al sports," Newpher said. An annual motocross event will not be returning since it required covering the field with tons of dirt. The stadium is going to require greater protection of the field for concerts and religious events than in the past.

Newpher has consulted with managers of other PAT fields to learn about specific maintenance needs. "We will be fertilizing and irrigating more than before," said Newpher. "We plan to topdress more frequently with small amounts of sand instead of the heavy amounts we used to apply."

The renovation work being directed by T. Herman Graves, Atlanta Stadium Authority manager, also includes new scoreboards, more advertising signage, new seating, waterproofing the entire structure and improving the parking lots.

NATURAL TURF LOSES TORONTO DOME DECISION

Despite the valiant efforts of the Toronto Blue Jay Fan Club and the local press to convince Stadium Corporation of Ontario to install natural turf in its new retractable-dome stadium, the decision has been made to use artificial turf. "It boiled down to cost and versatility," said Robert Hunter, vice president of operations for Stadium Corp.

The facility will be used for more than 100 days of non-sporting events according to Hunter. Covering or removing the natural turf for those events, in addition to artificially lighting the field when the dome is closed, proved too costly for natural turf to compete with artificial turf. "There is no guarantee that a natural field would work since many of the conditions are unique to the dome," explained Hunter. All the extras necessary to grow and protect a natural field made it cost five times more than artificial over a 14-year period.

"We have listened to the concerns of players and fans regarding artificial turf," said Hunter. The next step will be getting answers to these concerns from the manufacturers and installers of artificial surfaces. Hunter intends to build these solutions into the specifications before the job goes out for bid in July.

NEW PARTNER APPROVED FOR PHOENIX STADIUM PROJECT

A $150-million stadium in Phoenix, AZ, is back on track after a three-month delay caused by the withdrawal of one of the project developers last December. Metropolitan Structures West, Inc., a subsidiary of Metroplitan Life Insurance Co., has replaced the Kroh Brothers Development Co., of Kansas City, MO.

Metropolitan will act as co-managing partner with Martin Stone, owner of the Phoenix Firebirds. They will take the lead in completing negotiations with the city, and in continuing the development of the stadium mixed-use project. The Phoenix Stadium Development Group, headed by Stone, will be responsible for negotiations to bring a National Football League franchise and a Major League Baseball franchise to Phoenix.

METRODOME REPLACES ARTIFICIAL SURFACE

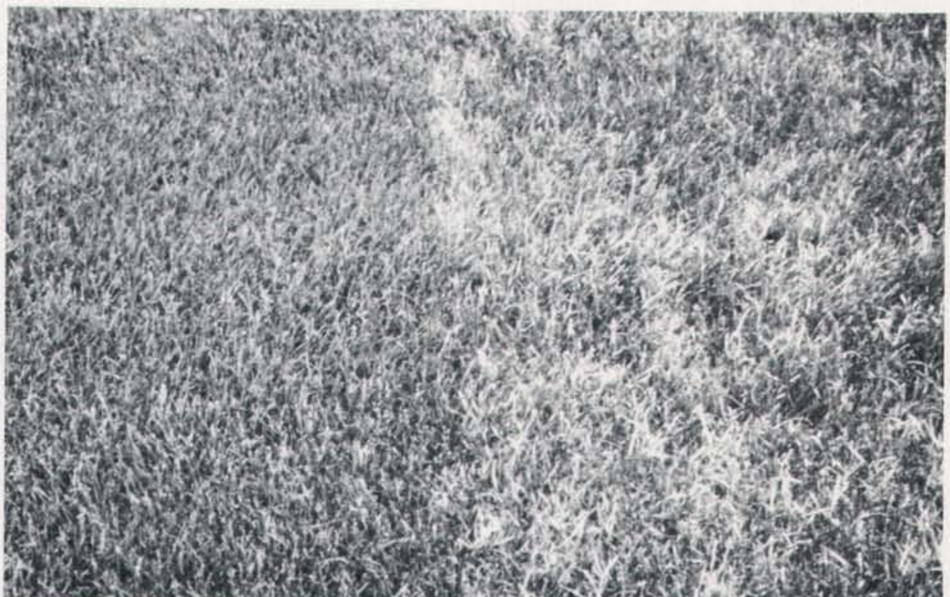
The six-year-old artificial turf surface at the Hubert H. Humphrey Metrodome in Bloomington, MN, has been replaced with an improved, softer surface from AstroTurf Industries, Inc. Steve Maki, head of physical operations at the facility, said the older surface, installed when the indoor stadium opened in 1981, was too hard and bouncy. Both the Minnesota Vikings and Twins wanted the old surface replaced.

