

Highlights

OCTOBER, 2008

Time for snow mold prevention



Microdochium patch (also known as pink snow mold or Fusarium patch) and gray snow mold (Typhula blight) are activated by cool, wet weather, when average air temperatures are below 62F (17C). While gray snow mold appears to require the presence of snow for its development, Microdochium patch can occur even when there is little or no snow cover. If you have a history of the disease, you may want to consider preventive applications of fungicides once the threat temperature at your location dips below 62F. Your site-specific threat temperature appears on your PACE Turf Weather Update, and is re-calculated several times a day based on up-to-date weather forecasts for your site. Making a practice of checking your threat temperature regularly can help you to keep on top of emerging pest infestations before they cause significant damage.

Some important reminders about snow mold management:

- Combinations of two or more products from two or more different chemistry classes appear to be the most effective approach to snow mold prevention. A listing of some of the most effective product combinations appears in Table 1 (page 2). These combinations have been shown to control both gray and pink snow mold in university trials around the country.
- Phytotoxicity threat: PCNB (Turficide) is a very effective snow mold product, especially when used in combination with other products such as chlorothalonil, but can be phytotoxic to turf. Putting greens are at special risk. If you have had luck with this product in the past, it is still important to proceed with caution. If you have never used it, it is important to consider first testing it in small areas and/or using different products. Turf damage is most likely when air temperatures are greater than 70F (21C), but can occur at much lower temperatures as well.
- Frequency of application: Season-long control can be obtained from a single application if the most effective products (listed in Table 1) and application timing are used.
- Timing: Timing of the application is important and can be tricky. This is because you ideally want to apply as late as possible in the late fall/early winter in order to allow the fungicides to last into late winter/early spring. But you still need to apply before the turf goes dormant and before the ground is covered with snow. This is a balancing act that requires your judgment and experience; if you are in doubt, you are probably better off erring on the side of applying slightly too early than too late, however.
- Dollar spot bonus: Recent research from several turf pathology labs indicates that a late fall "clean-up" fungicide application can have a big benefit as far as dollar spot control the next year. So, if dollar spot is also a problem at your course, then careful selection of the product(s) that you use for fall snow mold prevention can bring you additional benefit of keeping dollar spot populations lower in the spring. Use Table 1 (page 2) to locate the products that are highly effective for both snow mold and dollar spot.

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Improving turf quality in the shade

Lack of light is one of the major stresses on turfgrass, and one of the most difficult to overcome. Buildings, trees and clouds usually do not vanish simply because we want them to. There are some cultural practices, however, that can help the turf (and you) cope with the shade.

Ohio State researchers David Gardner, Edward Nangle and colleagues recently presented the results of their 2 year study on the impact of nitrogen source and Primo (trinexapac-ethyl) on Penncross bentgrass that was grown in an area shaded by trees. They found that turf quality was significantly better with a program of Primo Maxx (0.125 oz/1000 sq ft, applied every 2 weeks) and urea (0.1 lb N/1000 sq ft, applied every week). The other nitrogen sources tested (calcium nitrate and ammonium sulfate) did not have the same positive effects, when applied either alone or with Primo.

Why did the Primo/urea combination work? In the study, the researchers documented increased chlorophyll levels in the treated turf, a change that allows the plants to absorb more light in the shade, and therefore cre-

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Time for snow mold prevention

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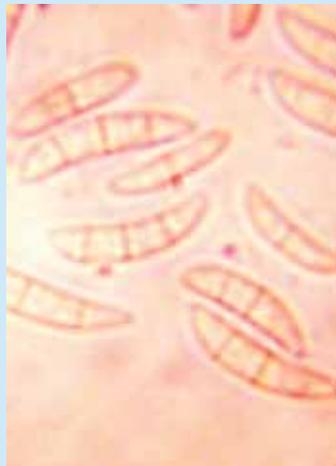


Table 1. Product combinations for Microdochium patch and gray snow mold that have been most successful in university and demonstration trials. In most cases, a single application (made once threat temperatures dip below 62F or 17C) is sufficient for season-long control. Products that also have good dollar spot activity are denoted by the “**”.

Product 1	In combination w/one of the below
azoxystrobin (Heritage)	chlorothalonil* iprodione* propiconazole* triadimefon*
chlorothalonil (Concorde, Daconil, Echo, Manicure, etc)*	azoxystrobin propiconazole* pyraclostrobin
fludioxinil (Medallion)	propiconazole*
iprodione (Chipco 26GT, Iprodione Pro, Top Pro Iprodione)*	azoxystrobin chlorothalonil* pyraclostrobin
PCNB (Defend, Engage, Penstar, Revere, Terraclor, Turfcide)	chlorothalonil*
propiconazole (Banner Maxx, Kestrel, Propiconazole Pro, Spectator)*	azoxystrobin chlorothalonil* fludioxinil PLUS chlorothalonil pyraclostrobin trifloxystrobin
pyraclostrobin (Insignia)	propiconazole* propiconazole PLUS chlorothalonil* triadimefon*
triadimefon (Bayleton)*	azoxystrobin azoxystrobin PLUS chlorothalonil* pyraclostrobin pyraclostrobin PLUS chlorothalonil* trifloxystrobin trifloxystrobin PLUS chlorothalonil*
trifloxystrobin (Compass)	propiconazole* triadimefon*

Preventing dollar spot: fall is the time

There is growing evidence from university trials around the country that fall fungicide applications are the most effective way to avoid dollar spot damage the following spring. But when, exactly is the best time to spray? And which

products are going to be the most effective?

