TABLE OF CONTENTS

THE PRESIDENT'S MESSAGE
The Call For Help! Part Two
WGCSA
Wisconsin's Turf Industry Loses A Good Friend
TDL
Fungicides: What You Should Know
PERSONALITY PROFILE
Three Generations of Schallers are Linked to the Links 11
MISCELLANY Record Attendance at Reinders Turf & Irrigation Conference 17
THE EDITOR'S NOTEBOOK
Who Could Complain?
NOTES FROM THE NOER FACILITY
Signing Off
BADGER TURF AND GROUNDS CLUB
Research: A Students Perspective
TALES FROM THE BACK NINE
Mr. Mayor!
Urban Legends of Turfgrass Pathology
WGCSA
2001 Spring Business Meeting
NOTES FROM THE NOER FACILITY
Everything Irrigation Explored During NGL Conference $\dots 39$
GAZING IN THE GRASS
A Day With The Masters
FROM ACROSS THE COUNTRY
Leadership: More Than You Think
JOTTINGS FROM THE GOLF COURSE JOURNAL
Wisconsin's Turfgrass Graduate Program Is Growing 51
WISCONSIN PATHOLOGY REPORT
Can Snow Molds Be Controlled Effectively?
Get Rid of Waste Pesticides and Chemicals at
Agricultural Clean Sweep 2001
POA TRIVIA

ABOUT THE COVER

About the time GCSAA was getting going, a German immigrant to the U.S. was becoming involved with golf courses. Hans Schaller was the first generation of three generations of Schallers to make significant contributions to golf courses in Wisconsin. Hans had two sons follow in his footsteps – Frances (Fritz) and Tom. Our immediate past president Scott Schaller, Fritz's son, continues the family's career tradition.

J.L. Samerdyke has created another cover celebrating the GCSAA 75th anniversary, and Lori Bocher tells the story of this Wisconsin family so many of us know and respect.

"And what is so rare as a day in June? Then, if ever, come perfect days;

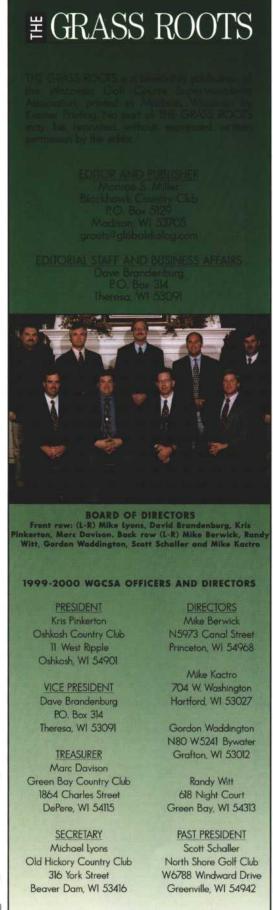
Then heaven tries the earth if it be in tune, And over it softly her warm ear lays;

Whether we look, or whether we listen, We hear life murmur, or see it glisten;

Every cloud feels a stir of might, An instinct within it that reaches and towers

And, groping blindly above it for light, Climbs to a soul in grass and flowers."

 Visions of Sir Launfal by James Russel Lawell (1819-1891)



The Call For Help! Part Two

By Kris Pinkerton, Golf Course Superintendent, Oshkosh Country Club





In my President's Message from ■ the May/June 2000 issue of the "Grass Roots," I extended a challenge to each of our members to make a difference! A difference, if realized, that would keep a talented, enthusiastic group of scientists busy solving major turf and environmental problems that we have here in Wisconsin each day!

This challenge I speak of was to get golfers, the end users or beneficiaries, to donate toward turfgrass research. Again, convincing our golf course patrons to donate just \$5.00 each, would alone generate more than \$250,000 per year for turfgrass research.

We continue to have an outstanding cooperative group of researchers at the University of Wisconsin-Madison. But failure on our part to raise adequate funds leaves the door wide open for recruitment of our scientific talent by other states and universities who have and will raise the funds. Has anyone accepted the challenge? Have you asked your board of directors, owners, or powers that be, to assist in raising dollars for research?

As promised, I have followed suit and am proud that Oshkosh Country Club will be making yearly contributions to research. I share with you this information not to receive recognition or a pat on the back, but rather to suggest how easy it can be to just ask!

Before receiving approval at our club's March 20th board meeting, I had only spent one hour researching and writing the proposal. Jerry Kershasky. superintendent Westmoor Country Club, was happy to share with me the "optional billing statement method" they have used since 1989. This is also the method we chose to use in the amount of \$10.00 per member, designated to go to the Wisconsin Distinguished Graduate Fellowship in Turfgrass Research.

