



# A Fish Story

By Rod Johnson



The fact that for the second time this year the word "fish" appears in the title of my message may lead some to believe that I spend a great deal of time doing just that. Please allow me to clear the air of any misconceptions. As a young boy who was reared "up North", I spent my share of time wetting worms and even on occasion accidentally hooking something other than a snag. Early on, the game of golf struck my fancy leaving little time for the pursuit of pisces.

The time constraints of golf and golf related employment don't seem to mix well with fishing. I do know a very prominent superintendent who several years ago, while still a Wisconsin resident, won a fishing pole at a golf event. The pole came without string and it's a safe bet that to date no string has been purchased in Michigan.

Our profession and the people who play golf in Wisconsin could stand to learn a few things from the large number of vocal Wisconsinites who do fish.

Recently a column of interest appeared in the *Milwaukee Journal*. It was

written by Jay Reed, one of the paper's regular outdoor writers. The column told of the public outcry brought about by proposed changes to Wisconsin's fishing laws.

Mr. Reed told of recently held public meetings and other forms of public discussion where standing room only crowds of fisherpeople "sent a message for the folks in Madison."

Further, Mr. Reed cited, a public rejection and weariness concerning the whole idea of more restrictive regulations. Now that sounds familiar.

What terrible restrictions could initiate the general public to protest infringement upon a recreation sport? Public hearings were held across the state concerning a proposal to cut in half the bag limit (from 50 to 25) on bluegills, crappies and perch. A limit of 25 fish per day sounds reasonable to me, but again, I'm no angler.

Do we as a profession or do the people of Wisconsin who play golf get nearly as excited when legislation is introduced containing potentially negative impact on our game? I'm afraid not.

Changes are in the works regarding Ag Bill 29. This recently passed bill may be amended to include posting and pre-notification. I am pleased to have been appointed by the secretary of the Wisconsin Department of Agriculture, Trade and Consumer Protection to an ad hoc committee on turfgrass pesticide applications. This committee was formed as a result of legislation introduced this spring. A mailing was made to the WGCSA membership at that time. Response was limited at best.

The immediate impact of legislation affecting our profession is not as obvious as the reduction of a fishing "bag limit". Unfortunately, many who make their living in the golf business or play golf recreationally will not get involved until golf course conditioning suffers and hence golf scores suffer.

As a profession directly impacted we must respond responsibly. Our response can not be of outcry and negativism. We stand ready to comply. All we ask for are reasonable and clearly understandable regulations.

## Table of Contents

Newman, Wort Retire	1
President's Message	2
Jottings From The Golf Course Journal	3
The Wisconsin Golf Course Survey	5
Editorial	7
Wisconsin Pathology Report	9
Personality Profile	11
July WGCSA Meeting	13
The Other Plants	14
Wisconsin Soils Report	19
Legal Matters	23
The Wisconsin Golf Course Quiz	24
The Campus Connection	27
The Editor's Notebook	29
Editorial	35
NOER CENTER News	38
USDA First-Year Bentgrass Evaluation	41
From Across The Country	43
The Sports Page	47
Environmental Forum	49
WGCSA June Meeting	49
The Sporting Green	51

## Officers and Directors

### Wisconsin Golf Course Superintendents Association 1990 - 1991

#### PRESIDENT

Rodney W. Johnson  
Sheboygan Pine Hills Country Club  
P.O. Box 1066, Sheboygan, WI 53082  
414-458-6048  
Term Ends 1991

#### VICE-PRESIDENT

Bruce J. Worzella  
West Bend Country Club  
5846 Hwy. Z  
West Bend, WI 53095  
414-338-0540  
Term Ends 1991

#### SECRETARY

Carl J. Grassl Jr.  
Blue Mound Golf and Country Club  
10122 W. North Ave.  
Wauwatosa, WI 53226  
414-453-0790  
Term Ends 1991

#### TREASURER

Michael R. Semler  
Cherokee Country Club  
5000 N. Sherman Ave.  
Madison, WI 53704  
608-249-4682  
Term Ends 1991

#### DIRECTORS

Mark Kienert  
Bull's Eye Country Club  
521 19th Street So.  
Wisconsin Rapids, WI 54494  
715-424-3736  
Term Ends 1991

#### Bill Knight

Dretzka Golf Course  
12020 W. Bradley Rd.  
Milwaukee, WI 53224  
414-354-8120  
Term Ends 1992

Tom Schwab  
Monroe Country Club  
Box 427  
Monroe, WI 53566  
608-325-9576  
Term Ends 1992