The best time to make your preventive fall application is when cool-season turf growth has slowed down, but before the weather is so cold that lack of turf growth and/or snow will interfere with your applications. That would equate to a cool-season turf growth potential of about 10%. To see if you are approaching 10% cool-season GP, go to your site-specific PACE Turf Weather Update and look up the current Cool Season Growth Potential (“Cool GP”) for your location.

The products that have consistently been most effective at dollar spot prevention in university trials are listed in Table 2 (page 4). It is very important to keep in mind that dollar spot is very prone to develop resistance to DMI fungicides such as Rubigan (fenarimol), Eagle (myclobutanil), Bayleton (triadimefon) and Banner (propiconazole), and to Cleary’s 3336 (thiophanate-methyl). There is a lower risk of resistance to dicarboximide fungicides (such as iprodione or 26GT), but it is a possibility as well. For this reason, it is critical that use of these fungicides be rotated with

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New hope for Poa control on greens

When it comes to poa control on greens, we all go silly with optimism every time a new active ingredient appears on the scene. Most recently, Roundup Ready bentgrass looked like it was going to finally do the trick, but that project is now so embroiled in regulatory problems, that it's chances for commercialization are low enough to be almost invisible. But recently, two new materials have replaced RR bentgrass in our hopes and dreams.

Amicarbazone, a material under development by Arvesta, is a triazine herbicide such as simazine and atrazine. It has shown very good efficacy against poa on bentgrass greens in trials conducted by Dr. Fred Yelverton of North Carolina State University (see graph below). And it appears to be relatively safe on bentgrass, though some varieties, such as Penncross, are very sensitive, according to Yelverton. More work needs to be done on lower rates and on more bentgrass varieties in more locations. But the initial results look promising.

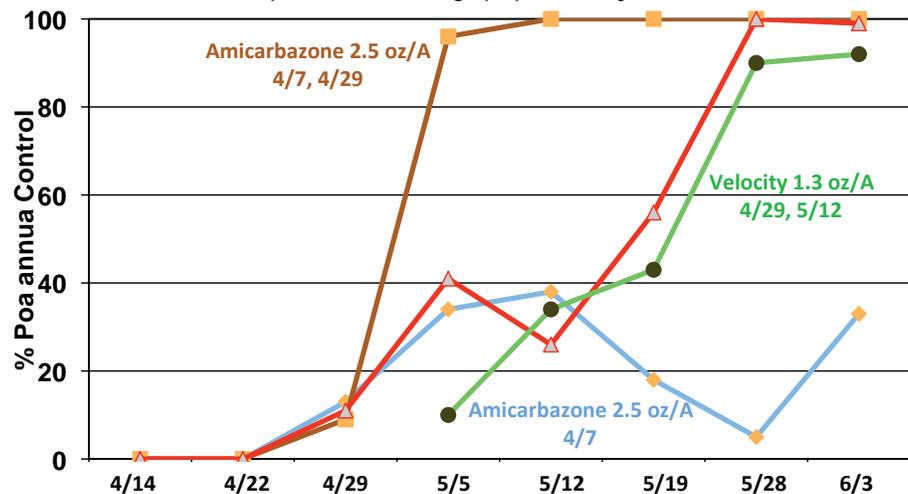


Cumyrulon, a substituted urea herbicide such as linuron and siduron, is under development by Helena. Tested so far primarily at Michigan State University by Rob Calhoun, it also looks very promising, with good poa control and limited damage to bentgrass.

Once again, though, more research is required to make sure that its safety to bentgrass is at least as good as its activity against poa.

With more data being generated as we speak, look to see both of these products in large-scale and demonstration trials in the very near future. We will keep you posted on results.

Figure 1. Poa annua control on Penncross bentgrass green, North Carolina. Dates of application are indicated for each product. Data and graph provided by Dr. Fred Yelverton, NC State.



Poa treated at 100% seedhead stage; Induce non-ionic surfactant added to all treatments

Improving turf quality in the shade

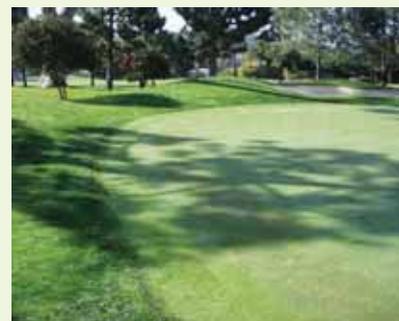
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ate more energy for growth. We also know that growth regulators such as trinexapac-ethyl can help out in the shade by counteracting the development of elongated and thinning turf that occurs when light is low.

The bottom line? If you are dealing with shade, there are cultural practices such as those described above that can certainly help out. But they can't completely solve the problem. As long as the source of the shade is present, the turf's health and its susceptibility to disease, weed and moss invasion and other stressors will still be at risk.

