



Brown Patch Pounces Again

By Dr. Gayle L. Worf
Department of Plant Pathology
University of Wisconsin—Madison

Rhizoctonia brown patch is one of the first diseases taught to fledgling turf students. It's a classic disease. Brown patch is, in fact, the first disease to be recognized as a golf course disease problem. This came about in 1914, in Philadelphia, in a turf garden. At that time, both turf maintenance and turf pathology were still in their infancy, but enough was known about causation of plant disease to know how to isolate the suspect fungus, put it back onto turf in the greenhouse, reproduce the symptoms and re-isolate the suspect pathogen from the recently inoculated and killed grass (complete Koch's Postulates, as this process is known). The disease undoubtedly occurred earlier, but according to the early accounts, it was overlooked because turf was not being as well maintained (and therefore less susceptible, possibly), but it was easier to recognize a malady once grass culture improved. Of greater significance: it was simply assumed that grass often naturally "died out" during warm summer times! (Sounds familiar, doesn't it?)

Interestingly enough, Bordeaux fungicide was around at that time, being used for brown rot control in peach orchards, late blight in potato fields, scab control for apples, and a number of other crop diseases. So it was only natural that it was tried on turf. It worked. But Bordeaux contains copper, which is toxic to grass, especially after repeated applications or too high rates.

R. solani, the incitant of brown patch, is an extremely variable fungus. It can attack many different crops when the conditions are favorable. Usually those conditions are high temperature, high moisture or humidity, and an abundance of lush, soft growth. The same is true with turf.

By this time you're in tune with the fact that *R. solani* is only one of several different species of Rhizoctonia causing turf diseases. Yellow patch is caused by *R. cerealis* and is sometimes called cool season brown patch.

We're learning more about *R. zaeae*, the cause of Rhizoctonia sheath and leaf spot disease. The book says that *R. cerealis*, *R. solani*, and *R. zaeae* grow best at 72, 82 and 90 degrees F, respectively. But we've come to appreciate considerable range, I think especially with the brown patch fungus. It appears that we need to loosen up a bit in our thinking as to when brown patch can get started, temperature-wise. Of five cultures we tested last winter, four of them were more pathogenic at 20°C (68°F) than at 32°C (90°F). And the one that was active at high temperatures turned out to be *R. zaeae*!

And that fits with what we encountered several times this summer. The temperatures were not really that uncomfortable when disease was active. Sometimes it was downright cool!

So why did we have so much disease this year? I'm not really sure, at the moment, but we did have some very extended, wet periods. Again, the book says it takes leaf wetness for periods longer than 12 hours. During August when several superintendents reported brown patch troubles, we were encountering days and nights of rain or high humidity, brief periods of 90 degree weather, but mostly cool conditions. Extended wet weather appears to be much more important than warm weather.

Rhizoctonia grows over the surface of the grass before it invades. It must build up at least some inoculum load before it does severe damage. The fungus is actually not a very good competitor with other organisms. In fact there has been quite a bit of research, mostly on other crops but a little on turf, looking at competition with other organisms as a way to combat the disease without use of chemicals. It's quite conceivable that something happened this summer to lower, or knock out competitive organisms, and thus to give Rhizoc a better chance.

A number of studies over the years have pointed out influence of nutri-

tional conditions, especially nitrogen, and most of us know to avoid succulent turf to help with brown patch control. Some other cultural methods suggested to control brown patch include keeping the grass mowed with a sharp blade to reduce damaged leaf tips; collecting clippings during hot, humid weather to eliminate the starting food base for the fungus; eliminate prostrated turf, which is closer to the ground and more easily attacked; slightly lowering the mowing height of taller turf to improve air circulation; selectively pruning nearby trees and shrubs for the same reason; providing optimum surface and subsurface drainage; don't irrigate unless the soil is dry, then making sure the turf dries off before nightfall, and removing morning dews. I'll leave it to you how many, or how effective and realistic these approaches may be for you.

Of course, fungicides are first lines of defense for golf courses. And a number of products are registered, in fact, nearly all turf products are. But superintendents disagree on which one is best. Benomyl is regarded as outstanding in some states, but it has failed miserably against sheath and leaf spot Rhizoc. Sterol inhibitors effectiveness is a subject that usually draws debate. The older standards, such as Daconil and Fore may be the most dependable. Newer products such as Chipco 26019 and ProStar are supposed to be effective.