Steven D. Schmidt  
Butte des Morts Golf Club  
1411 S. Bluemound Drive  
Appleton, WI 54914  
414-738-5541  
Term Ends 1991

#### IMMEDIATE PAST PRESIDENT

Roger C. Bell  
North Shore Golf Club  
P.O. Box 337  
Menasha, WI 54952  
414-739-6729

**THE GRASS ROOTS** is a bi-monthly publication of the Wisconsin Golf Course Superintendents Association. Editor and Publisher - Monroe S. Miller. Editorial Staff and Business Affairs - Rodney Johnson, Sheboygan Country Club. Printed in Madison, Wisconsin by Kramer Printing. No part or parts of **THE GRASS ROOTS** may be reprinted without expressed written permission of the editor.



# SCARED!

By Monroe S. Miller

It was about 5:00 a.m. on a hot July summer Sunday morning. The golf course was in need of rain.

Chad and I were standing in the shop doorway, watching the faintly visible flashes of lightning in the sky to our north. We had both, at our separate houses, been watching the same scene since 8:30 p.m. the evening before. Neither of us could believe the weather front hadn't moved all night. We needed a shower for the course badly and we were so hoping this would maybe be it.

Since it was totally dark on the golf course, I went into my office to clear my desk. Chad stayed in the big doorway, watching.

Suddenly, I heard a blood curdling yell, accompanied instantaneously with a deafening "crack"! I bounded from my chair and out the office door, fully expecting to see a charred Chad.

Instead, I found a scared assistant, not quite hanging from the ceiling, but almost. He was pale as a ghost.

An enormous lightning strike had hit a tree along the 7th fairway, just across the railroad tracks, not a hundred yards from the shop. So powerful was it that the microsecond of light it brought flooded the electric eyes on our shopyard lights and turned them off.

A lightning strike like that strikes the worst kind of fear into a golf course superintendent. That fork of electricity hit a tree which will now have to be removed. It damaged the irrigation system satellite controller that was literally five yards away.

But no one was hurt. Lightning really used to scare me in the days of a manual irrigation system. The mix of steel pipe buried at a shallow depth and full of water, brass quick coupler valves, brass and aluminum sprinklers, a Cushman truckster, a young night waterman and a lightning storm caused me more sleepless nights in years past than I care to remember. Thinking about them makes me tired. Fortunately, I'll never know how close we might have been to a tragedy.

Never before has the public been more aware of how dangerous lightning can be on a golf course. Death from a brief yet violent storm will forever shroud this year's U.S. Open. Honestly, I cannot tell you who won the tournament. But I can tell you I won't forget that during the first round of the Open at Hazeltine a 27 year old spectator was killed by lightning. Five other fans were hospitalized with injuries from the same bolt near the 11th tee.

It was simply "the nightmare you hope you'll never have", said UGSA executive director David Fay.

I was first sensitized to the seriousness of lightning on a golf course back in 1979. The athletic director at Madison's Memorial High School and his wife were killed while playing golf on a Lake Delton golf course. They made it to a wooden shelter when the storm began. But officials said lightning struck the ground near the shelter and carried an electrical charge through water rushing over the ground to the golf club Mr. Olson was holding. He was electrocuted. His wife had her arm around his shoulders and was also killed.

Immediately afterwards, we installed new lightning rods in our shelter houses on the golf course, addressing finally a problem we had been ignoring. Ever since that time, when we see lightning in the sky, all of us—employees and myself—seek the safety of our shop.

Statistics from the National Oceanic and Atmospheric Administration show about 100 Americans are killed each year from lightning. Another 250 are injured in lightning related accidents.

A NOAA report—"National Summary of Lightning, 1987"—looked at lightning deaths and injuries on a state basis for the years 1959-1987. It detailed places of occurrence of those deaths and injuries.

For that period, Wisconsin ranked 29th in fatalities and 22nd in terms of injuries. Florida has the dubious distinction of being the most dangerous lightning state.

Golf courses ranked third in fatality sites. That data should be enough to

scare players and golf course superintendents, if they aren't already.

If old Ben Franklin had had my attitude and courage and curiosity about lightning, the lightning rod would never have been invented. My curiosity about lightning is greatly tempered by a fear of electrocution; fortunately, his wasn't.

And it is not just electrocution from lightning that brings forth so many fears. Our golf course has suffered more lightning damage this year than in any of the previous 19 years that I have personal knowledge about.

The damage is almost exclusively manifest in our trees. This year alone I can count five trees that have suffered electrical strikes from the sky. Golfers may get the greatest publicity from lightning; golf course trees are the most common targets, by far.

