AUGUST 1982

A PATCH of GREEN

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

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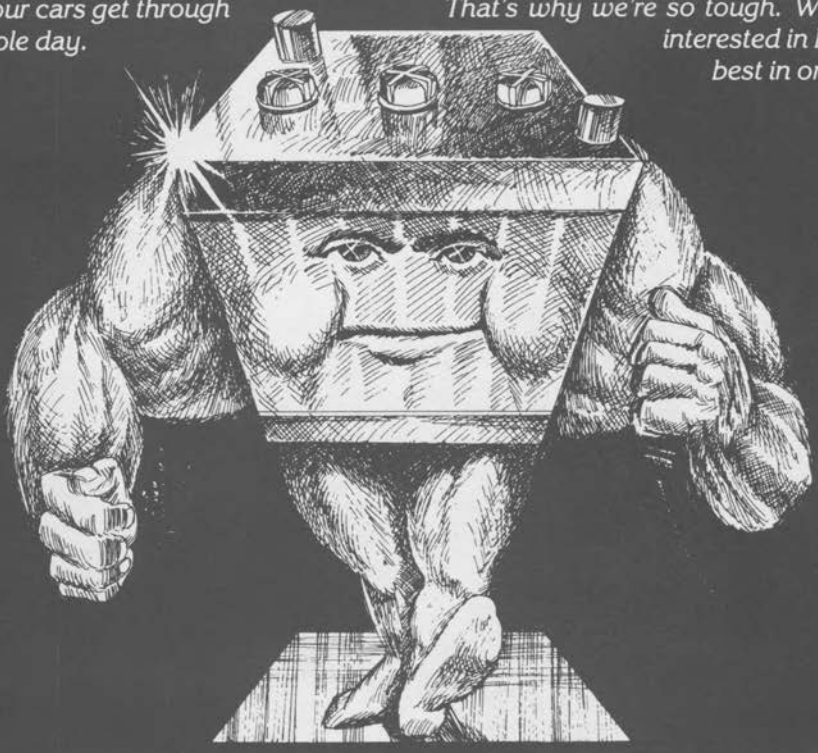

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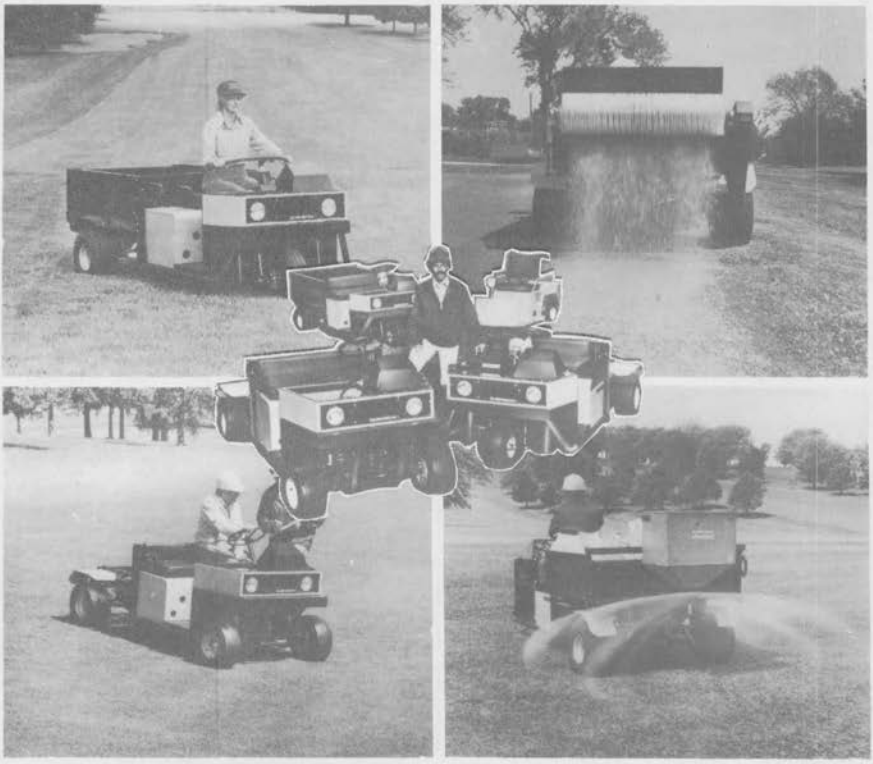

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"A PATCH OF GREEN"

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This Month's Advertisers...

