years of severe HAS decline. It is predominately annual bluegrass plants that are growing in stress areas (poor soil or air drainage, slopes, heavily trafficed areas) that most frequently die, suggesting that something other than normal dying of a winter annual is occurring. The exception is where annual bluegrass herbicides, like the arsenicals, have been used, nearly all the annual bluegrass plants in a treated area will be destroyed during heat stress periods.

WILT

The term wilt is often used to describe what happens to annual bluegrass when it dies during heat stress periods. When grass wilts, it turns dark blue to purple in color. Annual bluegrass does not wilt in the northern areas of the cool season grass region without mitigating circumstances. The circumstances can be knolls or slopes where adequate irrigation is not applied, or where irrigation cannot be applied fast enough. This form of wilt is controllable with soil modification, proper irrigation, timing, and an adequate irrigation system. Wilt can be found on annual bluegrass fairways where irrigation is adequate, but recent studies have shown much of this is due to grubs, either the common large white grub, or the small Black Ataenius beetle grubs. Both can be controlled with the application of an effective insecticide.

The fact that annual bluegrass normally does not wilt from high temperature alone where adequate irrigation is propertly used first has to be accepted. Next time annual bluegrass begins to wilt, tear back the sod to determine if grubs are present before reaching for the irrigation system. It could help save your fairways!

HAS Decline of Annual Bluegrass

However, wilt is not the problem being referred to. The problem being referred to is one that causes an annual bluegrass turf to turn a dull yellow to bronze in color and eventually die. The disease involving these symptoms is called HAS decline. The symptoms are

very different from the bluish-purple color turfgrass turns when it wilts.

HAS Decline Management

HAS decline management involves a cultural system for maintaining annual bluegrass plus fungicide application at the proper time. The cultural system will probably change with time because it is currently based on a limited research. This is due to the fact that past research on annual bluegrass has been limited to means of controlling it. Research on how to culture annual bluegrass has been conducted only in the past few years. At the current state of the art, the following is the best program available for maintaining annual bluegrass fairways.

Mowing Height - 1/2-7/8 inches.

Irrigation - infrequent and deep during cool weather to encourage deep root growth.

light, frequent during warm weather. May involve daily syringing during warm weather depending upon : soil type, spring weather, capacity of irrigation system.

Fertility - Nitrogen

1/2 lb. of actual N June, July, August

1 lb. of actual N September and dormantly.

New research data (Illinois) indicates annual bluegrass survives better with no nitrogen in July in the warmer areas of the cool season grass region.

Phosphorus and potassium as needed, based on soil test. Preliminary evidence indicates high phosphorus levels favor annual bluegrass survival.

Fungicide Program

There are 4 major annual bluegrass diseases which occur during the growing season: Sclerotinia dollar spot, Pythium blight, Rhizoctonia brown patch and HAS decline. Trying to maintain annual bluegrass without managing these diseases is futile. The following is an idealized fungicide program for managing these diseases. It is not a hard and fast program which should be followed to the letter. It is a framework from which you can build your own fungicide program.

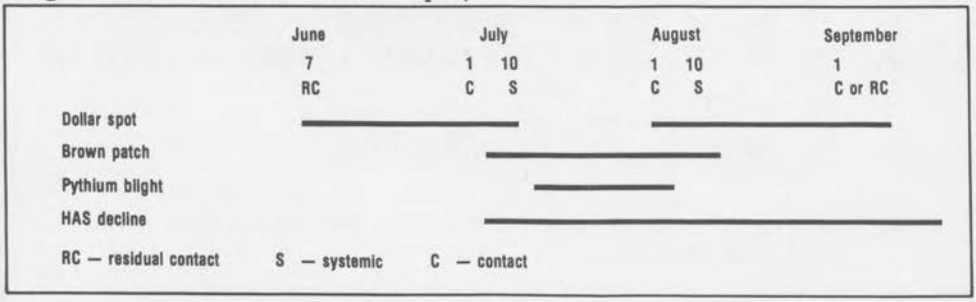
The program incorporates all fungicide types at the most appropriate time. The best contact fungicides for HAS decline management are chlorothalonil, mancozeb, and maneb zinc sulfate. The best systemic fungicides are benomyl, thiophanate-ethyl, and thiophanate-methyl. This is not to say other fungicides may not be appropriate. Substitutions should be made based on personal experience.