We've noticed most damage has occurred to poplar and to silver maple. That has begged the question "why?"

Trees usually get struck by lightning on the way to the ground because they contain water and water is a better conductor than air. Poplar and silver maple may have more water concentrated near the cambium, just under the bark, than other trees. That is just an unscientific theory, however.

I do know that whatever water is there must boil explosively; we find bark blown from the tree 30 yards away from the tree.

It's not an earth shattering question, though. It has been asked many times before, and yet no definitive statistics as to species susceptibility to lightning damage has been done that I could find.

But every golf course superintendent knows this: lightning tends to strike the tallest trees and isolated trees. That we have seen and can offer personal testimony about.

This fact comes into consideration quite heavily for those golf course superintendents who have started a program to protect the most valuable golf course trees they have.

Since you cannot protect them all, how do you choose which are the lucky ones to receive a lightning rod?

In addition to height and location, significance as a feature for a golf hole has to count heavily. I particularly noticed protected trees at the Augusta National Golf Club when I was at the Masters Tournament this spring. One tree, in particular, on the 13th hole caught my eye.

*(Continued on page 5)*

# U-DUMP

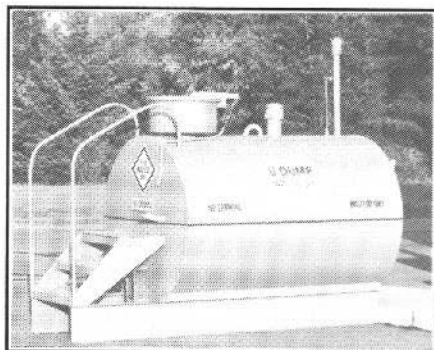
WASTE OIL DISPOSAL SYSTEM

Decrease Your Disposal Liability

## STOP POLLUTION

### BENEFITS:

- Portable
- Economical
- Attractive
- Size 550 Gallons and Up
- Designed For Class 1 Liquids



Pat. Pending

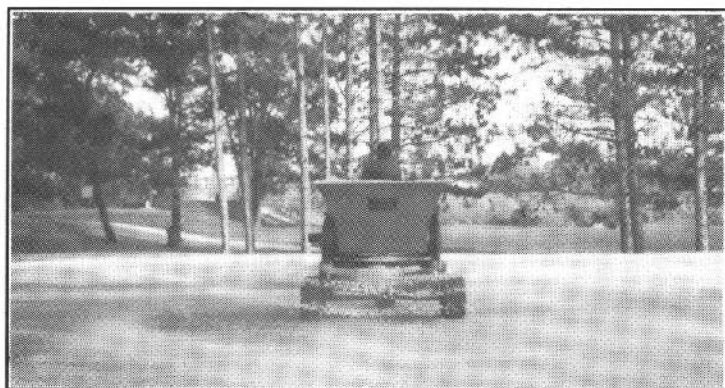
# U-FUEL

FARM, CONTRACTOR & STAND-BY FUEL SYSTEMS

- Portable
- Double Wall Protection
- Meets EPA Requirements
- Sizes From 550 Gallons and Up
- Special Linings Available
- Ecologically Safe, On-The-Spot Fuel and Chemical Dispensing



Patent #4,988,020



## SWEEPER

- Picks up cores.
- Picks up divots.
- Picks up pine cones, acorns and seed pods.
- Sweeps cart paths and other hard surfaces.

## TERRA TOPPER

Apply wet or dry sand with ease, no clogging, at the rate of 100 pounds per acre to 2 cubic yards per green. Material can be thrown to the left, right, or full pattern. Spinners can be tilted for more direct application. Adjustable spinner speed. Material flow metered by adjustable feed drum speed. **SIMPLE!!!** Requires only 1 remote switch to start and stop material flow. Hopper has 1800 pound capacity.

# JOHNSON & Associates

*Dedicated to environmental alternatives and innovative turf equipment.*

Wisconsin Contact P. O. Box 196 • Wautoma, WI 54982 • (414) 293-8247  
 Illinois Contact 109 E. Washington • Lombard, IL 60148 (708) 620-8198

- Chemical Storage Facilities
- Above Ground Storage Tanks
- Sand Tenders & Silos
- Aerators-Sweepers
- Top Dressers-Wagons

(Continued from page 3)

Each lightning rod in a tree provides a "cone of protection" around it, an area extended from the base a distance about equal to the height of the lightning rod itself. Within this cone, lightning bolts will be drawn to the rod and won't damage other trees.

