



Microdochium Patch

By Steve Abler and Dr. Geunhwa Jung, Turfgrass Diagnostic Lab, Department of Plant Pathology, University of Wisconsin-Madison

As the days become shorter and the temperatures begin to drop, the main disease that occupies the minds of golf course superintendents is Microdochium patch. Microdochium patch incited by the fungus *Microdochium nivale* (other names for this disease that you might be more familiar with include Fusarium patch, Gerlachia patch, and pink snow mold) is the most common of the low temperature diseases in Wisconsin. The fungus is most virulent during humid conditions in which the temperatures are between 32 and 45°F. However, during prolonged periods of humid weather such as those common near the great lakes, the pathogen may be active at temperatures as high as 65°F. *M. nivale* is able to infect and colonize all of the major cool-season grasses, but annual bluegrass and bentgrasses are highly susceptible to the fungus. Symptoms of the disease vary according to the type of grass, management, and time of year.

Symptoms During the Spring and Fall

On closely mowed turf found on greens, tees, and fairways, Microdochium patch is first seen as circular patches of water soaked grass 2-3 inches in diameter. The affected area will quickly turn brown and then tan or white, often resembling large dollar spots. Blades of the colonized grass mat together and white to pink mycelium is often visible on the edges of the patches. The border of active patches on bentgrass may appear pink in color, while the edge of patches on greens and fairways containing high populations of annual blue-

grass are usually reddish to brown in color (Figure 1). The pink sporodochia (fruiting structures) containing thousands of spores are what give the patches their distinct pink color. Patches can rapidly enlarge to over a foot in diameter and often coalesce during extended periods of favorable conditions. Close examination of affected leaves will occasionally reveal the round, salmon-colored sporodochia. Additionally, many banana or canoe-shaped spores are visible upon microscopic examination of colonized leaves (Figure 2).

On grasses with an increased height of cut such as those found in roughs and home lawns, Microdochium patch is first noticed as an irregular blighting of the grass. The blades of the grass will turn yellow at the tip and often times have chlorotic lesions. The grass will eventually turn straw to white in color and may mat together. During favorable conditions individual patches may have a pink tinge to them and will often coalesce to form irregularly shaped patches.

Symptoms After A Snow Melt

The environment under a heavy layer of snow is ideal for the growth of *M. nivale*. This environment is especially conducive for the development of Microdochium patch when there are heavy snowfalls on unfrozen ground. In this case, not only are the cool, wet conditions ideal for the fungus, but the plants under snow cover are also more stressed. The plants still respire and use up carbohydrates, but the layer of snow prevents adequate light from reaching the plant to replace the lost carbohy-



Figure 1: Typical symptoms of Microdochium patch on bent/poa greens. Note the salmon-colored border of the patches.

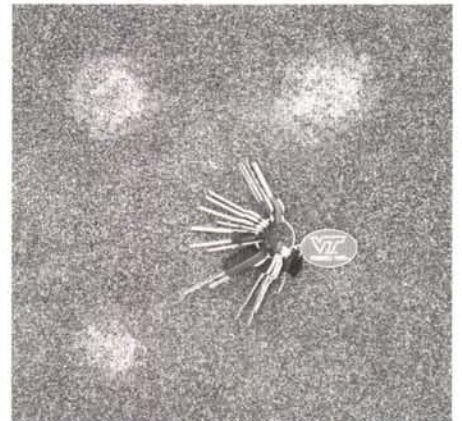


Figure 2: Canoe-shaped conidia of *M. nivale*.

drates via photosynthesis. This deficiency of carbohydrates in the leaves makes the plant more susceptible to attack by the pathogen (Couch, 1995). When snow melts in the spring, white to pink circular patches up to foot or more in

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diameter are revealed. The grass in these patches is usually matted together, and the most recently uncovered patches are often covered with fluffy, white to pink mycelium.