You have reason to ask why we are not more emphatic about fungicide efficacy for Rhizoctonia control in Wisconsin. It turns out that we have rarely encountered the disease in our plots over the 20 years we've been testing. This past summer we elected to do something about that, and with Tom Harrison's help at Maple Bluff, we inoculated areas with two different Rhizocs. We didn't get much disease. That's what other pathologists report with field inoculations. It probably goes back to those conditions we were talking about earlier. But what was frustrating to us is that the disease was popping up elsewhere around town, where we didn't have plots! Fortunately, it did occur in one location where we had a summer patch/anthracnose study, with Monroe Miller. We got some interesting results there which we are looking forward to sharing with you at the winter meetings.

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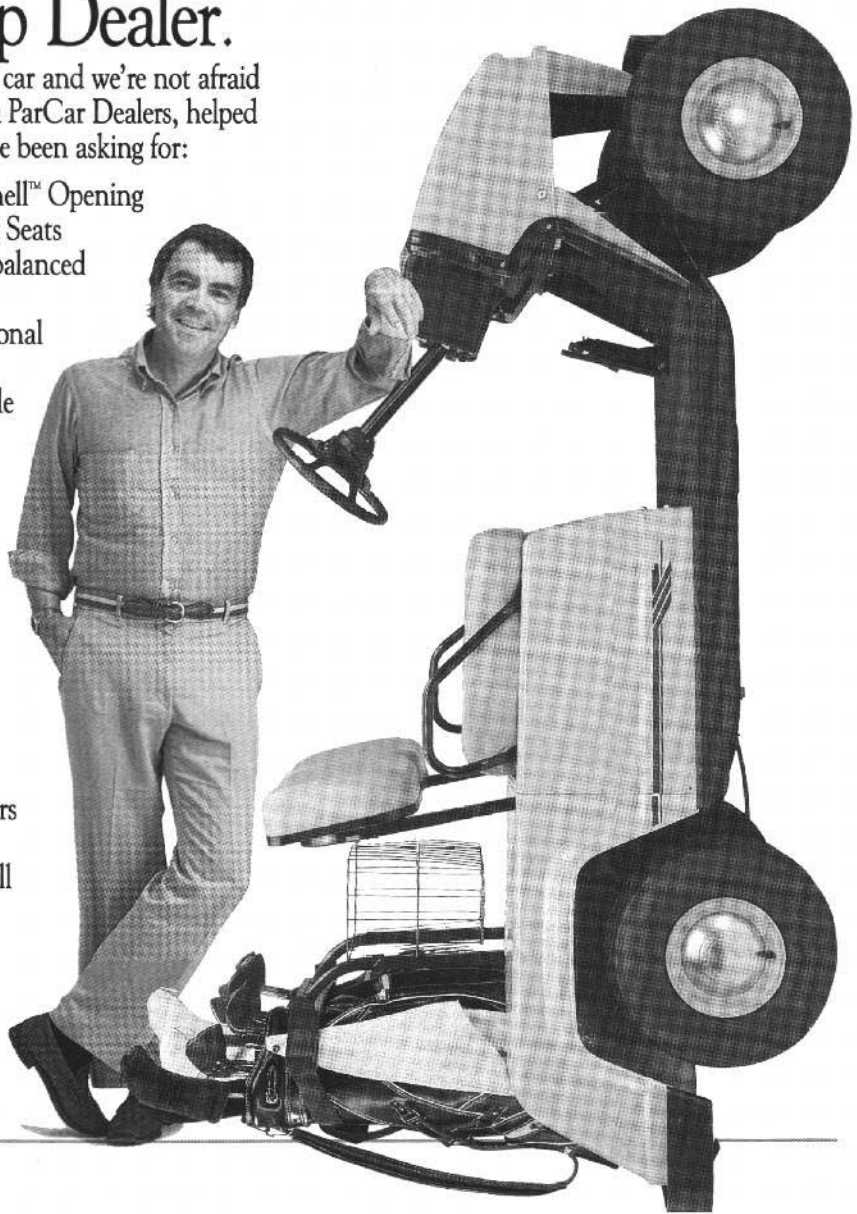
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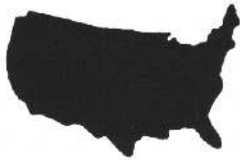
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Ma Nature reminds us who is boss around here

By Rob Zaleski

Dear Ma Nature,

All right, you win.