And yet, while lightning has scorched trees and damaged golf courses and occasionally taken life, we have to realize that it also has an important role to play.

Nitrogen makes up about 80% of our atmosphere and yet only a few plants can use this most important plant nutrient. To be useful, nitrogen has to combine with or be "fixed" with another element.

Lightning is a benefactor in this process. Each time lightning flashes an electrical charge, it combines nitrogen and oxygen. Rain carries the fixed nitrogen to the ground where it can be used by plants.

In Wisconsin, we can be thankful that lightning doesn't start the forest fires it does out west. Here, thunderstorms accompanied by lightning are also most often accompanied by rain, rain which quenches fires that might break out.

Lightning deserves a lot of fear and a lot of respect. Although it is dangerous in a lot of ways to golfers, golf courses and golf course superintendents, it is also important to the plant life on our golf courses.

Lightning may be the ultimate fear of Mother Nature we have to deal with; it might also be one of nature's finest acts. There is no arguing it is one of the most spectacular.

## HELP WANTED

The Geneva National Golf Club is looking for a full-time, permanent *Irrigation Technician* to work in the Golf Course Maintenance Department.

Requirements include, but are not limited to, experience with Toro Network 8000 System.

If interested, please send resume to:

Geneva National Golf Club  
Golf Course Maintenance  
2200 Petrie Road  
Lake Geneva, WI 53147

## The Wisconsin Golf Course Survey



# Clothing The Crew, Looking The Part

By Monroe S. Miller

One summer, after I was out of Uncle Sam's Army and not taking any summer school classes at the UW, I worked at one of the state's finest golf courses. The assistant there went on to become one of the best golf course superintendents around. It was a good experience, full of both fun and valuable lessons.

Only one lesson was a negative. The crew was required to wear a uniform. It was an olive drab slacks, a matching olive drab shirt and a complementary green t-shirt. I thought I was back in the Army again.

I vowed, as a result of that experience over twenty years ago, that I would never do that to my crew. And I haven't.

I do believe that the staff working on a golf course needs to look clean and neat and tidy. But they don't have to all look alike. Frankly, I like the variety and individuality of each employee's wardrobe.

When a new person is hired, I spell out the limits of what I'll tolerate, explain what will happen if one comes to work in a "party 'til you puke" t-shirt that is popular on the college campus in this town, and detail the prohibitions. The prohibitions include tennis shoes and shorts.

My own work wardrobe is designed for comfort and common sense. I like to participate in everything that goes on around the course; wearing \$70 slacks and a \$40 Cross Creek golf shirt would surely inhibit that. So, as you might guess, I pretty much dress like the guys I work with.

In fact, a few years ago a person stopped by who was selling some mor-

phidite product for an unheard of company. He asked me if the boss was around. I quickly replied with a "he's never here and I have no idea where he goes", making sure I'd never be bothered again.

The point is that I didn't "look" like the boss should have, in his mind, and he went away.

With that lengthy preface, you can almost guess this issue's SURVEY questions. Here they are, along with the results.

1. Do you provide your golf course staff with uniforms?

YES: 6 NO: 15 Shirts only: 5

2. Do you have a dress code?

YES: 19 NO: 7

3. What do you wear to work?

Jeans, "work" clothes: 24 Golf attire: 2

4. Do you allow your employees to wear shorts? YES: 20 NO: 6

Tennis shoes? YES: 18 NO: 8

I was a little surprised, to be honest, with some of the answers. I was pretty much right on with guessing how many provided uniforms and how many didn't, and with the dress code questions and with what we wear to work ourselves.

But I was a mile wide of the mark with shorts and tennis shoes. I prohibit both and will probably have to hide this issue from my own guys: they may not want to hear "it's for your own good" anymore!

When it comes to work attire, it appears most of us prefer employees "clothed with integrity" rather than Polo slacks and Hogan golf shirts.

That is how it ought to be.

Let the 1992 Wisconsin Turfgrass Association  
WINTER CONFERENCE

January 7th and 8th

at the Olympia Resort in Oconomowoc  
Be your *FIRST* educational meeting  
of the new year!

# FERTILIZERS? WILBUR-ELLIS!

WITH OUR EXCEPTIONALLY WIDE SELECTION, WE'LL HELP  
YOU WITH THE BEST FERTILIZER FOR **YOUR** SITUATION  
...AT A VERY COMPETITIVE PRICE.