The Twins were the first to use the new AstroTurf-8 field in April for their season opener against the Oakland A's. Monsanto engineers changed the padding to provide a bounce and feel more like natural turf. Special non-directional blades were used for consistent ball bounce and greater surface resiliency. Portions of the field can be removed to accomodate special events, such as tractor pulls, concerts and the NCAA basketball playoffs.

Choosing The Right Fungicides For Turfgrass Diseases

By Richard W. Smiley, Ph.D.

A walk-behind boom sprayer is used to apply fu



Effective use of fungicides on the Kentucky bluegrass on the left prevented serious damage by dollar spot.

A new season is now underway at sports fields and golf courses across the country. When you wrapped things up last winter, chances are you had a pretty good grasp of turf conditions. To make sure things stay that way this year, you hopefully spent a portion of this past winter at short courses updating your knowledge.

One important subject you should keep up on is the gradual replacement of older fungicides with newer, more selective ones. These new fungicides will change the way you fight turf diseases in the future and will increase the efficiency of turf disease management, but only if they are used as designed. One of the difficulties being experienced by turf managers as they add new fungicides to their disease control programs is inefficient use.

Because modern fungicides are more selective and precise in their mode of action, using them is more complicated. It is more important than ever for turfgrass managers and advisors to accurately diagnose diseases and to select control strategies that suppress the most predictable and serious disease at each location.

As new fungicides are registered and enter the market, the turf manager needs to determine the basic background and application characteristics for each. By understanding and utilizing this information, these products will provide the results they were developed to provide.

Today's turf manager is actually using an assortment of fungicides dating back to the early '50s. To obtain the greatest control of turf diseases, the turf manager (or his advisor) needs to know certain information about each fungicide he applies. It includes the history of the fungicide, its mode of action, the diseases it effectively controls, resistance to the chemical by some disease-causing organisms, the best application methods and strategies, and risks involved in application. There is also a growing amount of information on the effects of fungicides indirectly related to disease control, called "non-target effects."

The first fungicide to be used widely on turfgrasses was Bordeaux mixture. It stimulated interest in suppressing diseases on turfgrasses in the early 1900s, but its use was short-lived because of problems with copper toxicity. In the '20s and '30s fungicides containing inorganic and organic mercury were developed to provide some control of snow molds and brown patch.

During the '30s, chemists discovered a new group of synthetic fungicides derived from a chemical called dithiocarbamic acid. When World War II caused a shortage of mercury, this new group of fungicides replaced mercury for turf disease control. They included thiram and zineb and improved control of brown patch, copper spot, leaf spot and rust.

Fungicide development became intense in the 1950s, with the release of cycloheximide (Acti-dione), more mercury fungicides, cadmium fungicides, captan and anilazine (Dyrene). These products improved control of brown patch, dollar spot, leaf spot and powdery mildew.

Introductions continued into the '60s with chlorothalonil (Daconil 2787), maneb (Tersan

...cides on a golf green.

LSR) and mancozeb (Dithane M-45). As a result, advances were made in controlling brown patch, dollar spot, leaf spot, red thread and rust. It was during this decade that the first fungicides specifically effective against *Pythium* were released. They included chloroneb (Tersan SP), ethazole (Koban) and diazoben (Dexon).

The first systemic fungicides were also developed in the '60s. These chemicals are absorbed into the vascular system of the turfgrass plant where they become mixed with plant fluids that move through the leaves. Thiabendazole (Mertect) was the first systemic turf fungicide.

The '70s brought the development of additional systemic fungicides including benomyl (Tersan 1991), thiophanate methyl (Fungo), iprodione (Chipco 26019), metalaxyl (Subdue) and triadimefon (Bayleton). The decade was also noted as the time when the heavy metal fungicides (mercury- and cadmium-based) began to be banned from general use because of actual or potential hazards to the health of workers and the environment.