We surrender.

And, yeah, you're right about something else, too. We deserved it.

We committed the cardinal sin of life in Wisconsin.

We got smug.

No, smug is too mild. We got fat. Arrogant.

We were gloating.

We began to think we could look you in the eye and laugh. We had our sophisticated snow blowers and our new four-wheel-drive cars and trucks—and we thought we could take anything you threw at us.

And, hey, why not? It's been a good three years since you last humbled us, since you last brought us to our knees.

No excuses, but the simple fact is—we forgot.

In fact, let me tell you what smug is.

Just a few days ago, I was toying with the idea of golfing—assuming I could find a course that was still open—on the morning of Dec. 24. And having someone take a picture of me on the first tee so I could send it to my brother-in-law in Naples, Fla.

I figured, what the heck. I can still golf when it's 40 and sunny. I'll just wear an extra sweater.

Smug is throwing out your old winter boots two years ago and not bothering to replace them. It's leaving for work at 7:30 a.m. in the midst of Monday's blizzard without so much as a hat or scarf—with only a pair of penny loafers on my feet.

Smug is—if you can believe this—not even having an ice scraper in my car.

But then it all came back to me.

It came back to me late that afternoon when my front-wheel-drive Mercury Tracer got stuck in a snowbank

just outside The Capital Times and an angel named Don Vohs appeared out of nowhere in his pickup truck and yanked me out with a chain.

It came back to me 20 minutes after that when I got stuck a second time just a block from my house and my neighbor, Randy Smith, had to slip into his snow gear and push me out.

Smith, gentleman that he is, didn't say a thing.

But I could tell what he was thinking: "There's 17 inches of snow out here and this guy's running around in penny loafers?"

And it came back to me when I finally had to park my car a block away and walk, because my own street—Mayhill Drive—is always the last one in the city to get plowed.

So there I was, trudging through 4-foot high drifts—frozen tears stuck to my face, my pants legs stiff with ice, the feeling long since gone in my toes—and I began to hallucinate.

So help me, for a few moments I began to think back to the tragic Donner expedition in the 1840s.

And I began to wonder if this was how it was all going to end—that sometime next March some little runt on his Big Wheel was going to run over my corpse. And then he'd run into his house and shout, "Hey, mom, you're not going to believe this, but there's a frozen dead body on our sidewalk."

"And the weirdo's wearing penny loafers."

So, yeah, you're right, Ma Nature. We got cocky, and we have only ourselves to blame.

And as I'm sitting here in my kitchen at this very moment—my feet in the oven—I'll confess that I'm in the process of revising my Christmas list. Scratch the Kouros cologne and the new A.J. Liebling boxing book. Sub-

stitute the long johns and wool-lined boots from Eddie Bauer.

But in the spirit of the season, Ma Nature, I'd like to ask a favor.

I mean, you've already made your point. So I'm asking for a little compassion.

You see, I really didn't expect to tee up on Dec. 24.

But I just put up this basketball hoop in my driveway and I'm dying to try it out.

Preferably before Memorial Day.

Warmest regards,
Rob

*EDITOR'S NOTE: It may well be that for this issue of **The Grass Roots**, the FROM ACROSS THE COUNTRY feature should be called FROM ACROSS TOWN because of its author. That notwithstanding, I thought you'd all enjoy this feature written by a golfer after a snowstorm. It appeared in the December 5, 1990 edition of **The Capital Times**.*

*Rob Zaleski has been writing feature columns twice per week for **The Capital Times** since 1984. Prior to that point, Zaleski used to have "real jobs." He was the sports editor of the **Los Angeles Times Valley** bureau, sports editor of **The Capital Times**, a reporter with the **United Press International** in Madison and sports editor of the **Green Bay Daily News**.*

Zaleski, 43, also has worked at newspapers in Florida and Idaho. He and his wife, Cindy, have three daughters. He is an avid golfer who scored his first hole-in-one last autumn at Odana Hills. The Randy Smith he mentions in this story is the one we also know!