## NUTRALENE Fertilizers - See the Difference

15-0-30 )  
          ) Greens Grades ) with Nutralene  
20-0-20 )  
  
24-4-12 ) Granular

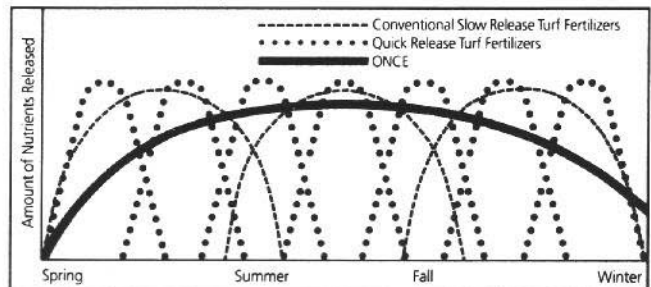
	NUTRALENE™ (40-0-0)	NITROFORM™ (38-0-0)	IBDU (31-0-0)	SCU (32-0-0) (38-0-0)	UREA (46-0-0)
Release Characteristics	12-16 wks	12-16 mos	12-16 wks	Varies	1-4 wks
Hydrolysis Releasable	■		■	■	■
Microbial Releasable	■	■			
Not dependent on coating or particle size for release	■	■			■
Nonburning	■	■	■	■	■
Low Salt	■	■	■		
Minimal Leaching	■	■	■		
Minimal Volatilization	■	■	■	■	

## ONCE Season Long - N, P, and K

Temperature Release - Not Affected by  
Water or Microbial Action (5-6 months)

*Nutrients Released As Turf And Plants Need Them*

24-6-11      5-6 months  
25-0-18      5-6 months  
35-0-6       5-6 months  
0-0-47       5-6 months  
15-12-13    5-6 months



## Wilbur-Ellis Custom Fertilizers

18-3-12 ) Homogenous Greens Grades  
18-5-9 )

And a full line of blended and liquid fertilizers

# Wilbur-Ellis

FOR MORE INFORMATION, CALL  
**JOE WOLLNER**  
800/747-7400



## A Classic Chairman, A Classy Man

by Monroe S. Miller

Call it a memory or call it an image. Whichever it is, it won't likely leave my mind for as long as I am in the golf business.

I'm speaking of my first awareness of a green committee chairman and how he should execute the duties of that chair.

The picture in my mind has been there since 1972, the summer I worked on the golf course staff at Maple Bluff Country Club. It's a picture of a man, dressed always in a coat and tie, hustling down the road to Maple Bluff's shop in a small white convertible every Monday morning.

It was Dr. David Cookson, green committee chairman that year, many years before and nearly two decades hence. His closely cropped white hair neatly matched his car. Back then I figured his barber was twenty years behind the times. Only lately have I realized he was actually twenty years ahead!

It should have dawned on me that the way he cut his hair may be been a subconscious reflection of one of Dr. Cookson's strongest personality traits— independence. He was not influenced by what was fashionable or "in". That independent thinking was one of the things that has for so long made him a classic green committee chairman.

The decisions reached by Cookson, his committee and Tom Harrison over the years were arrived at by calculating what was best for the golf course and the people who played it. The man has never been a "bandwagon" chairman; his choices were independent of what was vogue at any given time. And with golf, golf courses and golf course management, something is always in vogue.

When Dr. Cookson pulled into the shopyard, all of the guys who were around the area sort of snapped to it. I'd only been out of the Army for a short while and remember thinking his arrival was treated a little like the commanding officer's walk through the barracks. All the analogy meant was that it was fairly easy to see who was in charge.

Frankly, I think this is how it should be.

I learned a lot from observing those Monday morning meetings. They were important enough that they ALWAYS took place, a reflection of how seriously Cookson felt about the chairman's responsibilities. They were always on time, too.

Within hours of his departure, most of the staff was aware, albeit second-handedly, of what had transpired at the meeting. Likely by day's end we were on a project or a job requested by the chairman. His influence on the operation was very evident.

Interestingly, I cannot recall either Tom Harrison or Bill Eckert ever bad-mouthing or bellyaching about any of his decisions. My guess as to the reason for that is because one of Cookson's trademarks, from my observations, has been logical thinking. He's been deliberate in the way he approached golf course problems. Common sense and the good of the game prevailed. Pretty hard to argue about that.

The most logical thing he did was to hire Tom Harrison when Bill Eckert resigned for another career opportunity. I bumped into Dr. Cookson in our clubhouse shortly after that and complimented him on promoting Harrison. With a quizzical look he replied with something like, "that's why we have an assistant superintendent. To have done otherwise would have been unfair to Tom and unwise for the club." That sure made sense to me!