Control of Microdochium Patch

There are several cultural techniques that can minimize your risk of a severe outbreak of Microdochium patch. Since succulent tissues are more susceptible to infection and colonization, heavy applications of readily available nitrogen during conditions conducive for disease (especially late in the fall) should be avoided. Conversely, applications of potassium have been shown to suppress disease development. As with several other turfgrass diseases, the pH of the thatch and upper inch of the rooting mix should be maintained below 7.0 because the disease is more severe in under alkaline conditions. If you have very acidic soils, make sure to apply the lime in the spring rather than the fall. Avoiding heavy thatch layers should remain a priority because thatch is a hospitable location for the fungus to grow and survive harsh conditions. Spores and mycelium of the fungus are easily spread by mowers and other golf course equipment, so washing equipment that has been used on a diseased area is a must (Figure 3). Additionally, excessively long grass should be avoided because the leaves lying on top of each other create a humid environment that promotes disease (McBeath, 2003).

Cultural techniques may help superintendents avoid turfgrass damage in the spring and fall, but in Wisconsin, superintendents must rely on fungicides to survive the long months when snow blankets their courses. Fungicides that are labeled for the curative control of Microdochium patch include azoxystrobin (Heritage®), fenarimol (Rubigan®), iprodione



Figure 3 :Microdochium patch spread by a greens mower from an area of annual Bluegrass on the collar.

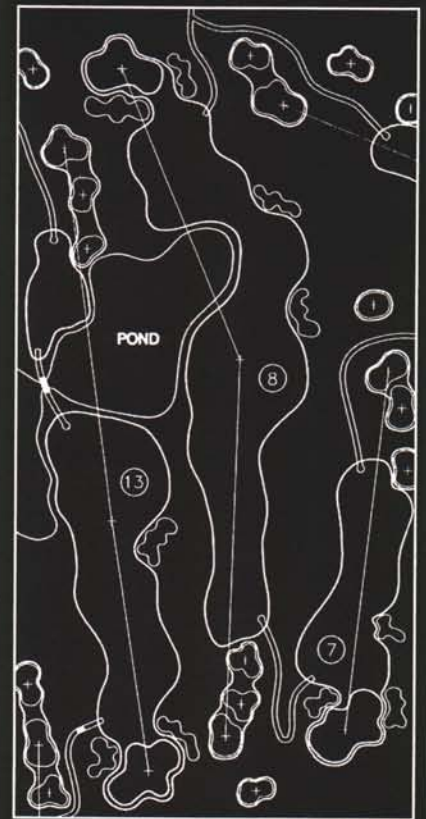
(Chipco 26GT®), myclobutanil (Eagle®), PCNB (Turfcide®), thiophanate-methyl (Cleary's 3336®), thiram (Spotrete®), and trifloxystrobin (Compass®). The most consistent and commonly used combination to prevent Microdochium patch and other diseases including Typhula blight that occurs under snowfall is an application of PCNB, iprodione, and chlorothalonil just before the first heavy snowfall of the year.

The turfgrass pathology lab and the Turfgrass Diagnostic Lab are looking into several aspects of this important Wisconsin disease. Research efforts are aimed at testing the efficacy of application of single fungicides and combinations of fungicides to improve disease control options for superintendents. Studies are also being conducted to investigate the subspecies of *M. nivale* present in the state as well as breed bentgrasses that are more resistant to the pathogen. As always, if you have a question regarding Microdochium patch or any other disease, please contact myself or Dr. Jung at the Turfgrass Diagnostic Lab.

Works Cited

- Couch, H.B. 1995. Diseases of Turfgrasses, 3rd ed. Krieger, Melbourne, FL.
 McBeath, J.H., 2003. Snow mold: winter turfgrass nemesis. Golf Course Management 71(2): 121-124.✂

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The Season of Minimal Inputs

By Pat Norton, Golf Course Superintendent, Nettle Creek Country Club

The most difficult part of the season just concluding is that there's a realization that we must continue managing our golf courses just as tightly as possible...in order to survive and thrive in the world of public golf. We must continue to minimally input...in all management areas...and hold the line on all of the extras that make our daily golf course world so interesting.