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November 5, 1990

Mr. Rod Johnson, President
Wisconsin Golf Course Superintendents Association
Sheboygan/Pine Hills Golf Club
P.O. Box 1066
Sheboygan, WI 53082

Dear Rod:

Receiving the prestigious Distinguished Service Award of the Wisconsin Golf Course Superintendents Association is one of the most pleasing and yet humbling surprises of my life. I wish that I could thank every member personally for extending that honor to me.

Your organization has been my "home team" since coming to Wisconsin in 1960, and even though many of the faces have changed since then, the WGCSA has retained the professional spirit and friendly personality rarely seen in other associations. Just being affiliated with this group has been a reward in itself.

The beautiful plaque is much more than a wall ornament in my office. It is a reminder of the debt I owe Wisconsin Golf Course Superintendents for enlarging my professional horizons as well as making the Latham family welcome in your midst. I can never repay that debt, but will certainly keep trying.

Sincerely,

Jim Latham
James M. Latham
JML:ljl



Necessities In The Nineties

By James M. Latham, Director
USGA Green Section — Green Lakes Region



Looking back on the 1990 golf growing season, there was no major, all-encompassing event or condition that makes it memorable. There was no central focus like *The Drought of '88* which affected the entire Great Lakes Region. It was not, however, one of those vintage years when things were generally pleasant. But when the quality of bunker sand shares equal interest with the quality of the grass during some Turf Advisory Service visits, golfers must not be very unhappy. There were intense local problems — severe winterkill of *Poa annua* from Fargo to Stevens Point with an epicenter (again) in the Twin Cities; prolonged rains and high temperatures which caused turf losses (quality or quantity) in northern Illinois; heavy white grub invasions from Indiana to Iowa; and a few floods (like the 23 inches of rain falling in the Quad City area during the month of June).

The bone-chilling cold early last December did much less damage here than was expected. There were major losses of warm season grasses from Missouri to Texas. That cold spell, incidentally, killed some golf turf all the way to Houston. How would you like to see about 70 acres of dead grass on your course?

The Wisconsin Golf Turf Symposium turned 25 this year, just a kid as compared with some conferences, but one which sets some sort of milepost in the field. Each is devoted to a single topic, which is usually a mirror of the interests of the day or at least the near future. Looking at some of the topics covered, some rather pointed questions can be asked. For example, Symposium Number One (1966) dealt with winter injury. Number Two covered the physical nature of soils — with much emphasis on green building and Number Three took on *Poa annua*, as did the 11th and 18th. Even though speakers at those Symposia are acknowledged leaders in their fields and attendees are certainly capable of learning, these subjects remain major problems. It indicates the complexities of dealing with the environment of this high quality, special purpose turf and the costs

involved in creating a favorable environment for the root systems of defoliated bentgrass.

Why were there so many greens built in 1990 which are either doomed to failure or will at least be a severe threat to the tenure of future golf course superintendents? Perhaps it parallels some of our bureaucracies. The construction division (of either a municipality or industry) is pressed by management to design and build something for the lowest possible cost. When plans and specs are presented, the numbers look good — to everyone but the operating division who see their costs mushrooming just to keep the new stuff running and who must go back to management every year for funds to repair or replace the installation. *They* are the people who must justify their budgets, while the designers are off on some other money-saving tangent involving untested ideas devised by their own rationalizations or egos.

Sound familiar? But boy, does that new structure or machine get media attention and cover photos. All the while the operations people are already wondering how they can prepare a budget just to keep the monster running and, of course, without pointing out the lack of foresight of those in management who approved the project in the first place. "Keep construction costs down! We'll handle operations and maintenance when the times comes." Sure! I drive a lot of miles on Interstate 43 (Green Bay/Milwaukee/Beloit). It is probably the roughest stretch of new highway ever built. The slabs of concrete had not cracked before they were running Super-Zambonis over some sections to "groove the pavement for safety." Hell, they were trying to smooth it. Who OK'd that work and who inspected it? Probably shock-absorber salesmen.