Table I. Major Turfgrass Diseases on the 4 Major Cool Season Turfgrasses

KENTUCKY BLUEGRASS	CREEPING BLUEGRASS	ANNUAL RYEGRASS	PERENNIAL
Melting-out	Dollar spot	Dollar spot	Brown blight
Fusarium blight	Brown patch	Brown patch	Brown patch
Stripe smut	Pythium blight	Pythium blight	Pythium blight
Fusarium patch	Leaf spot	Leaf spot	Anthracnose
	Typhula blight	Anthracnose	Red thread
	Fusarium patch	HAS Decline	Rust
		Fusarium patch	Typhula blight
		Typhula blight	

Table II. Comparison of Survival Requirements for Fairway Grasses

	KENTUCKY BLUEGRASS	CREEPING BENTGRASS	ANNUAL BLUEGRASS
Mowing height	1-1/2''	1/2''	1/2''
Irrigation	Minimal	Minimal	Frequent
Nitrogen	1-4 lbs/s	1-4 lbs/s	3-4 lbs/s
Phosphorous	Adequate	Adequate	High



GCSAA Management Manual is now available

This is the first management manual specifically prepared for members of the Golf Course Superintendents Association of America. The manual entitled *"Managing Human Resources - Getting Things Done Through People"* was written by Ronald C. Frame, an Oklahoma City-based management consultant who has conducted a number of GCSAA management seminars.

The manual provides a concise, practical explanation of modern personnel management techniques and organizational dynamics, specifically adapted to golf course management.

The manual will be distributed as part of the registration fee to participants in the association's Management II Personnel seminars. Members may obtain copies for $3.25, while the cost to non-members is $5.25. Copies may be ordered from GCSAA Headquarters, 1617 St. Andrews Drive, Lawrence, Kansas 66044.

BEING AN EDITOR...:

Getting out this magazine is no picnic
If we print jokes, people say we are silly.
If we don't they say we are too serious
If we stick to the office all day,
We ought to be around hustling material.
If we go out and try to hustle,
We ought to be on the job in the office.
If we don't print contributions,
We don't appreciate genius;
And if we do print them, the paper is filled with junk!
If we edit the other fellow's write-ups we're too critical;
If we don't we're asleep.
If we slip things from other papers,
We are too lazy to write ourselves.
If we don't we are stuck on our stuff.
Now, like as not, some guy will say
We swiped this from some magazine.*

*We did.

It's difficult for a heel to toe the mark.

If you have changed your address, please let us know so we can keep our addressing plates up to date.

Present Address:

NAME

ADDRESS

CITY STATE ZIP

Fill In New Address:

NAME

ADDRESS

CITY STATE ZIP

Mail this form to:

A PATCH OF GREEN
31823 Utica Road
Fraser, Michigan 48026

HOW TO TELL IF YOU ARE GETTING OLDER

Everything hurts and what doesn't hurt, doesn't work
The gleam in your eyes is from the sun hitting your bifocals

Your children begin to look middle-aged
You decide to procrastinate but never get around to it

You know all the answers, but nobody asks you the questions.
Your knees buckle and your belt won't

You just can't remember to stand people who are intolerant.
You burn the midnight oil after 9 p.m.

Your back goes out more than you do
The best part of your day is over when your alarm clock goes off

Your pacemaker makes the garage door go up when you watch a pretty girl
The little gray haired lady you help across the street is your wife.

You finally reach the top of the ladder and find it leaning against the wrong wall.

Your little black book contains only names ending in M.D.
You look forward to a dull evening.

You turn out the light for economic rather than romantic reasons.
You regret all those mistakes resisting temptation.

You feel like the morning after the night before, and you haven't been anywhere.

Your mind makes contracts your body can't meet.
You sit in a rocking chair and can't get it going.

After painting the town red, you have to take a long rest before applying a second coat.

You're 17 around the neck, 42 around the waist and 96 around the golf course.

You sink your teeth into a steak and they stay there.
A fortune teller offers to read your face.

THE IDEAL GOLFER

by Bill Smart

Doesn't play early, nor after five,
Always walks, never drives.
Hits them clearly off the tee,
No divot mark, for all to see.

Carefully disposes of paper wraps,
Rakes the footprints out of the traps.

Doesn't play fast, nor too slow,
Stands aside and lets us mow.

Always speaks with a friendly grin,
Plays the **game** not just to win.

His wife stays home while he makes the loop.
She **doesn't** belong to the ladies group.

He doesn't golf till the first of May,
And stops right after Labor Day.

Eats at the club, and buys a few drinks,
Helps carry his share of the cost of the links.

Plays once a week, usually Sunday,
Sometimes a Saturday, **never** a Monday.