All of this doesn't imply, however, that Cookson wasn't creative in his approach to golf course management. He offered up the word "why?" to Harrison more times than he could count. And more than once, when Dr. Cookson and I would discuss some golf course matter, we would end up in full and complete disagreement. Both of us thought we were right!

I must say that he was open minded enough to always listen to all sides of an issue and I have seen, over twenty years, his philosophy evolve and change with the game and the players.

Cookson never foisted a program onto Harrison without proper funding; that is worth more to a golf course superintendent than words can express. Too often, maybe even most often, expectations are not accompanied by budget considerations.

If it seems my interest in the green committee chairman at another club, even though I had worked at that club, is somewhat unusual, let me explain. Dr. Cookson lives on the shore of Lake Mendota directly across from our 15th hole. Our paths have crossed more than a few times over the years. His oldest son worked for me for a couple of seasons. And as you know, he has written many articles under the flag "A Player's Perspective" for *THE GRASS ROOTS*.

All personal notes aside, how many green committee chairmen have you known who have done more for golf than David Cookson? Here are the highlights: club president (and board member and holder of other club offices), green committee chair for three decades, all offices including president in the WSGA, a long time USGA committee person and a rules referee at the U.S. Open for many years.

As he steps down from the green committee chair at Maple Bluff, I cannot help but feel sentimental. Many years have passed by since I first met him; his "retirement" affects me much like the retirement of Professors Worf and Newman. One just sort of thinks people like these will remain at their posts for all time. It is a tough look at reality when they decide to move on.

Tom Harrison is going to miss him a lot, too. Medicine may have been Cookson's profession and occupation, but golf has been and still is his obsession and passion.

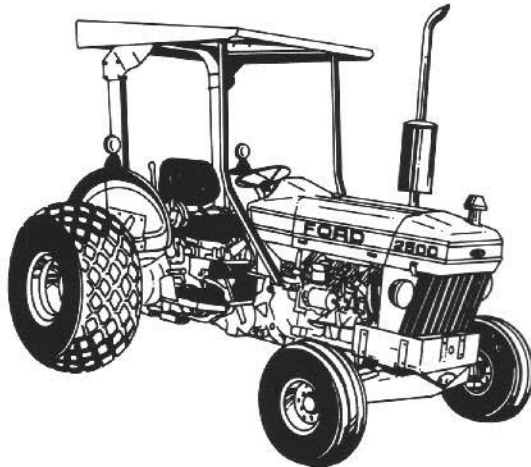
Those who work in golf are grateful for players like Dr. Cookson—stimp-meter in his golf bag, always walking the course while playing and thinking about the game. If you ever are wondering if he is playing at your golf course, just look for the little white convertible. He still has it. It's a classic, just like he is.

# Hanley

Quality Products Since 1928

**HARDWARE**

**TURF — AGRICULTURE — POWER EQUIPMENT**



## Ford 250C/260C tractors for all reasons

Mowing, grading, loading, landscaping—Ford utility tractors make it easy:

- 52- or 63-*SAE* net horsepower.
- Rugged cast-iron engine oil pan.
- Industrial box-beam front axle.
- Optional front-wheel-drive assist shifts on the go.
- Choice 8x2 constant mesh transmission, 6x4 manual-reversing transmission, or 8x8 power-reversing transmission with torque converter. All equipped with independent PTO.
- Vertical or horizontal exhaust.
- Optional 2800-lb. loader.
- Three-point hydraulics powered by 10.5-gpm gear pump.

You wanted a versatile and durable utility tractor! Stop by and see them today.

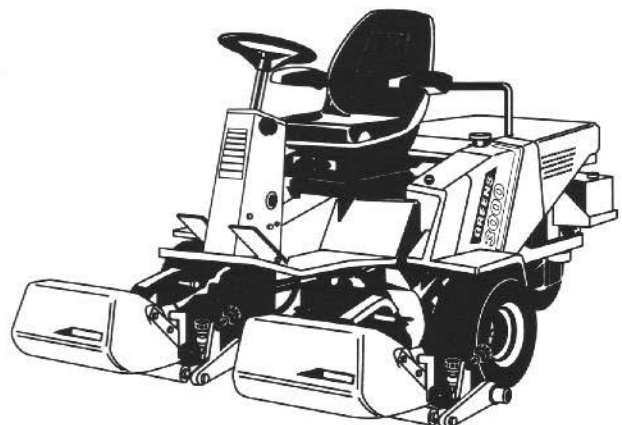
## **RANSOMES GREENS 3000 BRINGS GREENS CARE INTO THE 21st CENTURY**

**Versatile reel options** are all interchangeable. Choose from 9 blade front mounted Verti-Groom, 9 blade Greens, 7 blade Fairway and Tees, or Verticut reels.