The point here is, who OK's plans and specs for golf courses? Why do owners who, after being told of construction deficiencies go ahead and accept the job? Then they reject a rehab budget on the grounds that it's a new course and shouldn't need it or that

play cannot be discouraged because cash flow is needed (usually in the clubhouse or pro shop).

It is more difficult to deal with the *Poa annua* thing. But winterkill of *Poa annua* is real, even though "out of sight — out of mind" (no seedheads) never fit a subject better. Ask the Minnesotans who have seen it two (2!) years in a row. The kicker in '89 and '90 was the extremely poor spring weather which severely retarded seed germination of both bentgrass and poa. Anything green was acceptable, even though it meant starting the same vicious cycle again. The fact that bentgrass loss was negligible or nonexistent should deliver a strong message.

Prevention? The thin fabric covers were of little or no help in the Twin Cities. If there is snowmelt followed by a deep freeze, they offer no thermal protection and may even enhance the day/night temperature spread. The very thick mats have done well, perhaps because they prevent mid-to-late winter thawing. These observations by superintendents in the area certainly make sense to me. Maybe that's the reason old timers topdressed heavily in late fall or put brush on the greens to hold snow cover. The basic idea may have been to protect against desiccation, but it provided insulation as well. (Or maybe there was less *Poa annua* to worry about in those days when the normal close mowing was a quarter-inch.) The insulation theory is valid, since the primary winterkill of Perennial Ryegrass fairways in Milwaukee (1986) was in areas receiving full sun, not the narrow, shaded fairways where mid/late snowmelt was minimal.

The problem today lies in the difficulty of making bentgrass more competitive during the growing season. This isn't difficult in fairways where the bent stolons have about a half-inch of growing room. But vertical space is hard to come by on a green where the cutting edge of a bed-knife is only one-eighth-inch above a firm surface. Mike Bavier at Inverness in Chicago commented on the vertical threshold in bentgrass
(Continued on page 37.)

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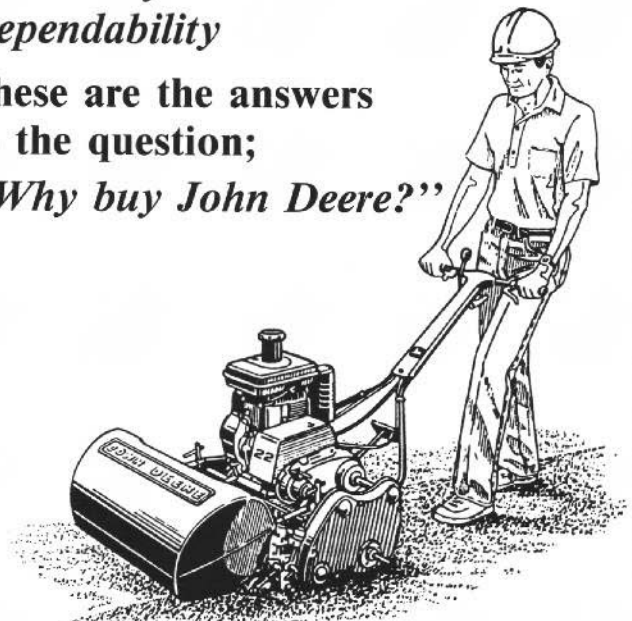
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(Continued from page 35.)

spread between fairways and greens a few years ago. Just what that threshold is is still not known. It may be purely academic, because we are unlikely to see high-cut, slow greens again.

We need a feasible program to not only weaken or eliminate *Poa annua* but to make the bentgrass more competitive. To weaken poa without improving the bent just makes the turf chronically weak, usually in the most important areas on greens where the holes are cut or the walk on/walk-off traffic is concentrated. I am concerned by the implication that growth retardants selectively affect *only* poa

and that they will open the door to automatic bent encroachment into the poa-infested surfaces of closely mown putting greens. That idea is no more valid than a groomer being substituted for a verticut. *We just wish* it were true. It seems to me that interseeding into weakened poa must be a part of the procedure, with appropriate after-care. Or perhaps just seeding at every topdressing?