Along with writing a short note to be included in our member's June 30th billing statement, I will also use OCC's monthly newsletter to further explain the Fellowship and what these funds will be used exactly for. Sounds fairly easy, doesn't it?

Please give something back to your profession by helping to solidify future research funds. We have the "state of the art" research facility with some of the best research faculty in the country! Let's keep them busy!

Congratulations go out to our 25 year members Glen Gerth, Jeffery Parks and Fred Fabian Jr. It is with great pride that we honor these fine gentlemen for their long time commitment to our association and profession. Great job!





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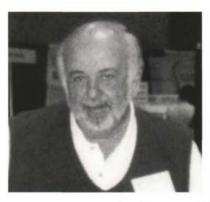
Wisconsin's Turf Industry Loses A Good Friend



By Tom Schwab, O. J. Noer Turfgrass Research and Education Facility, University of Wisconsin-Madison

John Buck, owner of J.W. Turf Equipment, lost his life to liver cancer on March 26, 2001. I first met John at the John Deere Golf Championship that he hosted at Monroe Country Club where he was so enthusiastic about it becoming a premier event in the state. The tournament flourished and my friendship with him did also. My team won the event that year and we spent time together at the national tournament in California. He was so gracious to our team and wanted to make sure we had a memorable event.

Whenever I talked to him since then he was always willing to help out with my turfgrass needs. He's been a big donor of turf equipment to the Noer Facility since I moved here and he always enjoyed participating in the



Summer Field Day and Turfgrass EXPO. His sales people and mechanics have also been so helpful to me, which I'm sure is a characteristic that John nurtured in his employees. He was always a gentle man when I talked to him. Outside of his business he seemed to have many interests also. He really liked to golf, collected old cars, and loved his family and friends.

I'm sure there is so much more to tell about him but he lived a state away from me, ran an extremely successful

business, and I only saw him at an occasional golf outing and the WTA educational events. At 61 he was way too young to pass from this world. I, like many of you, am going to miss his friendly manner. Our prayers are with him and his family.

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Fungicides: What You Should Know

Part II: Formulations and Topical Modes of Action

By Jeff Gregos, TDL, Department of Plant Pathology, University of Wisconsin-Madison

 \mathbf{I} n the previous issue formulations and topical modes of action were discussed. This article will include information on the topics of host pathogen interactions and fungicides families. After reading this installment you will be able to make proper decisions on selecting chemicals based on their topical mode of action and fungicide family in relation to the specific type of disease you are trying to manage. It will also give you background information required for developing disease resistance management regimes, which will be discussed in Part III. Enjoy Part II, and if you ever have questions on fungicides, I am only an e-mail or a phone call away.

Host-pathogen interactions

When selecting a fungicide it is best to think about the pathogen that you are trying to control. All pathogens in turf have different life cycles and infect the turf on different parts of the plant. For example, you know that contact chemicals provide a barrier on the outside of above ground parts of the plant. If you are trying to battle a disease such as summer patch, which is a root infecting disease, contact chemicals will provide little or no protection against such diseases. A better choice would be a chemical that has some type of systemic activity. It happens that the best chemicals for the control of summer patch are in the acropetal systemic group. Also, efficacy is increased when the fungicide is watered in immediately after application.

In figure 7 and table 2 are a list of common infection centers of turfgrass diseases and what type of topical mode of action will provide the best protection against such invasion sites.

Chemical Families

Chemical families are very important when it comes to developing resistance management programs. When fungal resistance develops to one chemical family, usually the fungus will have resistance to all the chemicals in that family. The previous statement is true because chemicals in the same family have similar biochemical modes of action. Below are the 10 chemical families currently labeled on turf. Under each family is some information about the families including, family members, topical and biochemical modes of action, resistance risk and spectrum of activity according to fungi families. Also included in table 3 (page 9) are common names, trade names, family, mode of action and resistance risk are provided for quick reference.

Aromatic Hydrocarbons

Family members:

Chloroneb, Ethazole, PCNB

Topical mode of action:

Contact

Biochemical mode of action:

Inhibits DNA synthesis, blocks

activity of respiratory enzymes and prevents development of cell wall membranes

Resistance risk:

Low, due to several biochemical modes of action

Spectrum of activity*:

Limited (Basidiomycetes and Oomycetes) PCNB does have activity against some other fungi families, but is primarily used for snow mold control in Wisconsin due the possibility of phytotoxicity at higher air temperatures.