Much of our past training and expertise to further and continually beautify our golf properties has to be tempered greatly because the funds to accomplish all of these projects may just not be there. The economic belt tightening seems to have affected all golf courses...which puts us all in the position of being a minimal input manager.

Actually, we have all been experiencing season after season of minimal inputs...it's an annual battle to produce a beautiful golf course with limited funds. Golf courses by their very nature do gobble up huge quantities of money. So we should all be somewhat

familiar with this idea of minimal inputs. It's just a little bit extreme these days...

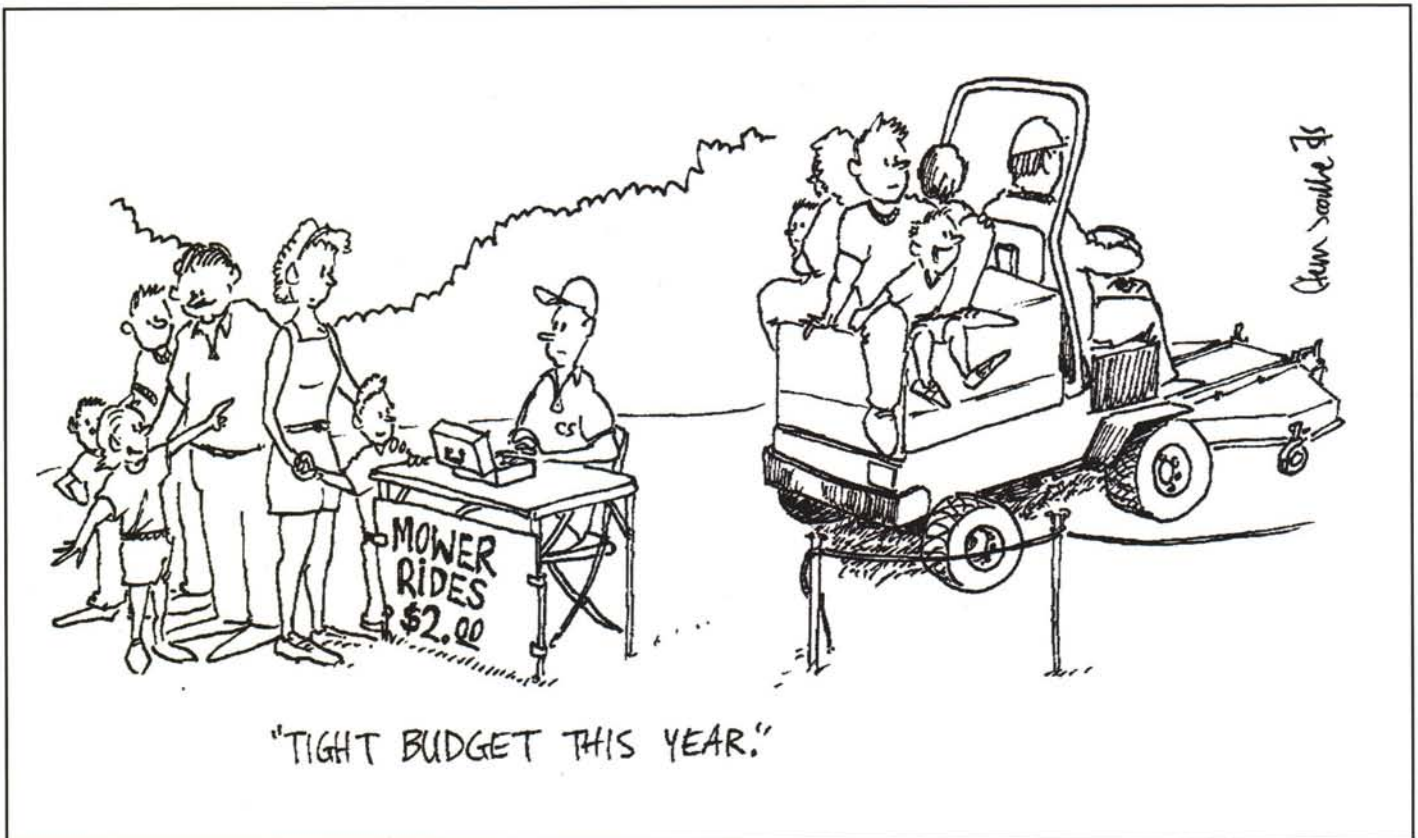
We fertilized our fairways just once in 2003...back in mid-May...and this fall they still look just great...