This takes us, again, back to the basics of what makes plants grow — but we have to make that read *defoliated plants*. Among the requirements are well developed root systems, an adequate amount of sunlight (for the remaining leaves or parts thereof), ade-

quate fertility and moisture, adequate soil oxygen and protection against pests. It's getting harder to survive on a diet of magic potions, but even harder to perform some of the necessary cultural programs without interfering with an increased number of golfers every day. Working smarter and talking more convincingly have never been more important than they are today and that may call for assessing the programs of fellow superintendents who are dealing with similar problems, questioning "experts" and just "visiting around." The nineties will not be a good time to paint oneself into a corner by failing to look at the whole picture.

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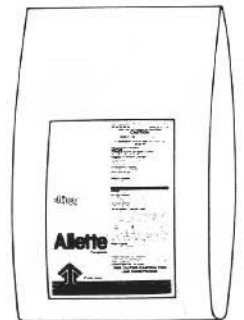
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Environmental Rules Challenge Wisconsin's Small Engine Makers

Wisconsin's small-engine manufacturers are facing a change in the way they build their machines, thanks to a victory chalked up by environmentalists in not-so-sunny California.

The smog pollution there has led the state's powerful Air Resources Board to restrict emissions from lawn mowers, chain saws, leaf blowers and other small-engine-driven equipment.

"We view this as the biggest concern we're going to have in the next decade," said Bill Bazen, manager of mechanical components at Briggs and Stratton in Wauwatosa. Bazen has spent time in California during the past year helping regulators shape the new rules.

Briggs is taking the view that other states will either take up the California rules on emissions or come under federal guidelines likely to come from the Environmental Protection Agency in the near future.

Either way, he said, "the engines are going to have to be modified. You just can't do a couple things to them and (hope) they'll pass."

The company is already pouring money into research and development to get ahead of competition and stay there. Briggs spent \$150,000 to set up a dynamometer room to measure

horsepower and emissions, and is laying out \$17,000 a month to run a test facility, he said. Briggs plans to build up to three more test sites.

Other companies are aware of the changes as well.

"The industry is taking this very seriously," said Don Henderson, manager of engineering at the John Deere plant in Horicon. "Both Deere and (its) engine suppliers are dedicating a great deal of engineering effort at evaluating (products) and determining what changes need to be made in the future."

"We're watching (events in California) very closely," said Steve Dunlap, vice president for marketing at Ariens, Co., a Brillion-based maker of snow blowers, tillers and other small-engine machinery. Like Deere, Ariens buys its engines from other companies.

Whether the new regulations will boost the price of the products, he said, "depends on the technology that is developed by the engine manufacturers."

The Wisconsin manufacturers contacted said they have been sending representatives to California regularly to monitor the hearings.

Some industry leaders have said the new rules could double the cost of

some lawn mowers, and the Board staff said prices for walk-behind lawn-mowers could rise by 25 percent.

The rules would take effect in two steps, 1994 and 1999.

Even with the R&D, Bazen said, he only expects to have ready by 1994 eight of Briggs' line of 38 engines it makes.

"We're trying to take engines as they are. . . to see what major systems have to be modified," he said.

Bazen expects Briggs will have to make two of each engine someday—one to meet federal rules, and another to meet California's, which other states may adopt.

Even tougher rules are scheduled for 1999, when catalytic converters will be needed on small engines. Converters heat up, posing fire and burn hazards unknown to small-engine manufacturers to date.

One of the casualties of the new rules will be the two-cycle lawn mower engine, Bazen said. Such two-stroke engines, which are less efficient than four-stroke models, will eventually be limited to hand-held machines—which were granted a more lenient set of emissions restrictions.

Feds Want U.S. Supreme Court to Hear Casey Suit

The federal government wants the U.S. Supreme Court to rule in favor of a northern Wisconsin community that argues municipalities have authority to restrict the use of pesticides.

Solicitor General Kenneth W. Starr, the government's top lawyer, has petitioned the court to hear a case involving a pesticide ordinance adopted by the Washburn County town of Casey.

The Wisconsin Supreme Court ruled 4-3 that federal law prohibits municipalities from enacting their own pesticide regulations.

