



Fungicidal Tendencies and Thoughts for a New Year

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Mother nature has many tricks in her pouch and she sometimes springs them on us with ruthless abandon. When they hit the fan, the informed turfgrass manager must call upon his/her reservoir of experience and education to make the best possible analysis of the problem, draw the best available information from our UW researchers, apply the best materials available from the industry, execute these tactics in a planned and logical manner and pray that the turfgrass survives.

This old philosophy has many characteristics of Integrated Disease Management (IDM). Many of you already practice IDM and don't even know about it. Most of you probably understand that spraying fungicides on a calendar basis is not right. You don't spray when you don't need it, because that would be wasteful. Most of you use common sense. Although IDM is accepted as the best management philosophy it continues to battle the fungicidal tendencies that were created with the invention of pesticides.

Integrated Disease Management (IDM) has been around a very long time. Don't let anyone try to convince you otherwise. Integrated Disease Management cult members will say that they are the coolest thing since the invention of pesticides. In my book, all the IDM cult members will get credit for is the "reinvention of the wheel," so to speak. IDM is a remake. It is just a modern version of an old idea. The name may be new but the philosophy has been around quite awhile.

Who invented Integrated Turfgrass Disease Management? The answer is easy. University of Wisconsin-Madison alumni John Monteith, Jr. (#54, 1923) and Arnold S. Dahl (#95, 1931) were the principal turfgrass pathologists in the late 1920's and early 1930's and authored the first comprehensive publication on turfgrass diseases which is considered by some to be the genesis of Integrated Disease Management.

These Badger-boys created the philosophy that turfgrass diseases can be successfully managed by utilizing a logical combination of cultural methods, resistant varieties, early detection and also chemical treatments. I have the honor of feeling their presence every time I walk down the 2nd floor hallway of Russell Labs on the UW-Madison campus. Yeah, that's right. Turf IDM started at the UW-Madison.

One thing that did not originate on the UW-Madison campus is fungicidal tendencies. Fungicidal tendencies began soon after pesticides were invented. Unfortunately, the first question a misinformed turfgrass manager will ask when confronted with a turfgrass disease is, "What do I spray?" If you have these fungicidal tendencies, please brush up on your basic plant pathology. Fungicides should not be the first weapon of choice. Diseases should not be managed by

spraying on a calendar basis. These fungicidal tendencies are a by-product of the pesticide industry sales hype and are proof-positive of the perpetuation of benightedness. The elevation of fungicides to the silver bullet category is not taught on the UW-Madison campus.

While fungicides are an effective tool that we can use to manage turfgrass diseases, they are not the most important. Furthermore, fungicides are overrated because they can pose health concerns (Table 1). How many times have you used a pesticide and wished that they weren't so odoriferous or were easier to apply? Or wondered why you have to use a body condom to spray? These concerns are well justified because some of the pesticides are nasty and must be handled with care.

Table 1. Relative Nastiness of Turfgrass Pesticides

active ingredient*	Oral LD50**	Hazardous Rating***
chlorothalonil M123	4.2 g	Slight
iprodione M344	> 5000 mg	Moderate
mancozeb M376	> 5000 mg	Slight
triadimefon M185	> 5 g	Slight
propiconazole M26	1,310 mg	Moderate
PCNB M63	650 mg	Moderate
thiophanate-methyl M88	6640 mg	Moderate
thiram M67	780 mg	Moderate
flutolanil M311	>5,000 mg	Slight
vinclozolin M112	16,380 mg	Moderate
aluminum tris M348	2860 mg	Moderate
etridiazole M94	1077 mg	High/Serious
metalaxyl M48	1290 mg	Slight
propamocarb M 303	2000 mg	Slight
2,4 D M61	370 mg	Moderate
pendimethalin M215	> 5,000 mg	Moderate
oxadiazon M352	>5,000 mg	High/Serious
ethoprop M350	290 mg	High/Serious
diazanone M16	> 4 g	Moderate
fenamiphos M267	10.6 mg	High/Serious
glyphosate M284	non-toxic	Minimum

* Crop Protection Chemicals Reference; M#s are Product MSDS pages

** LD50: Dose which is expected to cause death in 50% of animals tested. A chemical with an LD50 of 10.6 milligrams per kilogram is more toxic than one having an LD50 of 4 grams per kilogram.