Benzimidazoles

Family members:

Thiophanate Methyl, (Benomyl, no longer produced for turf)

Topical mode of action:

Acropetal Systemic

Biochemical mode of action:

Interferes with mitosis

Resistance risk:

High (Already documented in turf for dollar spot)

Spectrum of activity*:

Broad (Ascomycetes, and Basidiomycetes)

Carbamates

Family members:

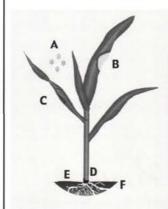


Table 2. Selecting the best topical mode of action for the type of infection.*

	Infection Type	Best*	Adequate*	
A	Spores	С		
В	Leaf Blights	C, L, M, A, S		
С	Leaf Spots	C, L	M, A	
D	Crown Rots	A, M, L	С	
E	Root Rots	S, A	L	
F	Patch Diseases	Α	L	

^{*}Topical modes of action: C = Contacts, L = Local Penetrants, M

Figure 7. Common ways pathogens infect turfgrass plants

⁼ Mesostemics, A = Acropetal systemics, and S = Systemics

^{**} These are generalizations, please read the label for specific diseases that each chemical is effective against.

Thiram, Mancozeb, Propamocarb

Topical mode of action:

Contact, Local Penetrant (propamocarb)

Biochemical mode of action:

Inhibits cell enzyme activity or alteration of fatty acid composi-

Resistance risk:

Low

Spectrum of activity*:

Broad (Basidiomycetes. Ascomycetes, and Oomycetes)

Carboximides

Family members:

Flutolanil

Topical mode of action:

Acropetal Systemic

Biochemical mode of action:

Interferes with respiration

Resistance risk:

Low, due to the pathogens that it is active on.

Spectrum of activity*:

Limited (Basidiomycetes)

Demethylation Inhibitors (DMI)

Family members:

Fenarimol, Myclobutanil, Propiconazole, Triadimefon

Topical mode of action:

Acropetal Systemic

Biochemical mode of action:

Restricts the development of cell membranes

Resistance risk:

Medium (Multi-step process, already documented in turf on dollar spot)

Spectrum of activity*:

Broad (Ascomycetes and Basidiomycetes)

Dicarboximides

Family members:

Iprodione, Vinclozolin

Topical mode of action:

Local Penetrant

Biochemical mode of action:

Interferes with respiration

Resistance risk:

High (Already documented on turf on dollar sot and Microdochium patch)

Spectrum of activity*:

Broad (Ascomycetes and

Basidiomycetes)

Nitriles

Family members:

Chlorothalonil

Topical mode of action:

Contact

Biochemical mode of action:

Disrupts cell functions via several methods

Resistance risk:

Low, due to several site of action

Spectrum of activity*:

Broad (Ascomycetes and Basidiomycetes)

Phenylamides

Family members:

Mefenoxam

Topical mode of action:

Acropetal Systemic

Biochemical mode of action:

Inhibits ribosomal RNA synthesis

Resistance risk:

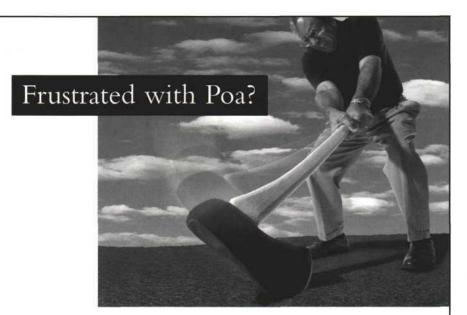
High (Already documented on turf on Pythium blight)

Spectrum of activity*:

Limited (Oomycetes)

Phosphates

Family members:



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Fosetyl Al

Topical mode of action:

Systemic

Biochemical mode of action:

Induces defense mechanisms within the plant

Resistance risk:

Medium

Spectrum of activity*:

Limited (Oomycetes)

Strobilurins

Family members:

Azoxystrobin, Trifloxystrobin

Topical mode of action:

Acropetal Systemic, Mesostemic

Biochemical mode of action:

Reduces production of ATP

Resistance risk:

Medium

Spectrum of activity*:

Broad (Ascomycetes,

Basidiomycetes, and Oomycetes)

*Some diseases caused by the pathogens in the families listed under spectrum of activity:

Ascomycetes: Leaf spots, dollar spot, Microdochium patch or pink snow mold, anthracnose, take-all patch, summer patch, and necrotic ring spot

Basidiomycetes: Brown patch, Typhula blight, fairy rings, and red thread Oomycetes: Pythium blight and yellow tuft

Literature Cited:

Vargas, J. M. Management of Turfgrass Disease. 1994. Lewis Publishers.