Systemic fungicides have dominated the '80s as well. Phosethyl Al (Alliette), propamocarb (Banol), propiconazol (Banner), fenarimol (Rubigan) and vinclozolin (Vorlan) are all newcomers. More are in the final stages of development. Alliette is unusual because it inhibits disease by increasing the host's resistance to harm by the fungi rather than attacking the fungi directly. In the truest sense, it could be called a plant growth regulant rather than a fungicide.

Nearly all fungicides developed prior to 1970 control diseases by interrupting the respiration or other energy-producing processes of the fungi. They are toxic to

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Choosing the Right Fungicides
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a broad range of fungi upon contact and are not absorbed through the plant tissue. They are effective only for controlling foliage-infecting fungi such as leaf spots and blights, dollar spot, brown patch, rusts and red thread.

In general, these surface protectants are not effective in penetrating through the thatch or soil to become distributed well enough and in sufficient concentration to be effective against soil pathogens. Thiram and captan, however, are effective when used as seed treatments for damping-off. Several heavy-metal fungicides are more soluble and have been used for soil treatments.

Most fungicides developed within the last 20 years control diseases by stopping the synthesis of vital biological compounds or structures. By disrupting the production of chemical or physical components necessary for the growth and survival of the fungi, the diseases caused by the fungi are controlled. Actidione, Subdue, Rubigan, Bayleton, Banner, Tersan 1991, Tersan SP, Chipco 26019, and Vorlan all inhibit production of critical compounds needed by the fungi.

These new fungicides also have the potential for being absorbed into the plant to kill fungi that have already invaded plants. This is called curative action.

Some new fungicides are absorbed into the plant to kill fungi that have already invaded it.

Fungicides which move only a short distance beyond the point of absorption are called locally systemic. Precise and uniform application of these fungicides is important for effective disease control. Examples of locally systemic fungicides are Tersan SP, Actidione and Koban.

Other fungicides are absorbed by the leaves or roots and then spread throughout the plant's vascular system. These systemically translocated fungicides include Tersan 1991, Rubigan, Chipco 26019, Banner, the thiophanates (Fungo, Cleary's 3336), Bayleton and Vorlan. These broad-spectrum systemics are effective against dollar spot, brown patch, smuts, rusts, powdery mildew, anthracnose, snow molds, Fusarium patch, southern blight and possibly take-all patch. Chipco 26019 and Vorlan are also effective against leaf spot and blight diseases.

In some instances, the range of activity is almost totally dependent upon the precise procedures used in applying the chemicals. For instance, diseases caused by root-infecting fungi are controlled by benomyl only if the fungicide is initially placed in the root zone rather than on the foliage or thatch surface.

The best narrow-spectrum fungicides are those that are used to suppress *Pythium* diseases. They include Tersan SP, Koban, Subdue, Alliette and Banol. Actidione is a narrow-spectrum fungicide mainly active against foliar diseases. A few narrow-range fungicides are being developed that are mainly active against a class of fungi that live in the soil or thatch, such as *Rhizoctonia, Sclerotium, Typhula* and the fairy ring fungi.

The same characteristics that make certain types of fungicides more effective than others also increase the risk of damage to plants by misapplication and the chance of fungi developing resistance to the fungicide. Broad-spectrum surface protectants are not absorbed into the plant nor do they affect plant metabolism so they present the least chance of phytotoxicity. They are often used at high rates and frequencies without apparent harm to turf.

Locally-systemic fungicides provide limited curative action against some fungi, but they do not generally provide prolonged protection against diseases. Excessive applications, however, can result in phytotoxicity.

Systemic fungicides have the ability to both protect against disease infection and kill fungi that have already invaded plants. However, since some systemics are similar to natural plant products, they often affect growth and metabolism of plants as well as fungi.

The greatest challenge to those who develop systemic fungicides is to discover chemicals that are sufficiently toxic to the fungi at concentrations that are not toxic to the plant. Plant health can be adversely affected at rates and frequencies of application only slightly higher than recommended.

The formulation of the fungicide can also make a difference on its phytotoxicity. Granular, wettable powder and flowable formulations are generally safer than highly-water-soluble formulations or emulsifiable concentrates.