**Armchair comfort** reduces operator fatigue. Adjustable tilt steering wheel and power steering. All controls and gauges are in easy reach and sight. Padded seat with adjustable back rest.

**High cutting frequency** of 138 cuts per yard at 4 mph with 9 blade reels.

**Cutting height adjusts** quickly and easily without the use of tools to as low as 1/8".



**RANSOMES**

**GREENS 3000**

**WHERE GREAT IDEAS START**

For a **FREE** demonstration contact:



# Pythium or Rhizoctonia— a serious question this summer!

By Dr. Gayle L. Worf  
Professor and Extension Plant Pathologist  
University of Wisconsin-Madison

None of us were mentally prepared for the early and persistent warm wet start-up we experienced this summer. But when it came, it re-wrote the disease patterns we normally expect. Whoever heard of Pythium occurring in May, for heavens sake! Few superintendents had preventive applications laid down before Memorial Day. But lots did soon afterwards!

One big problem that occurs when something out of the normal in the way of disease development takes place is the uncertainty of diagnosis. To be sure, when classical symptoms of Pythium "grease spot" occurs, along with quite a bit of white fluffy mycelium, we feel pretty secure with a visual diagnosis. Or when the traditional smoky ring occurs, and the disease seems to run through the turf blades in an outward radiating, but somewhat hit-or miss fashion (e.g., not every blade is affected), we think "Rhizoctonia" or "brown patch". Trouble is, classical symptoms don't always develop. And if you look at the affected spot a day or so after symptoms have started, you miss the benefit of early details. Add to that the fact that some other problems can be confused at times, including chemical injury, localized dry spots, take-all patch, etc. So—how do you diagnose Pythium and brown patch!?

One way is history—what you've seen before with similar symptoms.

Another is submitting a sample to the disease diagnostic clinic. The diagnostician can look for sudden collapsed foliage and see whether dark-colored right angle-branched

hyphae are present in some abundance in or on the leaf blades. If so, "Rhizoc" will be the diagnosis. If the hyphae is finer, white in color, and lacking in cross-walls, Pythium is the diagnosis. Both of these can collapse and disappear, or be over-run by saprophytic fungi real easily, which makes such a quick detect impossible. (That's why a good fresh cross-section of symptomatic turf is so important to the laboratory). One can then resort to looking for the fruiting and survival structures (oogonia and oospores), and if enough of these are found, the diagnostician can feel pretty secure with a Pythium diagnosis. Isolations are a last resort, but this takes more time for both the technician and the superintendent. Two days is really minimum.

TABLE 2.

## Pythium Pathogenicity Test on Bentgrass

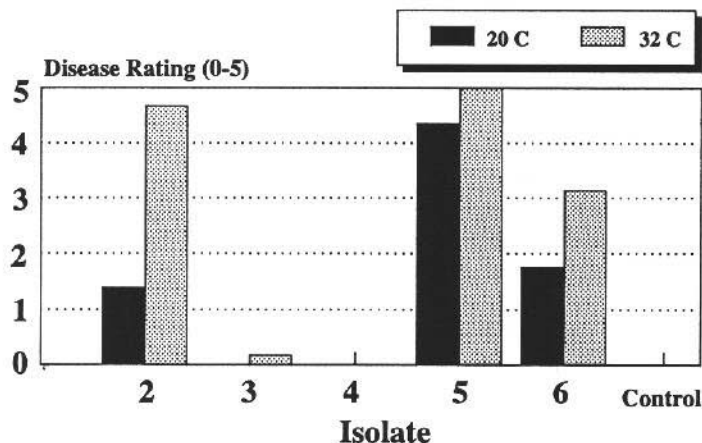
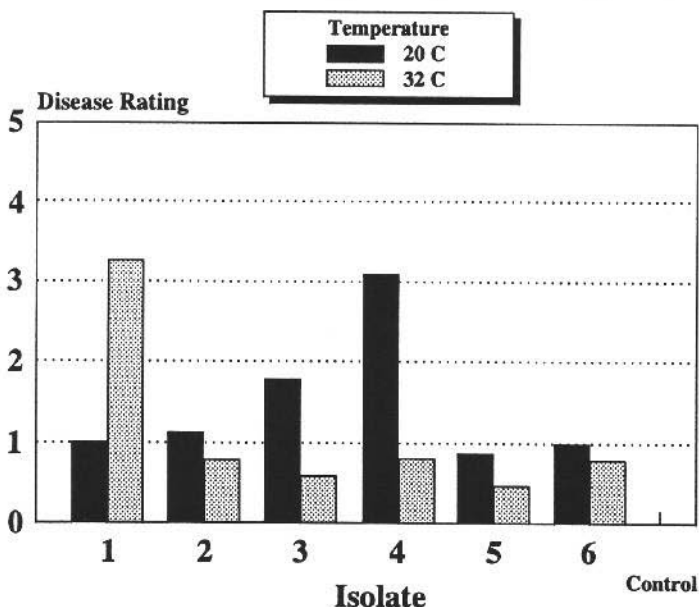