Wetting Agents & their role in Water Conservation today

By Robert A. Moore
President, Aquatrols Corp. of America
New Jersey

A few years ago, we were all shocked, and made well aware of our dependency on oil - particularly foreign oil - and we have been talking about "An Energy Crisis" ever since. It is my firm belief that our next national crisis will be "A Water Crisis." As an example, at the Oaklahoma Turf Conference, in December 1978, Dr. Huffine recalled a comment by Marv Ferguson, that if this nation ever has another Civil War, it will be fought over water.

I don't believe we'll run out of water! But I do believe we must stop wasting water. We must learn to use water efficiently. Some areas of our country are now very aware of the necessity to conserve water, and have started various programs. Most of these programs require registering and reporting the quantity of water used, either monthly, quarterly or yearly. Very few areas are actually restricting water use except in cases of extreme drought or water shortages. We have all read about these checks - and in come years, have experienced such regulation.

The present requirements for registration and monitoring of water-use, provide the mechanism for future planning and future restrictions, if and when they are needed. Take note of how many conferences in recent yeas are placing an increasing emphasis on water. When our company started twenty-five years ago, very few conference programs considered water at all. Today's increased awareness of potential limited water resources is sharpening our senses on ways to more economically use water - ways to make water more efficient.

One enormously useful tool to make water more efficient, that has gained recognition in the last few years, is the use of soil wetting agents. Before we discuss their place in water conservation and improved plant growth, let's take a quick look at the vital role of water in plant growth and turf maintenance; and at some of the characteristics of water that can lead to problems. Bob Kneebone, has pointed out that water is essential for every function within the plant - for photosynthesis, for cooling, for growth, for turgor and for root development. It is used as a solvent, as a reagent, and as a nutrient - in fact the largest nutrient used by a plant. Water is also involved in every maintenance practice in your operations - fertilizing, pesticide treatments, mowing, aerifying - it even

Continued on Page 9

Preventative, Curative Programs Halt Spread of Pythium Blight

(SEE ALSO PAGE 14)

Golf enthusiasts are out in full force during the summer. Unless you plan ahead to avoid it, Pythium blight could join them as an unwelcome companion on your greens.

A water fungus mold, Pythium blight attacks the crown and root area before growing on and over the turfgrass surface. Water-soaked leaves with small, light-brown, irregular spots and streaks signal a Pythium blight infection.

"This disease develops rapidly when the maximum daily temperature is 86 degrees F. or higher followed by 15 or more consecutive hours with 90 percent relative humidity or above while night temperature remains at 68 degrees F. or warmer," explains Todd Cutting, TUCO agricultural chemical technical extension field representative. "Fungal growth can occur from a minimum of 40 degrees F. to a maximum of 100 degrees F."

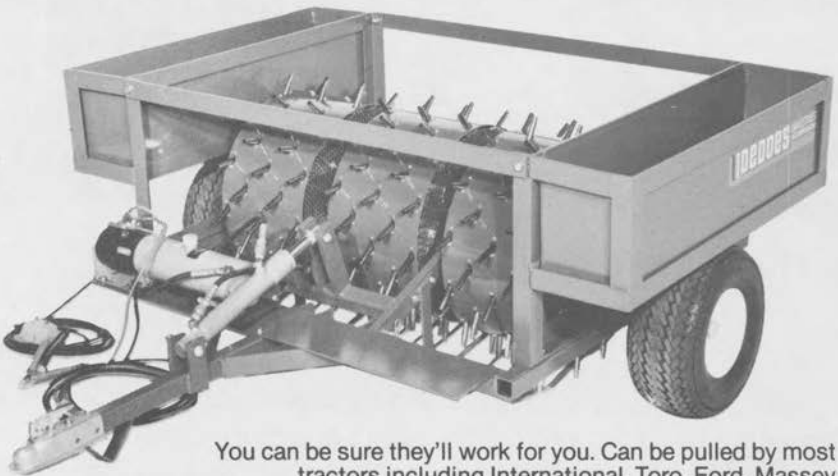
Free water, which stimulates spore germination and mycelia growth, can result from rain, irrigation, fog, dew or leaf exudates. High humidity slows the rate of evaporation and allows free water to remain on the plant surface longer.