Fungi have the ability to change and produce strains that are less sensitive or "resistant" to fungicides. This resistance lowers the effectiveness of fungicides in controlling diseases. When an entire population of a specific fungus is insensitive to a fungicide that fungus is considered to have natural resistance. *Pythium* species, for example, have a natural resistance to benomyl (Tersan 1991) and iprodione (Chipco 26019).

Repeated use of the same fungicide may enable less-sensitive strains to become dominant and cause the eventual failure of the fungicide. If fungicide use is discontinued at the location where resistance developed, the insensitive strain may either remain dominant or the fungi population may shift back to the fungicide-sensitive strain. A shift in dominance toward the resistant strain can temporarily or permanently influence the ability of the turfgrass manager to control diseases with the fungicide relied upon in the past.

Fungicides vary in their potential for causing insensitive strains of fungi to gain dominance. There is generally little or no problem with resistance to surface protectant fungicides such as anilazine (Dyrene), chlorothalonil (Daconil), maneb, thiram and zineb.

The fungicides with a higher risk of developing resistance are long-lasting ones that disrupt one or a few biological processes in the fungi. These characteristics make certain fungicides highly effective in controlling diseases, but provide maximum potential for the fungi to develop resistance. Once fungi develop resistance to a particular fungicide, they also can develop resistance to other fungicides that have the same mode of action. This characteristic is called cross tolerance. For example, fungi that develop resistance to benomyl will also be resistant to the thiophanates. Cross tolerance is also likely between iprodione (Chipco 26019) and vinclozolin (Vorlan) and among fenarimol (Rubigan), triadimefon (Bayleton) and propiconazol (Banner).

Experience has shown that some types of systemics encounter resistance problems more than others. Systemic fungicides with a high risk of resistance problems are benomyl (Tersan 1991), thiophanate (Fungo, Cleary 3336) and metalaxyl (Subdue). Iprodione (Chipco 26019) and vinclozolin (Vorlan) have a moderate risk while fenarimol (Rubigan), triadimefon (Bayleton) and propiconazol (Banner) have a low risk.

Several precautions can be used to reduce the risk of resistance. The basic idea is to minimize the exposure of the fungi population to a particular fungicide, while maintaining an acceptable level of disease control.

Do not use preventative applications of fungicides against diseases that are not damaging or against damaging diseases like dollar spot that build up slowly. There is usually plenty of time to arrest diseases like dollar spot after the first symptoms have been observed. Preventative applications of fungicides will increase the risk of resistance.

If possible, choose fungicides that have the least risk of developing resistance. Do not exceed the minimal application rates and frequencies necessary for adequate disease control. Use of high-risk fungicides should be saved for the most important needs, and alternative, lower-risk fungicides should be used where possible. Fungicide drenches also favor development of resistant fungi.

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Choosing the Right Fungicides
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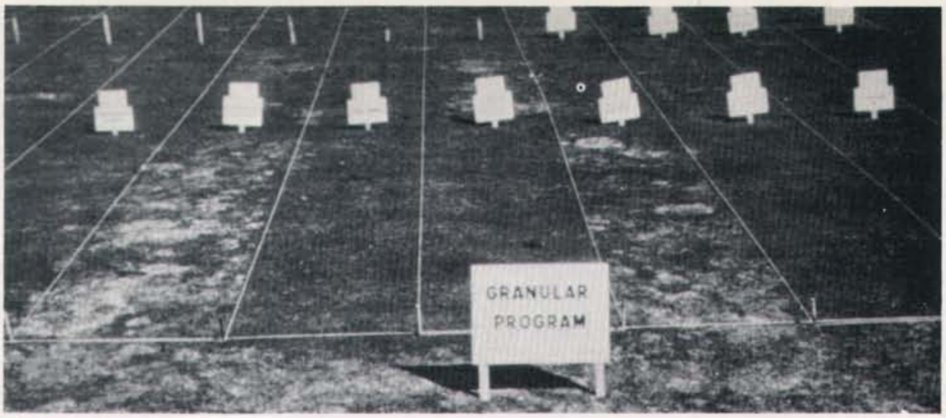

Test plots in New York show the effectiveness of various fungicides against pink snow mold.

Mixing fungicides is effective for decreasing the rate of resistance. Alternate several fungicides through the disease season or mix two or more fungicides in the tank for simultaneous treatment. Both techniques are better than repeated use or heavy reliance of one chemical.