The state court overruled the ordinance, which required residents to get a municipal permit before spraying pesticides.

Starr told the U.S. Supreme Court that federal law isn't as clear as the Wisconsin Supreme Court made it

seem.

"It is our view that Congress has not established with requisite clarity an intent to preempt all local government (pesticide) regulation, particularly in a field involving safety and health," Starr said in a 16-page document released Wednesday.

Local pesticide regulations, he said, are entirely consistent with the purpose of the Federal Insecticide, Fungicide and Rodenticide Act.

Casey's 1985 ordinance required a permit for aerial spraying of pesticides on public or private lands, or any pesticide application on lands open to the public.

When a landowner applied for an aerial spraying permit, the town ruled he could apply pesticide to part of his land but could not spray it from the air.

Backed by the Wisconsin Agri-Business Council, the landowner challenged the town's right to regulate pesticides. The Wisconsin Supreme Court ruled that while federal law permits state pesticide regulation, the law's wording and its history indicated that Congress meant to leave local governments out of the picture.

However, the court acknowledged that there was no specific mention of local regulation in the law.

Starr said the issue deserved U.S. Supreme Court review because of conflicting lower court interpretations.

He said two federal appeals courts have ruled the federal law does preclude local regulation, while the supreme courts in Maine and California have allowed local regulation.

1991 Commercial Applicator Training Sessions Announced

The 1991 schedule of commercial applicator training sessions has been released by the University of Wisconsin-Extension and the Cooperative Extension Service.

The Ornamental and Turf (Category 3) schedule is as follows:

Location	Date	Pre-Registration Deadline
Milwaukee	April 1	March 18
Green Bay	April 3	March 20
Arlington	April 5	March 22
Eau Claire	April 10	March 27
Milwaukee	April 12	March 29

Sessions begin at 8:30 a.m. and conclude at about 2:30 p.m. The examination is given afterwards and 90 minutes are allowed for it. If you have specific questions, please call either Roger Flashinski (WEX Pest Management Education Specialist) or Rose Scott (Program Assistant). The phone numbers are 263-6358 or 262-7588. The area code for both is 608.

To register for a training session *and* to receive your training materials, please complete a "Commercial Pesticide Applicator Training" registration card. These cards are avail-

able from your county Extension office or from the Pesticide Applicator Training office in Madison. Indicate the location and date of the training session you desire to attend *and* the pest-control category in which training materials are being requested. Return the registration card and training fee to:

Pesticide Applicator Training
 Department of Agronomy
 1575 Linden Drive
 Madison, WI 53706-1597

If you already paid the training fee you may register to attend a training session by again completing a registration card and returning it to this office. Or, if you prefer, call the office to inform them which training session you wish to attend.

Please register *before* the deadline date listed for each training session. Advance registration allows ample time for you to receive and review your training materials prior to the scheduled session, and it may avert cancelling a training session due to inadequate enrollment. You will be notified as to the status of your session approximately 7-10 days prior to the scheduled date. Directions to the meeting facility will be given at that time.

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SPINNERS and FLYERS: A Golfer's "A-grass-ive" Approach

By Eugene R. Haas
Executive Director—Wisconsin State Golf Association

I'm very pleased for this opportunity to discuss the tantalizing topic of "Watching Grass Grow."