"The splashing action of raindrops and irrigation water, early morning mowing of greens and foot traffic can increase sport movement," Cutting caution. "Waterlogged soils also are conducive to Pythium blight development."

He notes that the movement of excess surface water across an infected turfgrass area can transport spres to uninfected areas and the drainage pattern of a green often influences the spread

Continued on Page 17

Trailer aerator/dump box package by Dedoes: easy, quick and effective.



You can be sure they'll work for you. Can be pulled by most tractors including International, Toro, Ford, Massey Ferguson, Yanmar, Kubota, John Deere, E-Z-Go, and Cushman, because Dedoes trailer aerator and dump box attach to your hitch.

Newly designed remote control hydraulics for easy hookup and stable saddlebag weight boxes for proper penetration, are two hard-working features that make your job easier. Not only is it easy to operate, you'll get years of time-saving aeration with low maintenance.

The new trailer aerator is available in a variety of tine styles for tees, greens, fairways, lawns, right-of-ways, or institutional grounds.

So if you're responsible for strong, healthy, attractive grass and concerned with saving time and money, it's worth your time to investigate Dedoes quality aerators. Call today for a demonstration.

Complete package includes hydraulic dump box trailer with 1000 lb. lift capacity which uses same remote control hydraulic motor as aerator. Features double acting tailgate on 48" x 52" x 12" box with heavy duty square steel tube frame.

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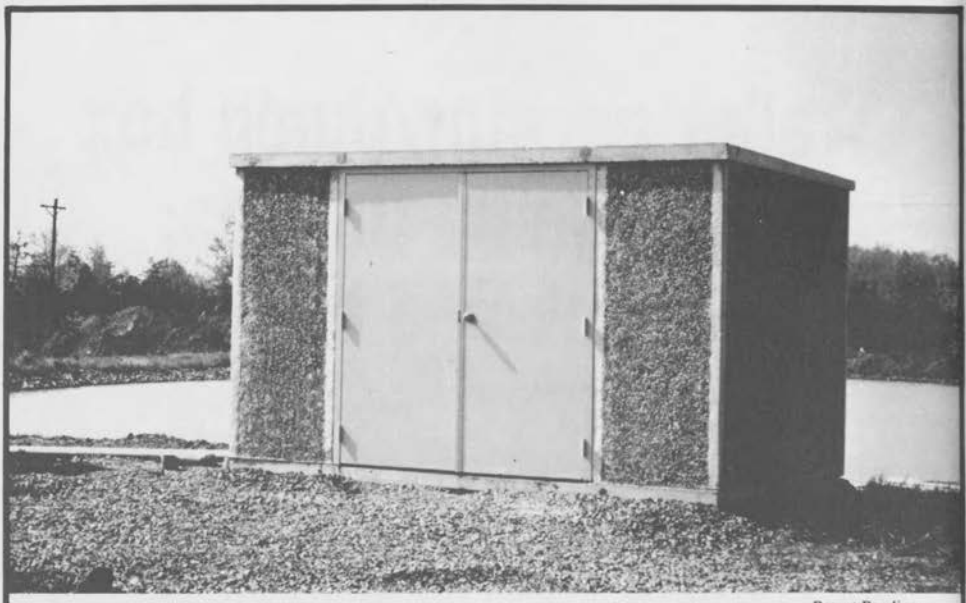

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affects the quality of playing conditions - sometimes to the point of eliminating play.

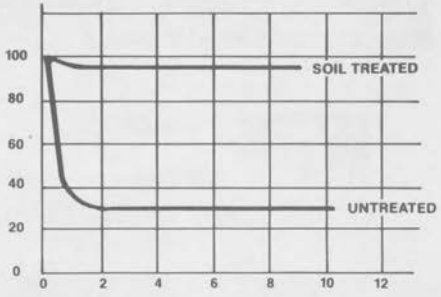
Most properties of water are beneficial, but two in particular, sufrace tension and the moisture tension in the soil, can be obstacles leading to inefficient water use, and turf losses. If we investigate the relationship between these moisture-tensions, turf losses and water uses, we see a definite pattern. Plain water has a lot of tension and hang-ups that can cause soil-water problems, one obvious example is low infiltration rates and puddling.