Studies have predicted that the most efficient means for delaying or preventing resistance is to alternate the use of a surface protectant with a tank mixture of a systemic fungicide with a surface protectant. The next best program is to repeatedly use a mixture of protectant and systemic fungicides. High efficiency is also provided by alternating a systemic with a surface protectant. The worst efficiency is derived from using one systemic repeatedly.

The very best resistance avoidance technique is to integrate chemical control strategies with cultural management approaches. Use mixtures of different turfgrass cultivars known for their resistance to diseases. Modify practices that encourage disease, such as excessive fertilization and irrigation. Provide a healthy root zone through aeration, application of key nutrients such as potassium and micronutrients, and removal of heavy thatch layers. Start forecasting and monitoring disease incidence to reduce your dependence upon preventative fungicides.

The effectiveness of any disease control program is greatly influenced by the method and timing of fungicide applications. Disease-causing fungi must be in a physiologically active state and readily accessible for surface protectant fungicides to be effective. These fungicides only control active fungi on the leaf surface or in the upper thatch. They are not effective for controlling fungal infections in the roots and crowns of turfgrass or for fungi that have already penetrated the leaf surface.

If a surface protectant fungicide is applied after a fungus has penetrated the leaf surface, the disease will continue to develop at the infected site. However, it will reduce or halt the spread of the disease by killing the reproductive spores released when the fungus emerges from the infected leaf.

Unfortunately, many of the fungi that cause disease are also highly beneficial decomposers of organic litter and thatch. Residues of some fungicides on thatch and leaf clippings can reduce the efficiency of these beneficial fungi. Excessive applications of fungicides are contrary to thatch and turfgrass management objectives.

Surface protectants must be uniformly distributed over the leaf to be effective. The volume of water used per unit area is usually high because complete leaf coverage is essential. Wetting agents are helpful in achieving effective coverage of the fungicide on the leaf surface.

Since untreated portions of new leaves grow upward and laterally from the soil, surface protectants must be applied at frequent intervals. If weather conditions favor the development of a disease and the turf is growing rapidly, protectant sprays must be applied every four to 14 days. If turf growth is slow, fungicide applications every 21 days can be effective.

Reasonable control of foliar diseases can be achieved with surface protectants even when application procedures are far from efficient. Since most of these chemicals are low in phytotoxicity, no immediate problems occur, even when large overdoses or extreme variations in application rates are made.

Most surface protectants are in wettable powder form because the active ingredients are insoluble in water. Granular formulations of some surface protectants are available, but they are rather inefficient because it is difficult to spread them uniformly on the leaf. They are generally applied at very high rates when dew is on the foliage. The dew acts as a spreading agent. The greatest attribute of granular surface protectants is to control reproduction of harmful fungi growing in the thatch.

It is unwise to apply surface protectants just prior to mowing, irrigation or rainfall. The fungicide needs time to dry thoroughly on the leaf.

Application methods and strategies for systemic fungicides are significantly different than for surface protectants. This will require changes for many sports turf managers who are accustomed to applying surface protectants. This increased amount of care is not really new. It is the same care needed when applying systemic herbicides to control weeds without affecting desirable grasses or shrubbery.

Application uniformity and close monitoring of the application rate are very important. Overdoses of systemic fungicides are always undesirable. When these fungicides are mixed at the recommended rates, overlapping with spray equipment can cause applications of more than twice the intended rate. Rates as low as four times the recommended rate can cause phytotoxicity with some systemics. It is impossible to prevent overlaps within this magnitude when using hand-held or non-agitating equipment or with flooding applications. Even boom sprayers often create narrow bands of double the intended rate when overlapping. Improper nozzle selection, boom height, rate of travel and calibration can cause variations in dosage rates within each pass.

Systemic fungicides may be applied as foliar sprays or soil drenches. The method of application depends upon the specific chemical, the disease to be controlled and the availability of water for drenching.

Systemic fungicides move in different directions inside the plant. Most move from the roots or other point of absorption toward the leaf tips. Others move mostly toward the leaf tips but also slightly toward the roots. None of the current fungicides move just toward the roots. It is important to know which direction the fungicide moves within the plant when selecting a fungicide and application method.