It appears that I have the enormous privilege of joining a most elite group of legendary forerunners who have been called upon to address this august group—such as: Messrs. *Wayne Otto; Rod Johnson; Bill Knight; Ray Knapp; Roger Bell; Monroe Miller and Danny "Ha Ha-I've run two major USGA Championships" Quast*. I've also noticed a few other people who have spent a little time in the game who have made a few comments to this group, such as, *P.J. Boatwright, Jr.; Frank Hannigan; Dennis Tiziani; Carl Unis; Pete Dye; Andy North; Harold Sargent* and certainly my dear friend *Gordon Watson*. I'm sure you have run across their names somewhere along the way. Also, I've heard that the original sought after "Golf-Experts" who were to have filled this speaking-spot were unable to attend due to prior commitments—*Don Johnson*, the executive director of the Western Golf Association and a former WSGA president, had to attend a Mai-Tai testing tournament held at the Grand Cypress Resort in Orlando, FL. So he couldn't be here; *Peter DeYoung*, the WGA's tournament director, received a dozen titleist golfballs from the venerable *Artie Weller* and therefore, requested to see how fast he could lose them at Bonita Bay G.C. in Naples, FL; *Manuel De La Torre*, head pro at Milwaukee C.C., begged off because it's been rumored that he is taking up the new winter sport of bowling—and he needed the practice; *Steve Stricker*, the 1990 Wisconsin State Open Champion, couldn't make it because he's volunteered to chauffeur *Dennis Tiziani* back and forth from Cherokee C.C. to his golf cart business—naturally, Tiz's daughter *Nickki* has to accompany them. At the last count I've been informed that the speaker's search committee went through over 30 different candidates—and came up empty. *Rod Johnson* mentioned that I really was first in his mind, but they just wanted

to test the field for a moment. . . gosh, for a moment I thought they might ask the *Magic Man* to fill in, but I'm sure your group couldn't afford him.

The overriding question that I have been asked to consider is. . . "What type of grass enables the golfer to perform to their best ability? Is it bluegrass, fescue, ryegrass, quackgrass, crabgrass, buffalo grass, tall grass, short grass, straight grass, bent grass, Zoisa grass, Washington grass, Toronto grass, Penncross, Penneagle, Penn anything, Pennsylvania 6-5000, . . . or, just plain ole. . . "Golfer's Grass"? This species happens to be anything that allows a golf shot to go dead straight with the proper amount of spin enabling a golf ball to come to a quick stop whenever it comes within the "gimme" range of the flag stick!

I guess I probably have the opportunity to see more competitive golf shots struck in the state of Wisconsin than anyone else. . . and, believe me, many of them don't have a thing to do with whatever type of grass they were hit from. In fact, some of them can only be described as just plain old "rotten" golf shots, usually very much to the embarrassment of the author. Every once in a while a shot struck by a very prominent player will result in a most strange orbital phenomenon, such as a low lateral movement commonly referred to as the shameful shank; or, a quick snipe called a "Quack-Quack"—or, the dreadful "Duck-Hook." Instantaneously, what usually follows is a guttural response coming forth from both the striker and any spectators present—sounding somewhat like. . . , "What the hell was that?" Then, it's usually followed up with a facial smirk featuring confusion, or, in some instances, a profane four-lettered testimony of physical ineptitude, or on rare occasions, a temperamental display of aerial proficiency in exhibiting the whirling techniques of a helicopter propeller designed to simulate a golfing implement.

Sometimes a golf shot can be related directly to the "lie" of the ball, or

to the type of grass that the ball lies upon. Most of us know, or think we know, that wide-bladed grasses, especially reaching lengths of 2" or more, can possibly render a condition known as a "flyer lie." That condition is caused by grass interfering with the face of a golf club and the sphere intended to be hit, which disallows a golf ball from being cleanly struck. . . which in turn, is supposed to impart a specified degree of spin on the ball giving the golfer a certain degree of control. When this interference takes place, a ball will depart the club face with very little spin—thereby, allowing the ball to travel much further through the air, usually, beyond the player's intended length of the shot—hence, a "flyer."

When fairways contain grasses other than bent and are not maintained properly, meaning that they are not cut to "desired" heights at frequent intervals, the golfer is more likely to inherit lies that do not afford him the degree of control that he would enjoy—hence, the susceptibility to the dreaded "flyer."

In recent years there has been a trend to convert existing fairways to bentgrass or experimental grass combinations that allow controlled desirable mowing heights, which in turn, enables the golfer to generate better contact with the ball, which usually results in a controlled "spin-shot" that behaves in accordance with the golfer's desires. This conversion is rapidly expanding throughout the country, even to the public links sector. In many cases mowing methods are being altered, using lightweight mowing equipment on a much more frequent basis. Obviously, maintenance costs are increasing rapidly, thus, causing playing costs to rise concurrently.

It is generally accepted that the golfer of today is considered to be more "sophisticated." Or at least he thinks he is more sophisticated. With sophistication comes many things—usually a lightening of the wallet.