Puddling leads to run-off, and evaporative loss of water. One U.S.D.A. survey in the plains states, indicated that less than 20% of the natural rainfall actually becomes root-zone moisture - the water being lost by run-off and evaporation. Without water in the root-zone plants can't function. Plain water with its high tensions, moves slowly in fine textured soils. Though not alway sa loss of water, this another inefficient use, since turf can't utilize water from a saturated soil with poor areation. Diseases such as root rots, pythium, and other watermolds, as well as algeas increase under these conditions, weaken the turf, add to the inefficient use of water, and many times result in turf losses.

On the other hand, in the coarse texture soils, which have been enjoying great popularity for the past few years, the high tensions of plain water create different problems. Water tends to channel and not wet the soil profile uniformly. These soils can be droughty requiring greater amounts of water. In addition, the sandy type soils have been shown to produce a hard-to-wet condition referred to as localized dry-spots. These areas literally repell water, resulting in wilting and turfgrass losses. Repellent areas require special hand labor and extra waterings to try to save the turf - and that can cost you money! Thatch can also inhibit the movement of plain water, consequently, the movement of nutrients and other chemicals, particularly soil insecticides, are limited, weakening the grass and resulting in turf losses. As we review these problems that can lead to turf losses, we note that they can be classified as WATER problems - not SOIL problems. In each case there was too much water or too little water. And yet the approach to solving the situation has historically been aerifying and soil renovation. Through the soil condition is involved, the main cause of the turflosses outlined has been the high tensions of plain water. It is essential for the growth of healthy plants and for the conservation of water that certain compensations be made to promote a more efficient and wise use of water.

As mentioned earlier, the use of soil wetting agents to change water by lowering its tensions is rapidly gaining recognition for the purpose of "Making Water Better." Under low-tension-water conditions, water percolates faster. Puddling is reduced. Run-off and evaporation losses are reduced oreliminated. University data using tensiometers indicated a reduction of 30 to 50% reduction in salts introduced when using high salt content water - an important factor in these western states. Erosion losses were reduced by 65% in these same tests - which were under the severe conditions of 6 inches per hour on a 30% slope. All this simply using a wetting agent to compensate for water's few negative characteristics.

A statement that has often been heard is that we can't do anything about the problem of water penetration in areas of high traffic - highcompaction. The remedies discussed re usually aerifiremedies discussed are usually aerification soil renovation or paving. No thought is ever given to the WATER.



Percent water penetration in inches of untreated versus treated soil.

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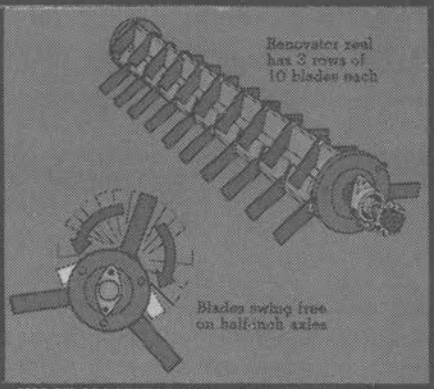
RAKE-O-VAC

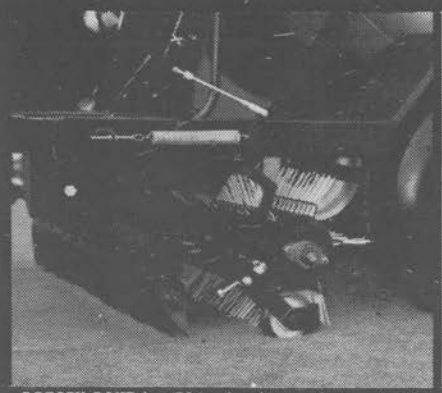
RENOVATES TURF AND VACUUMS IT CLEAN

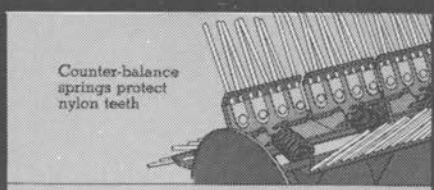


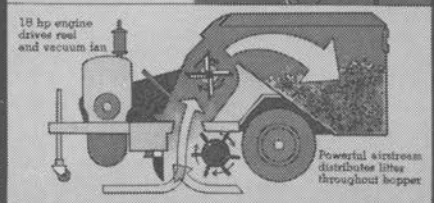
IT'S QUICK AND CLEAN: special renovator reel has 30 blades that slice a 58¾" swath. Renovates large areas in a short time, and the vacuum picks up the pieces. Greater capacity makes more frequent treatment practical—leading to healthier, more beautiful turf.