We sprayed fungicides on fairways five times this season (dollar spot)...three of which contained a single product...the other two containing a tank mix. In the past, almost always a tank mix.

We did spray for pythium twice on greens and tees only...never once even spot treating fairways...during a season so wet that our irrigation pumps were turned completely OFF for five straight weeks during late June through July. We only suffered a very minimal amount of fairway pythium damage which is long gone by now.

We have not given our golf course employees any raises whatsoever since the beginning of the 2001 season....

We did not apply a single ounce of insecticide to any part of this golf course...even though I know that



Aetenius and other species of white grubs love this place. Last two years...Merit on everything. This year...classic white grub damage in September and October on a few fairway and surrounds areas. Does anybody...besides me...even notice or care about the damage and question me about not spending the money? No mention...not one comment...not one peep! Had I sprayed and spent the \$3,500 on Merit and been at or over my Fert/Chem budget...then the grumbles would begin...loud and clear!

We have refused to spend budgeted \$\$\$ so many times this season that I get somewhat paranoid when we purchase anything for more than \$500...because there's always the certainty that our cash situation is pretty tight.

As an aside...I can now chuckle when I think back a few weeks and remember my anger upon reading an article...I believe in *Golfdom*...in which the topic was something like "How Savvy, Veteran Superintendents Save \$\$\$\$ in Tough Times". I paraphrase now as I quote one savvy dude who made the ultimate politically correct statement when he said... "I would never

cut back on anything that would directly affect the safety or the quality of the turf on my golf course."

Who's he kidding?! The above statement is pure crap...in my humble opinion! That sort of statement is simply good fluff that green chairmen, club presidents, and owners of golf courses want to hear...when the fact is that in order to make any significant golf course budget cuts...a lessening of fertilizer, chemical, or plant protectant inputs is certainly part of the belt tightening formula.

Any superintendent who actually cuts everything else...wages, course landscaping, course projects...without touching the \$\$\$ spent on fert and chem...is an idiot. Fertilizer and chemical purchases are among our biggest ticket items...and if this little course in north central Illinois is cutting back ...then so are tens of thousands of other golf courses nationwide.

Course officials everywhere need to know that by doing this...we all cut back on the margin of safety and skate a little bit closer to the thin ice of turf decline, decay or destruction that can cause a big lessening in playing conditions.