TABLE 1.

## Rhizoctonia Pathogenicity on Bentgrass



We really should be using the field diagnostic kits more, I believe. They clearly have their limitations. The brown patch kit won't detect the "high temperature brown patch", caused by *R. zeae*, and officially referred to as Rhizoctonia sheath and leaf spot." We have a little of that in Wisconsin. Nor will it detect "cool temperature brown patch", or yellow patch, caused by *R. cerealis*. But the symptoms aren't the same. You wouldn't be checking that turf, anyway. But you know that you are dealing with Pythium when you get a positive—the same for brown patch.

### Temperature responses of Pythium and brown patch.

Another fact we are facing up to these days is a greater appreciation of the diversity of temperature responses we are seeing. We commonly think of these as "high temperature" problems. In Table 1 we look at the results of some growth room studies we did two winters ago, at two temperatures (20 C = 68 F, and 32 C = 90 F), with 6 cultures of *Rhizoctonia* taken from several different grasses. Only "1" was severely pathogenic at this high temperature, while two were more

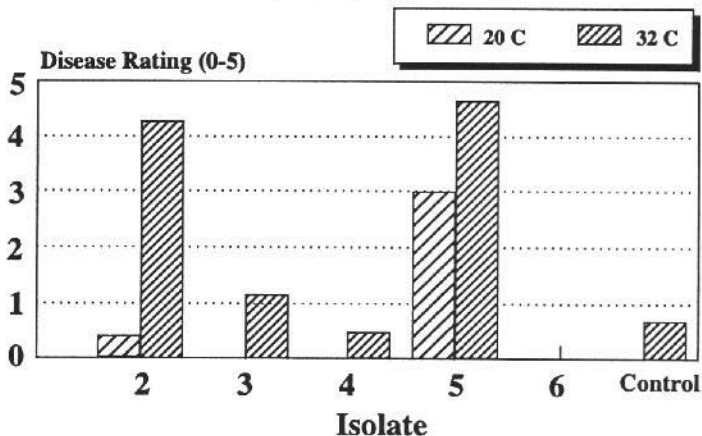


damaged at 68 F! We couldn't test at in between temperatures, which may have been more favorable to the other cultures.

Take a look at tables 2 and 3 for results of similar studies with Pythium, this time with bentgrass versus annual blue-

TABLE 3.

**Pythium Pathogenicity Test**  
*Poa annua*



grass responses. First of all there are some differences in reaction between the two grasses. Isolate "6" was damaging to bentgrass at both temperatures, especially the higher, but did nothing to Poa—at either temperature. Isolate 2 attacked bentgrass at both temperatures, but only caused damage to Poa at the higher temperature.

This was not an exhaustive study, but the Pythium research makes two important points: (1) grasses vary in their susceptibility to different "strains" of the same disease, so you can't live with the idea that you are inherently "safer" with one species or the other, and (2) Pythium—like Rhizoctonia—may start at lower temperatures than commonly thought. These results are not revolutionary, by the way, but it is interesting to see how it shows up with Wisconsin isolates. And of course these are isolates from around the state. They don't all occur on any one golf course! Your strains may follow a very predictable pattern for you—I hope so.

Is there a lesson among all these comments? Well, I don't believe we should despair, first of all. But we should be more sensitive to the variabilities and vicissitudes of nature. And do what we can to keep on track of what may be causing peculiar patterns and disease responses on our own course. And then act accordingly!

**WISCONSIN TURFGRASS ASSOCIATION GOLF BENEFIT**

*"Where the Golfer Gives Back To Golf"*

BLACKWOLF RUN, September 30, 1991

WATCH YOUR MAIL FOR DETAILS or CALL JEFF BOTTENSEK at 715-345-8906

**SAVE**

during the ProTurf® Pre-Season Sale

Call your Tech Rep today.



**WAYNE HORMAN**  
Technical Representative  
(608) 838-9422