SHOCK-ABSORBING blades, pivoted to reduce damage, swing into action as reel rotates. Renovator reel is an accessory to the basic machine, and is interchangeable with rake (see below) or sweeper reel (next page). Reels raise for high-speed transport.

RAKES TURF AND VACUUMS IT CLEAN







ROTARY RAKE has 564 nylon fingers that gently lift litter off the turf, whip it into the vacuum stream that carries it into the hopper. Heavy rubber skirt, forward of reel, hugs ground to make vacuum even more powerful. Teeth will not mar bronze or stone markers.

RPM OF REEL is constantly coordinated to forward speed of unit—which is easily drawn by utility vehicle, tractor or light truck. Two 6-ply hi-flotation 11x15 tires make Rake-O-Vac light on its feet: only 6 lbs. psi empty, 14.5 lbs. psi carrying a ton of litter.

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Improved infiltration and percolation means better drainage and aeration - without rebuilding! The better drainage and aeration obtained in a wetting agent treated soil improves rooting - improved water movement reduces disease potential - and the overall efficiency of water and nutrient utilization is increased. This healthier turf, is also more efficient in using water as shown by Kauffman's data from Michigan State which indicated a significantly lower water-use-rate for Merion Kentucky bluegrass growing in a wetting agent treated soil - an 11 to 14% reduction.

Harry Muesel's work at Yale University with Aqua-GRO, showed that the turf grown with the wetting agent had a more compact cellular structive, a heavier cutin layer, and increased cell wall thickness - a definite change in the physiological structure of the turfgrass blades and roots. These changes contribute to improved resistance to disease, winter injury, traffic and wilting - a lower water use rate with a water "Made Better." These are real changes that have resulted from the better availability of rootzone moisture and the lower energy of that water.

Stress areas that develop as localized dry spots requiring extra labor and waterings can now be eliminated. Beard and Rieke's data from Michigan State clearly shows that wetting agents are the most effective correction in eliminating the damage from these localized spots; more effective than aerifying or slicing alone. The best overall results can be obtained with combined coring and wetting agents use. Water will quickly and uniformly move through a treated thatch and water repellent soil layer thus eliminating the necessity for extra hand-watering and labor.

I would like to emphasize a point made by Beard and Rieke - "All wetting agents are not alike." In fact, 80% of the commercially sold materials that they tested did not work better than plain water! You must use a scientifically blended material to be assured

Continued on Page 13

WETTING AGENTS, Cont.

of performance in all type soils. It must work for you in your soil to be of value. A proper blend will feature controlled biodegrading to safeguard the environment and, at the same time, be effective over a period of months. Some materials are lost after only two or three waterings. Your use of wetting agents should be on a repeating basis in order to compensate for this controlled biodegradation.

Reprinted from Weeds Trees & Turf

SOIL TEXTURE

By Wayne C. Morgan

Soil Texture: Relates to the amount and size of the soil particles. Sand, silt and clay are size grouping of soil particles. Sands range from 2 to .05 millimeters (mm) in diameter; silt from .05 to .002 mm; and clays are less than .002 mm.

The relative size of the upper limits of sand, silt, and clay might be better visualized if they could be magnified 1,000 times. The 2-mm sand particle would be 6.5 feet in diameter; the .05-mm silt particle would be 2 inches in diameter; and the .002-mm clay particle would be .04 inches in diameter.

If the surface of these particles could be laid out flat, their relationship could be compared. The surface from one pound of sand would cover 1 acre; the silt, 10 acres; and the clay, 30 acres.

BANOL TURF FUNGICIDE REGISTERED BY THE E.P.A.

Banol Turf Fungicide, made available for Pythium blight control in mid-1981 through an Experimental Use Permit (EUP), has now been registered by the E.P.A.

Marketed by TUCO Agricultural Chemicals, Division of the Upjohn Company, Banol has demonstrated high efficacy in control of Pythium blight when tested on turfgrass. It is a water soluble liquid concentrate with propamocarb hydro chloride as ative ingredient.