The best way to explain the influence of

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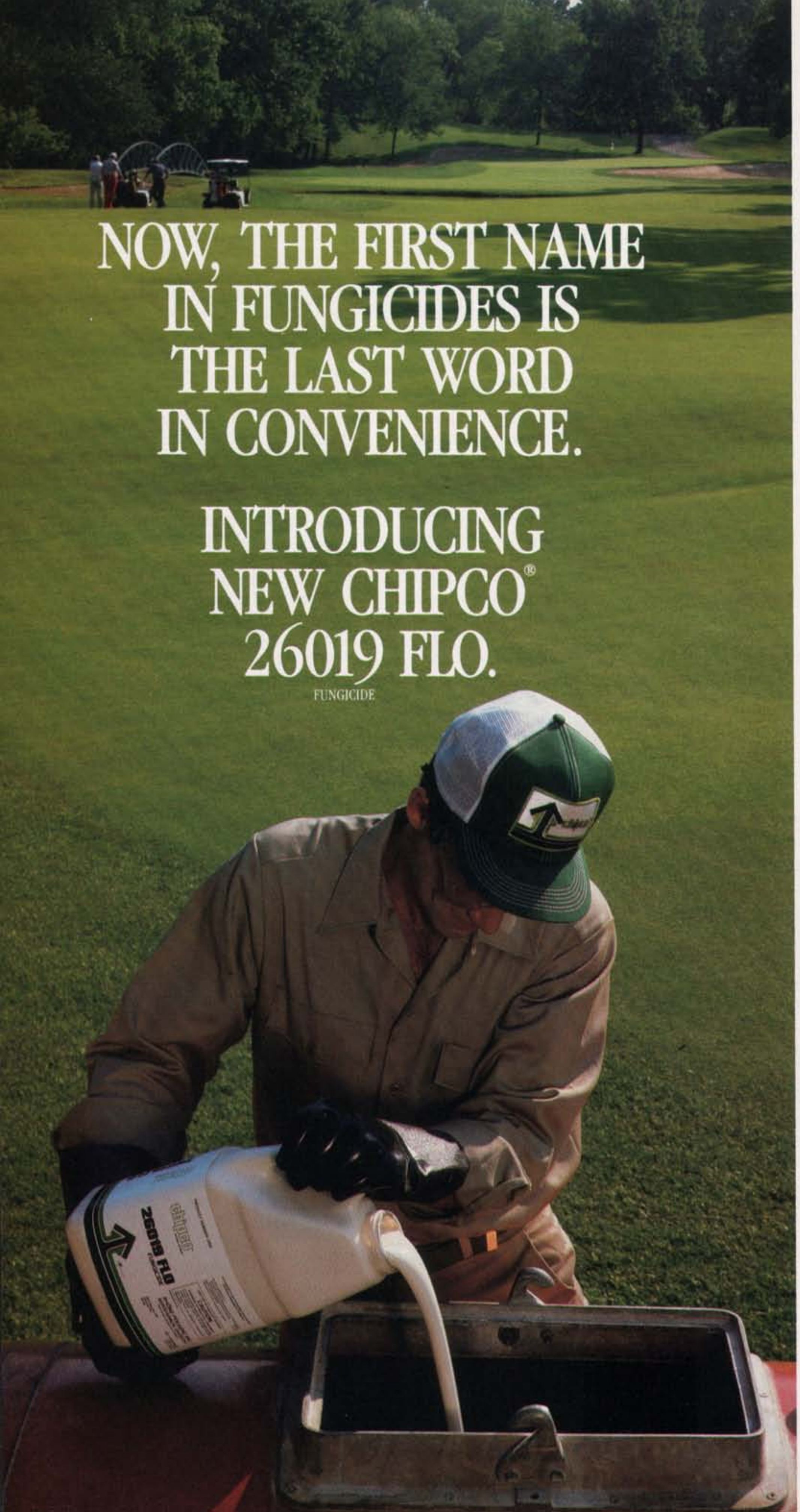

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fungicide movement within the plant on the effectiveness of disease control is with examples. Suppose that perennial ryegrass on a football field in cool, wet weather is infected by root tip necrosis caused by *Pythium graminicola* and *Pythium vanterpooli*. *Pythium graminicola* can also cause foliar blight during hot, wet weather. The sports turf manager wants to choose between Subdue or Banol for controlling both diseases. Subdue moves within the turf both toward the roots and toward the leaf tips. Banol moves only toward the leaf tips. For Banol to be effective against the root tip necrosis it would have to be applied as a soil drench. Subdue can be applied as a foliar spray for both diseases. Fortunately, Banol is highly soluble in water and is easily washed into the root zone.