Couch, H. Disease of Turfgrass 3rd Edition. 1995. Krieger Publishing Company.

Illustrations on host-pathogen interactions was adapted from the following publication:

Heritage Fungicide. Zeneca. Pub# 10/99 20M ZPP-HER-051¥

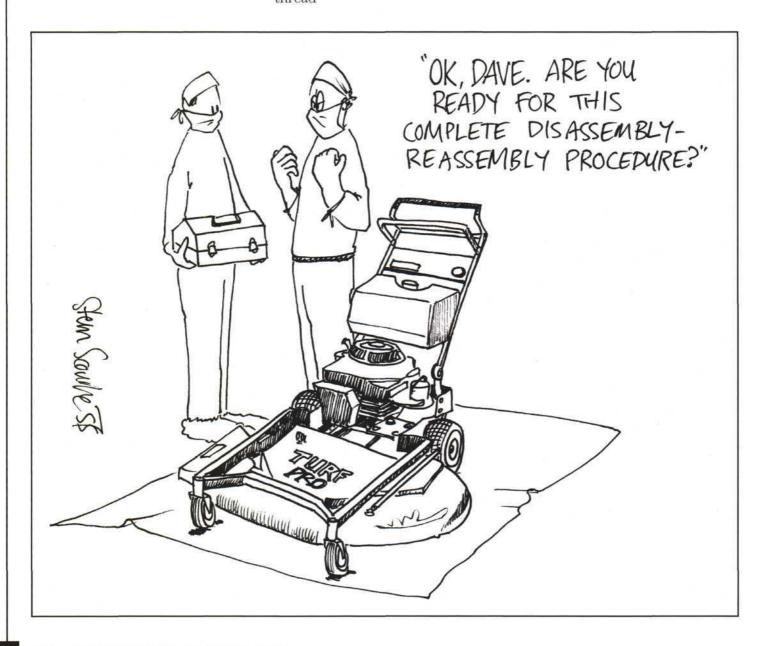


Table 3. Fungicides, common and trade names, family, mode of action and resistance risk

Common Name	Some Trade Names	Family	Topical Mode of Action	Resistance Risk
Azoxystrobin	Heritage	Strobilurin	Acropetal Systemic	Medium
Chloroneb	Terraneb SP	Aromatic hydrocarbon	Contact	Low
Chlorothalonil	Daconil 2787, Daconil ZN, Daconil Weatherstik, Daconil Ultrex, Manicure 6 Flowable, Manicure T&O, Manicure Ultrex, Thalonil 4L, Thalonil 90DF, Echo 720, Echo 75	Nitrile	Contact	Low
Ethazole	Terrazole, Koban	Aromatic hydrocarbon	Contact	Low
Fenarimol	Rubigan A. S.	DMI	Acropetal Systemic	Medium
Flutalonil	Prostar 70 WP	Carboximide	Acropetal Systemic	Low
Fosetyl-Al	Aliette Signature, Aliette T & O, Aliette WDG, Prodigy	Phosphate	Systemic	Medium
Iprodione	Chipco 26019, Chipco 26 GT	Dicarboximide	Local Penetrant	High
Mancozeb	Dithane T/O, Dithane WF, 4 Flowable Mancozeb, Fore, Fore Flo, Mancozeb DG, Junction	Carbamate	Contact	Low
Mefenoxam	Subdue Maxx	Phenylamide	Acropetal Systemic	High
Myclobutanol	Eagle, Golden Eagle	DMI	Acropetal Systemic	Medium
PCNB	Engage 10G, Engage 75W, Revere 4000, Revere 10G, Terraclor 400, Terraclor 75WP, Turfcide 400, Turfcide 10G, FF II, PCNB 12.5 G	Aromatic hydrocarbon	Contact	Low
Propamocarb	Banol	Carbamate	Local Penetrant	Low
Propiconizol	Banner, Banner Maxx	DMI	Acropetal Systemic	Medium
Thiophanate-methyl	Fungo Flo, Fungo 50, 3336 WP, 3336 Flo, Caviler 2G, Caviler 4.5 F, Caviler 50 WSB, Pro Turf Systemic Fungicide	Benzimidazole	Acropetal Systemic	High
Thiram	Spotrete, Thiram	Carbamate	Contact	Low
Triadimefon	Bayleton 25, Bayleton 50, Accost 1G, Granular Turf Fungicide	DMI	Acropetal Systemic	Medium
Trifloxystrobin	Compass	Strobilurin	Mesostemi c	Medium
Vinclozolin	Curalan, Curalan DF, Touché EG, Touché Flowable, Vorlan DF	Dicarboximide	Local Penetrant	High

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