Plays the game square, U.S.G.A.,
Doesn't care what the local rules say.

Fixes the ball marks on the greens,
Never on his putter leans.

Sees no need for spikey shoes,
That mar the greens, and leave a bruise

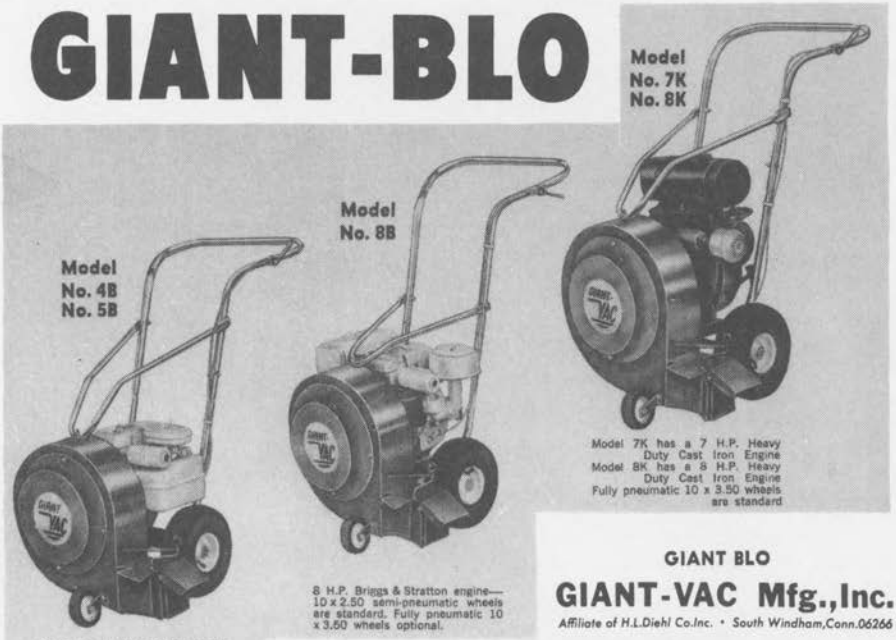
I've written these words with no trace of a sneer,
But where is this golfer? He doesn't play **here.**

BALLAD TO A GOLF COURSE

"A golf course is a pretty thing.
It needs a lot of care. It's hard to keep it lookin' good with all that wear and tear.
Mow the greens, and fairways too;
It's an all day job.
Water, spray and aerify;
and then wait for the mob.
Now golfers are peculiar guys,
it seems they do no wrong.
It's always cause the green's not right,
that makes their putt too long.
The green's too soft, the tee's too hard.
That's always what they say.
No matter what you do for them,
it messes up their play.

Credit: Iowa GCS Reporter

FAMOUS GIANT-VAC'S
GIANT-BLO

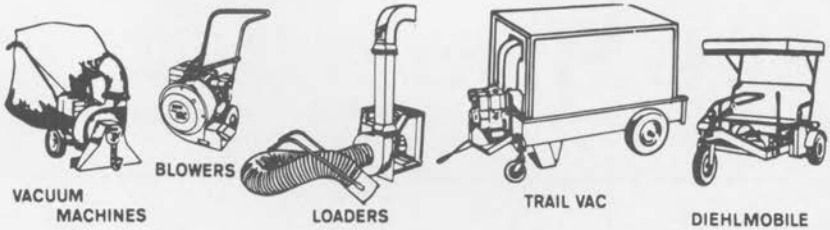


GIANT BLO

GIANT-VAC Mfg., Inc.

Affiliate of H.L.Diehl Co.Inc. • South Windham,Conn.06266

Giant-Blo whisks away leaves and debris at super-hurricane velocities. Well balanced for operator ease and maneuverability. A Giant-Blo will clean many acres in a fraction of the normal time. A unique exhaust deflector is standard on all models and directs the air in either a side or forward direction. This is ideal for cleaning hard to get at places. Intake and Exhaust hose kits are also available. Giant-Blos clean debris as neatly as hand raking, yet, 11 times faster and 10 times easier.



L&E DISTRIBUTOR • L&E CHEMICAL • LAWN EQUIPMENT CORP.

LAWN EQUIPMENT CORPORATION

520 W. 11 MILE ROAD ROYAL OAK, MICH. 48068

TELEPHONE: (313) 398-3636

"A Patch of Green"
31823 UTICA ROAD
FRASER, MICHIGAN 48026

FRASER MICH.

U.S. POSTAGE PAID BLK RT. PERMIT NO. 37