Applications of these two fungicides for root tip blight should be made before the disease disrupts the flow of plant fluids or else the fungicides themselves will not be able to move to the infected sites. Applications of chemicals made after roots cease to function have no possibility for saving heavily damaged plants, but can help less-affected plants to recover.

Banol or Subdue would both be effective for controlling foliar blight when applied as foliar sprays during hot, wet weather.

Another example of selecting fungicides based upon their movement within the plant is a Kentucky bluegrass golf tee that has both dollar spot and stripe smut. Dollar spot is caused by fungi that only attack the foliage of the turfgrass plant. Stripe smut is caused by fungi attacking the roots and rhizomes. The superintendent wants to choose between Bayleton and Tersan 1991. Both fungicides move toward the leaf tips but only Bayleton also moves slowly toward the roots.

> ***Systemic fungicides are very well-suited for use in granular form with a cyclone spreader.***

Foliar sprays of either fungicide will control the dollar spot. Bayleton sprayed onto the leaves can also control the stripe smut. Tersan 1991 must be applied as a soil drench to control the stripe smut. This illustrates that proper selection and application of fungicides can result in combined disease control with no additional effort.

Systemic fungicides are very well suited for application in granular form. The efficiency of granular formulations is much higher for systemics than surface protectants. This makes uniform application possible for turf managers who do not possess a boom sprayer or for small, irregular areas. The granules can be applied with a cyclone or drop-type spreader.

Efficient use of systemic fungicides that move only toward the leaf tip can only be achieved through precise drenching applications. A number of factors can influence the effectiveness of drenching. They include weather, availability of sufficient water at the proper time, the amount of thatch and the texture and compaction of the soil. Fungicide drenches should be limited to controlling fungi that are unlikely to develop resistance.

The purpose of drenching is to uniformly distribute fungicide throughout the root zone of infected plants for uptake by the roots. If some of the fungicide dries on the foliage, thatch or soil surface before reaching the root zone, a large amount of control efficiency will be permanently lost. Once it dries on any surface, the fungicide is unlikely to be rinsed down into the root zone by subsequent applications of water. Special precautions must be taken to move insoluble fungicides into the root zone on hot, dry days when the chemicals can dry on leaf blades within several minutes. This drying time can be extended by applying the drench after a heavy dew or short irrigation cycle. It is not unusual to operate spray equipment while the irrigation sprinklers are on when drying is likely to be rapid. On large, non-irrigated areas, drenching is only possible immediately before or during a rain. Care must be taken to avoid heavy rains that can cause surface runoff. It is unlikely that proper drenching can be achieved through flooding.

Excessive thatch depth and soil compaction can impede the penetration of fungicide into the soil. Mechanical removal of some thatch and opening cores or slits in the soil can improve penetration. Since the fungicides are suspended, not dissolved in water, a slow rate of penetration through compacted soil will deposit most of the fungicide near the surface. The fungicide drench will also flow into any large cracks in dry soils resulting in uneven distribution. Cracks in some dry soils can be minimized by watering several days prior to applying the fungicide.

A growing area of importance to the fungicide applicator is the effect of certain fungicides on thatch development, soil microorganisms and plant growth.

Some fungicides can cause an increase in thatch. This only occurs when frequent applications of certain fungicides are made over two or more years. Studies have indicated that fungicides containing benomyl, iprodione, maneb, thiram and thiophanate increased thatch levels over a period of years when applied nine times each season. Some superintendents apply fungicides this frequently to golf greens. Combinations or alternated applications of these chemicals further aggravated thatch accumulation. Subsequent studies with only three applications each season, which is typical for most turf areas, have failed to show that these fungicides increase thatch.

Fungicides not only suppress the growth of fungi which cause turf diseases, they also affect many other sensitive fungi in the soil. The largest shifts in microbial populations occur when two or more broad-spectrum fungicides are used in tank mixes or alternately. As more fungicides are used in the disease control program, the total population of fungi in the turf and soil remains the same, but the percentage of fungi resistant to the fungicides applied increases.