Approved label use includes rates of 1.3 to 4 fluid oz. of Banol in 2-5 gal. of water per 1,000 sq. ft. as a preventative treatment when weather conditions favor development of Pythium blight. A repeat application may be made in 7-21 days if weather conditions remain favorable for disease development.

According to researchers, disease development appears most favorable when the maximum daily temperature is 86 degrees F. or higher followed by 15 or more consecutive hours with relative humidity at 90 percent and above while night temperature remains 68 degrees F. or warmer.

Under the Environmental Use Permit the effectiveness of Banol in controlling Pythium blight was evaluated in over 400 golf courses in 26 states. The majority of superintendents used Banol as a preventative treatment when weather conditions favored disease development. Where low to medium disease levels did occur, 97 percent of the golf course superintendents reported effective control when Banol was applied at a rate of 1.3 to 2 fluid oz. per 1,000 sp. ft. At higher disease levels, effective control was obtained at application rates up to 4 fluid oz. per 1,000 sq. ft.

Laboratory and field research indicate that Banol provides residual protection against this turfgrass disease, which can damage turfgrass within 24 hours when evnironmental conditions for disease development are favorable. Effective disease control for 21 days or

Continued on Page 18

Dear Members of the Michigan Border Cities:

There is an organization here in Michigan that you may not be aware of, but one which has had far reaching effects on the way you manage your golf course. The same organization which establishes and maintains turf grass research and eductional funds in addition to promoting and advancing the interests of its membership whenever and wherever necessary.

The organization is called The Michigan Turfgrass Foundation (MTF). The Foundation is by definition a cooperative turf grass research and educational association of golf clubs, lawn care industry, park boards and virtually every other industry that deals with turfgrass as vital to its existance, including equipment dealers interested in developing new turfgrasses and better ways to maintain them.

For the Golf Course Superintendent however, there is much more to MTF than the definition would imply. It is a means by which you are represented in government on important issues such as restricted use of fertilizers and pesticide controls. It is an organization which, since its inception in 1954, has donated $100,000 to research supporting turfgrass and other related studies. The findings of these studies have had far reaching effects on every aspect of turfgrass management, and chances are that these findings directly influence the methods you use to manage your own golf course. On eof the most important aspects of this Foundation is an extension service which provides money for transportation and expenses of Michigan State University (MSU) personnel while they visit turfgrass problems, even in emergency situations if the need should arise. Lastly, it is a way to keep in contact with others in your profession. Each year in January MTF in cooperation with MSU holds a two day conference to present the latest findings on turfgrass management and other important related topics. This conference is something that everyone in our field should be a part of.

The development, testing and evalu-

Continued Next Page

CARL SCHWARTZKOPF RESIGNS USGA POSITION

Carl H. Schwartzkopf, Director of the Northeastern Region of the United States Golf Association's Green Section staff, has resigned his position. William H. Bengeyfield, National Director of the Green Section, accepted Schwartzkopf's resignation, effective June 1. Schwartzkopf has decided to pursue other opportunities in his home state of Michigan.

Schwartzkopf joined the USGA Green Section staff in 1971 and served in varied capacities before becoming Director of the Northeastern Region and Assistant National Director in 1980. He held both posts until September, 1981.

James T. Snow, formerly Senior Agronomist of the Northeastern Region, has been named Director of the Northeastern Region, succeeding Schwartzfopf. Snow will assume his new duties immediately.

Snow joined the USGA Green Section staff in 1976. He was graduated from Cornell University in 1974 with a bachelor's degree in Ornamental Horticulture and later received a master's degree in the same subject from Cornell in 1976.

LETTER, Cont.

ation of better turfgrasses and methods of maintenance have common and obvious interests for everyone in the turfgrass industry. Providing better facilities for the enjoyment of recreational activities, such as, golf, is just one of the important achievments of the foundation.

Through the cooperative participation of many golf clubs and other turf oriented industries sufficient funds have been raised to do important and necessary research in our chosen field. We ould welcome and appreciate your entry as a member into this organization that has done so much good for all of us. Please help us to help ourselves.

Sincerely,
Mike Edgerton
Director Michigan Turfgrass Foundation
M-BCGCSA

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of Pythium blight.

"If you've experienced Pythium blight on your course in the past, chances are good that it will happen again when the right weather conditions are present," Cutting advises. "But you can beat this problem before it shows up by using a program combining good management practices with timely fungicide applications."