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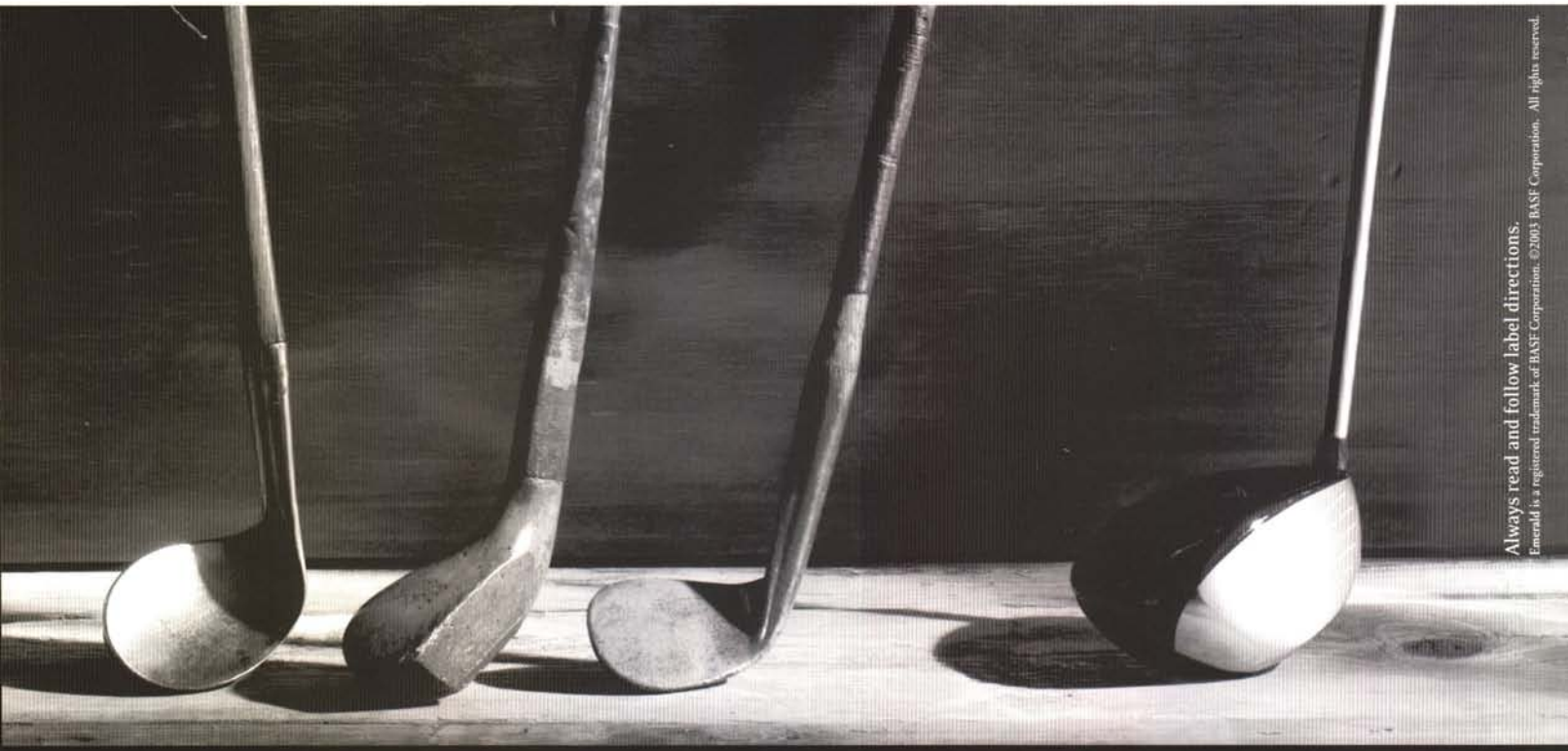


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Even though our little golf course has bounced back remarkably well in '03...and our total income is up over 11% as compared to a year ago...it's also remarkably clear that the name of the game for the next few years is to run a tight ship...do to the golf course only what's absolutely necessary...and further become a superintendent who is judged more and more on his ability to financially control the inputs.

The biggest pests that I control these days are those truly pesky, irritating rectangles of paper called invoices. We are, more than ever, willing to tolerate pests of the agronomic variety in the sometimes irrational quest to eradicate those pests of the financial variety!

We are concluding a season of minimal inputs...at this golf course...in which the focus is only minimally on golf course quality and almost totally on controlling inputs and costs.

The season just concluding saw such an emphasis on controlling purchases that we decided repeatedly to forego necessary and normal agronomic and horticultural expenditures which would have made a difference in the appearance and playability of this golf course. The difference in quality that results in higher expenditures has to be judged now, as the season of minimal inputs concludes.

As much as it's universally understood that high quality playing conditions attract golfers...it's clear that most public golfers won't notice reductions in spending...down to that certain invisible line. Beyond that, golfers will notice a drop off in playing conditions. Logically, if they do notice, they should take their public golf patronage to some other course. The trick is to always stay on the positive side of the line.