*** Hazardous Materials Identification System - 4 = Extreme/Severe, 3 = High/Serious, 2 = Moderate, 1 = Slight, 0 = Minimum.

The first thing a truly educated manager (ie. a UW-Madison alumnus) might ask is, "How can I help this turfgrass sward?" A pathologically enlightened turf manager knows that there are many weapons available to combat a turfgrass disease. Of these, host resistance is the preferred weapon of choice, not fungicides. Turfgrass disease management tactics include: chemicals, biologicals, host resistance, nutrition levels and environmental alterations. These methods, plus a sixth category—pathogen detection and disease forecasting—form the foundation for current turfgrass disease management.

The use of more than one of these methods in a planned and logical manner is called Integrated Disease Management. IDM is basically a three-pronged attack on the turfgrass disease.

Attacking the disease by helping the host is the first prong. You can help the host by utilizing resistant varieties and cultivars and maintaining balanced nutrition levels.

Cultural tactics aimed at changing the environment to aid the host and hurt the pathogen are the second prong of the attack. Such things as improving drainage or syringing are common cultural methods that change the environment in favor of the turfgrass.

The third prong is centered on the pathogen. This is accomplished by utilizing chemical and biological warfare that directly or indirectly kills the target pathogen. Attacking the pathogen by applying fungicides can be very efficacious. However, fungicides work better when used in combination with other management tactics.

Another important aspect of IDM is constantly striving for better solutions and setting of higher goals. Usually with the coming of a new year it is customary to make New Year's resolutions or challenges. I challenge turfgrass managers in Wisconsin to reduce pesticide usage by 80% by the year 2000. This kind of endeavor is already in place with other crops and it is a matter of time before it comes to the turfgrass industry. This elephantine goal may or may not be feasible in this short time frame, but I believe that we can make some progress. It is like eating an elephant; you eat it one bite at a time.

The turf team at the O.J. Noer Facility will continue to provide cutting edge research aimed at reducing the amount of intensive inputs into turfgrass maintenance. One future goal is to develop a better turfgrass for Wisconsin—Badgergrass. Badgergrass is only a dream right now, but wouldn't it be nice if we had a transgenic cold tolerant grass or a snow mold resistant variety? The profits from

the sale of Badgergrass could go to charity or to support further turfgrass research. Neat, huh? These challenges and goals aren't the ravings of a fungal pervert. They are worthwhile goals. Goals are an important part of IDM.

The best turfgrass manager will draw from his/her education and experience to make an analysis of the problem, will seek the advice of University experts (i.e. the TDDL) and other turfgrass managers, choose the best tools available from the industry, do so in a manner that is in line with government regulations, set goals that reduce intensive inputs and hope and pray that his/her turfgrass survives. The bottom line of IDM is common sense with a bus load of faith.



Steve Millett and Roger O'Connor at the diamond at Wrigley Field in 1994.

Ponder points....

At the recent Milorganite Symposium in Milwaukee I had the honor of attending two great days of information and shop talk plus the opportunity to meet and briefly talk to George F. Will. I watch George every Sunday on "This Week with David Brinkley" and occasionally read his columns in the paper. I know he loves baseball and hates artificial turf just as I do. So what was the first thing I said to him? I said, "You should be the commissioner of baseball." George replied, "They wouldn't have me."

This experience renewed my desire for baseball and I am glad that my strike on baseball is over. Unfortunately, I can't help but feel that I missed out this summer. The Cubs were in it (I am told) until the end. The last baseball game I went to was at Wrigley Field on my birthday 1994. Somehow my wife Debbie got us field passes. I didn't have much to say or ask Shawon Dunston or Deon Sanders. However, I was at ease interviewing the late Roger O'Connor, the head groundskeeper. We talked about the turf, the diseases, the lip, the ivy and the infield. Turf Talk. He was a nice man who made me laugh. I missed baseball. 🍷

Top Ten Turfies

10. Oyvind Jүүл Noer
9. John Monteith, Jr. and Arnold S. Dahl
8. Lee Burpee
7. Roger O'Connor
6. Joseph M. Vargas, Jr.
5. Joe Turf
4. Gayle Worf
3. "the Sodfather"
2. Douglas P. Maxwell
1. S. B. Martin

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