Cutting suggests the following steps to ward off Pythium blight:

1) Identify greens and fairways with past histories of Pythium blight infections. Analyze management practices to uncover possible waknesses in the following areas: drainage, removal of clippings, thatch control, fertility and fungicide treatments.

"Adequate drainage promotes the development of deep root systems and healthy, vigorous turf that is less susceptible to infection from fungi," says Cutting. Because damp turf facilitates fungi activity, he recommends irrigating to a depth of six inches or more, but less frequently.

Increased disease development also occurs when clippings are allowed to remain on turf after mowing and thatch levels are thick. "Prompt removal of clippings and maintaining thatch levels at less than a half inch in thickness discourage fungi activity," notes Cutting.

Turfgrasses receiving proper amounts of essential nutrients are more disease resistant. High levels of calcium and potassium tend to reduce the susceptibility of turfgrasses to Pythium blight.

"Regular applications of fungicides are an economical way to control Pythium blight," says Cutting. He recommends using a systemic fungicide such as Banol, in a preventative program. Unlike contact fungicides which can be washed off, systemic fungicides are readily absorbed by both plant roots and foilage.

2) Determine areas of potential infection by studying past history and temperature/humidity levels. Cutting suggests following a preventative program including regularly scheduled fungicide applications every 7-21 days,

Continued Next Page

ROSTER CHANGE

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BANOL, Cont.

more was obtained under moderate disease pressure. If the disease pressure was particularly severe at the time of application, effective control was achieved for 10-14 days after application.

A brochure is available detailing use of Banol in preventative, curative and overseeding programs. To receive a copy of this brochure, or for more information, write BANOL, TUCO Agricultural Chemicals, Division of The Upjohn Company, 9823-190-45, Kalamazoo, Michigan 49001.

PYTHIUM BLIGHT, Cont.

depending on weather conditions and disease pressure.

"Three applications of a systemic fungicide will generally suffice, and may cost nearly one-third less than the curative program," says Cutting. "Research has shown, for instance, that Banol's residual activity extends up to 21-28 days."

3) If Pythium blight infection has already started, a curative program is recommended. "Higher application rates of fungicide can stop the infection and prevent further spreading," notes Cutting.

"Furthermore, if Pythium is active but visual sysmptoms are not present, the one day "kick-back" activity of a systemic fungicide like Banol can stop disease activity, so visual sysmptoms will not develop.

"Golf course superintendents can avoid tarnished turf and keep golfers happy by combining proper management practices and regular fungicide applications in their total disease prevention program."

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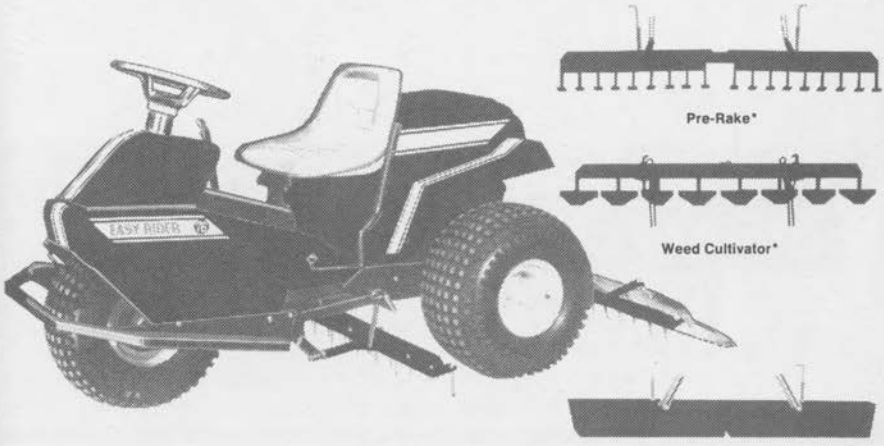
The Pre-Rake*—Uniformly scarifies tightly packed sand where a softer, deeper raked surface is desired.

The Weed Cultivator*—Knocks out weeds and loosens deep, hard packed sand. The operator controls the cultivating depth.

The Super Scooper*—Picks up eroded sand in low spots and transports it back to the desired high locations. The operator controlled hand lever spreads and feathers the sand to a level finish in one easy operation.



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