These changes in fungal species can have a profound effect on the subsequent incidence of turfgrass diseases. In some cases, microorganisms which attack disease-causing fungi are more sensitive to some fungicides than are the intended fungi. Further applications of these fungicides can actually encourage infestation of the disease they are intended to control. It is even possible for a second disease to become established when a fungicide is applied to control a different disease.

The sports turf manager should closely observe disease-prone areas and keep thorough records to help track any secondary or nontarget affects of fungicide treatments.

All fungicides can obviously improve plant growth if they control diseases that slow plant growth. However, many fungicides can also reduce plant growth when applied at phytotoxic rates.

Systemic fungicides may also have other subtle influences on plant growth. They have been observed to alter the production of some plant hormones, increase the retention of chlorophyll, slow tissue aging and increase growth rates. Some systemics have increased the drought and heat resistance of turf. The turf manager should not overapply these chemicals with the intention of achieving secondary benefits. The potential for phytotoxicity from small overapplications is too risky for such practices.

Fungicides have an important role in turfgrass management programs which must be improved continually to fully implement the current state of knowledge and technology. In this way we can devise and implement the least costly and least disruptive approaches to managing healthy turf. Pesticides, grass varieties and cultural practices must be integrated into a network of year-round management. Neglect of any one component will surely lead to unnecesary expenses and costly failures.

Editor's Note: Dr. Richard Smiley is professor of plant pathology, Oregon State University, Columbia Basin Agriculture Research Center, Pendleton, OR.

SEED RESEARCH HONORS SKOGLEY AND FLEMING

Dr. Richard Skogley, professor of agronomy at the University of Rhode Island, and David Fleming, superintendent of Singing Hills Country Club in El Cajon, CA, were honored recently by Seed Research of Oregon for their contributions to turfgrass management.

"Dr. Skogley is recognized throughout the turf industry as a leader in low maintenance turf research," said Mike Robinson, president of Seed Research. Skogley has also been an important breeder of improved turfgrasses.

Fleming, who also consults for numerous San Diego sports complexes, was honored for his "progressive, innovative and highly-skilled" work in both turf and business management. Robinson stated, "Fleming exemplifies our ideal of an outstanding golf course superintendent."

ROBERT W. SCHERY

Robert W. Schery, Ph.D., the founding executive director of the Lawn Institute, died recently at his home in Marysville, OH. For more than 30 years, Schery served as liaison between marketers of turf seed and research and extension turf specialists at Land Grant Colleges. He authored numerous publications to help educate turf managers regarding advances in turfgrass management made possible by improved varieties. His status as a collector of turfgrass research results made him a national expert on the subject and a regular contributor to the *Encyclopedia Brittanica, Encyclopedia Americana* and *World Book.*

Schery received his Ph.D. in botany from Washington University in St. Louis, MO. Prior to becoming executive director of the Lawn Institute, he was botanist for the Monsanto Chemical Co. and O. M. Scott & Sons. He was also a recipient of the Professional Excellence Award from the Ohio Turfgrass Foundation and former chairman of the Lawn and Turfgrass Division of the American Seed Trade Association.

Eliot Roberts, current executive director of the Lawn Institute, praised Roberts for his many contributions to turfgrass seed science. "Bob Schery enhanced our appreciation of the lawnscape."

JACOBSEN NAMES REID DIRECTOR OF MARKETING

Robert W. Reid, Jr., previously manager of the Lawn-Boy Products Group at Outboard Marine Corp., has been appointed director of marketing for the Jacobsen Division of Textron, Inc. In the newly-created position, Reid will develop and implement the marketing program for Jacobsen's professional turf equipment and commercial products.

The announcement was made by Thomas Carter, vice president of marketing. "Bob Reid's experience will play a major role in strengthening our marketing efforts," said Carter.

PGMS CHANGES ADDRESS

The Professional Grounds Management Society, an association with more than 1,000 members, has moved its offices from Pikesville, MD, to Cockeysville, MD, both suburbs of Baltimore. The association's new address is 12 Galloway Ave., Suite 1E, Cockeysville, MD 21030. "The move is part of the executive board's plan to increase services to our chapters," said Allan Shulder, executive director.