I do understand that in the short run...minimal inputs combined with some really good, benign weather over the past two seasons have permitted us to skate by. I also realize that strong forces, mainly summer weather, may force us to return to some of our past practices.

But, once budget cuts are made...just try and get them reinstated. If your golf course has survived and still looks pretty much identical to the one upon which you spent an additional \$25,000...say goodbye to the fert and chem funding. Maybe that \$\$\$ can reinvent itself as funding for course projects?? Didn't think so.

I look out over this golf course bathed in October sunshine and nocturnal moonlight...and realize that it looks absolutely great...and that we have spent considerably less on course maintenance than I think

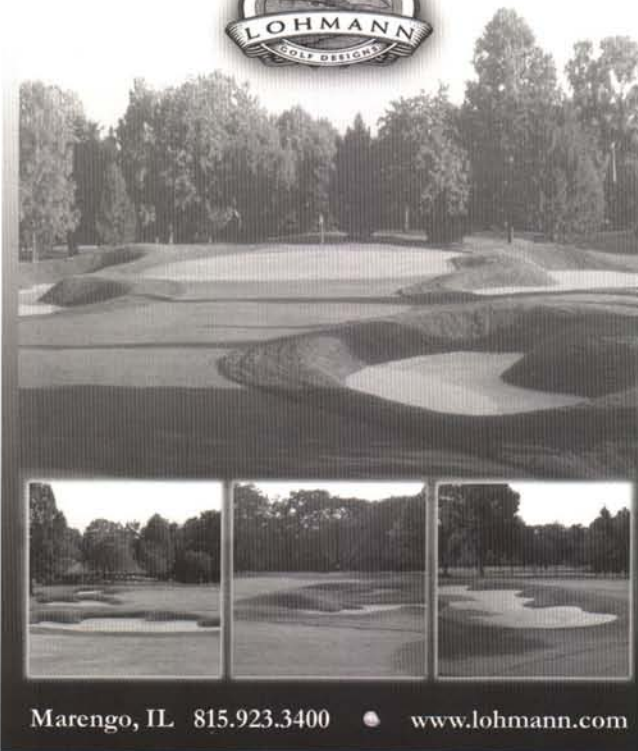
this golf course deserves. But, we spend what we can afford to spend...in all management areas. The fact that the funding reductions somewhat reduce the level of career challenge is really of no importance...and in fact, the challenge really is to still provide the playing conditions and improve the golf course over the next few years.

As this superintendent approaches budget time, the season of minimal inputs looms large in my mind. There are so many things that I want to continue to do here...but the reality just may be another season or two of only the basics. Sort of a sobering thought, actually. But not a depressing one. I'd be depressed without that big, old golf course out there west of town.

My mission still is to provide excellent playing conditions, further improve Nettle Creek, and maintain our reputation as the best damn golf course in Erienna Township! My other mission is to continue providing for my family and build a bit of wealth.

So...as my wife commented upon reading this... "Gee, sounds like your Nettle Creek saga continues!" How true. ♣

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Tough to Believe How Great It Was?

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

The WTA golf fundraiser was such a success this year. This was true for both the golf participants as well as the WTA. The event was held at the Bull at Pinehurst Farms in Sheboygan Falls on October 8th. This brand new Jack Nicklaus signature course just opened for their first full year in 2003. The conditions played like it had been open for years though. Turf conditions were very mature and utterly playable. Both superintendents, the one that grew in the course and the new superintendent, should be congratulated on the spectacular shape of the course. The WTA along with all the golf participants would like to thank superintendents Tony Rzadzki and Randy Witt for hosting this event.

The event sold out for the second year in a row. WTA's goal of raising funds to support turfgrass research well into the future was advanced through selling out the event. But not only was the event sold out. The owners of the Bull gave up their course for only a minimum of fixed costs. The vast majority of everyone's registration fee will go to the UW Turf Program. The owners of the Bull should feel proud to know money raised will further turfgrass research at the UW-Madison and help make Wisconsin's golf



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Fun golf challenges were presented on every hole.

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