If you need some help explaining to managers and golfers how shade works to undercut turf performance, the PACE Turf Clubhouse Edition, "Shade vs. turf: can they coexist?" can be useful.



Preventing dollar spot: fall is the time

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fungicides in other chemical groups, as indicated on PACE Turf's Fungicide Resistance Management Table (see www.paceturf.org).

Table 2. Products with good preventive activity against dollar spot in university trials. Products with an asterisk (*) may fail to control dollar spot in some locations due to development of fungicide resistance.

Active ingredient	Trade names
boscalid	Emerald
chlorothalonil	Concorde, Daconil, Echo, Manicure, Pegasus, etc.
fenarimol *	Rubigan, Patchwork
iprodione*	Chipco 26GT, Iprodione-Pro, Top Pro Iprodione
myclobutanil *	Eagle
propiconazole *	Banner Maxx, Kestrel, Propiconazole-Pro, Spectator
thiophanate-methyl *	Cavalier, Cleary's 3336, Fungo
triadimefon *	Bayleton, Fungicide VII
triticonazole*	Trinity
vinclozolin*	Curalan, Touche, Vorlan

PACE Highlights features turf management information recently covered in PACE's weekly Updates. For more detailed information and electronic links to background materials, visit the PACE Member Edition website at www.paceturf.org.

Evaluating ballmark repair tools

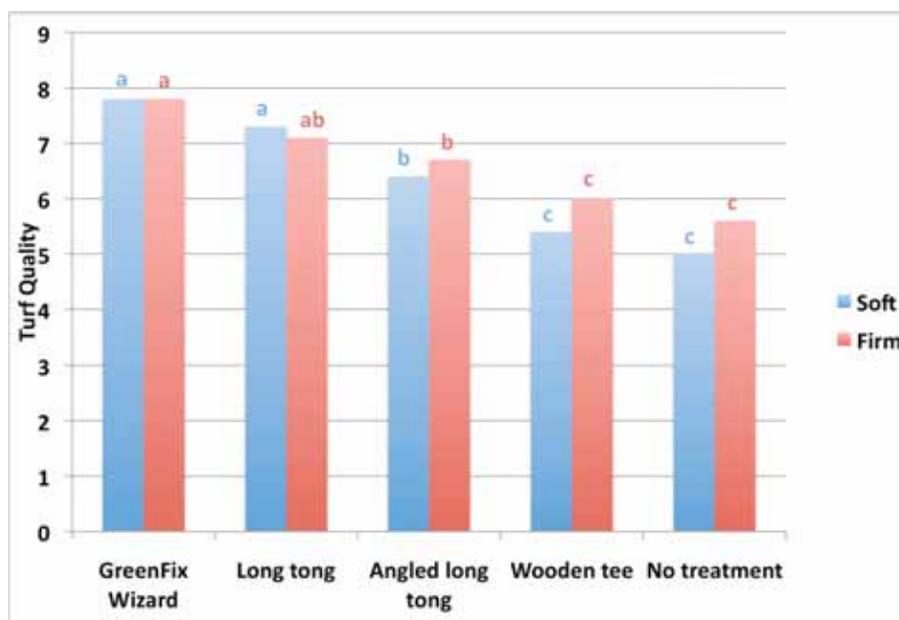


Figure 2. For both firm and soft bentgrass greens (Pennlinks), The GreenFix Wizard and traditional long tong tool resulted in the fastest recovery from ballmarks. Study conducted by Jason Nemitz, Cale Bigelow (Purdue University) and Adam Moeller (USGA).

One of the most interesting new studies on ballmark repair tools was recently completed by Jason Nemitz and Cale Bigelow (Purdue), in cooperation with Adam Moeller of the USGA. They compared four different tools, and found big differences among them in terms of the speed with which ballmark scars healed. The results confirmed those from an earlier study on ballmark repair that was conducted by Dr. Jack Fry and colleagues at Kansas State University.

The Nemitz study was conducted on two adjacent Pennlinks bentgrass greens in Indiana. One green was repeatedly rolled in order to produce a firm surface (it measured 145 gravities on the Clegg meter, which is indeed a very firm green), and the other green was managed to produce a softer surface (no rolling and heavy watering resulted in a green that registered 100 gravities on the Clegg). All ballmarks were naturally created by golf balls struck with a pitching wedge from a distance of about 300 feet. The key findings were:

- Firm greens had faster recovery from ballmark damage than soft greens.
- Of the four tools tested, the hand-held Greenfix Wizard and the traditional 2-prong (also known a long-tong) tool were the best, with the fastest recovery from ballmark damage on both firm and soft greens.
- 21 days after the ballmarks were created, there was no longer any difference among the different tools. In other words, the tools differed only in the speed of recovery from ballmark damage.
- Use of a wooden tee for ballmark repair gave the same results as doing nothing at all to repair the ballmark damage.
- Despite their good performance, the Greenfix and traditional long tong tools are also probably the most difficult for untrained golfers to use. Therefore, regular golfer training programs are important in order to benefit from the use of these tools.