

# Alternative Way of Snow Mold Control?



By **Geunhwa Jung**, Department of Plant Pathology, University of Wisconsin-Madison

The snow molds are friends rather than foes. At least I want to look at them in that way. Without them superintendents and researchers would be out of business, particularly in Wisconsin. The snow molds give us enough challenges every spring so that researchers are constantly striving to learn more about the strategies of controlling the snow molds. Another great year for the snow molds may be expected this year due to unusual climate condition, UNFROZEN SOILS covered with a blanket of snow. Factors, including

duration of snow cover and low temperature with lots of moisture, which can affect the growth of grasses, and the grass's susceptibility to snow molds, should also affect the severity of snow molds. Therefore, everyone knows the simple equation, no fungicide equals no control of the snow molds.

Snow molds are one of most difficult fungal pathogens to work with from a researcher's point of view because of the complexity of disease development. However, another difficulty is that there are

many names for the same disease, which have confused superintendents and researchers. Nomenclature plays a very important role in communicating information among people working in the same area. Therefore, if different names were used, then how are people able to exchange the correct information with each other?

Recently, I had a chance to look through our most important encyclopedia on fungicides called "Turf & Ornamental Reference" for Plant Protection Products (T&OR 2000) in order to gather the fungicide



## Proudly Serving the Turf Industry in Wisconsin

### Terra's full line of turf industry products includes:

- Herbicides
- Insecticides
- Fertilizer
- Grass Seed
- PGRs
- Fungicides  
(Including Thalonil™ 90DF and 4L)
- Colorants  
(Including Terramark™ SPI and Terramark Lake Colorant)

**For the products, services and advice you need,  
Talk to Terra**



Terra International, Inc. • 3525 Terra Court • Sun Prairie, WI 53590  
Conrad Stynchula CGCS • (800) 456-0948 (office) • (608) 235-4999 (mobile)

Table 1. List of fungicides registered for the control of snow molds and their recommended rate, application intervals, and their primary target species of snow molds.

Chemical family	Common names	Trade name	Snow molds							
			Typhula blight		Gray Snow Mold		Microdochium patch			
			Rate	Appl interval	Rate	Appl interval	Rate	Appl interval		
Carbaximide	Flutolanil	ProStar® 70WP	3.0-4.5							
			GSM (Typhula spp.)					PSM ( <i>Fusarium nivale</i> )		
			2	One or two appli				1-2	One or two appli	
			GSM/T. Blight ( <i>T. incarnata</i> )					PSM/F. patch ( <i>Microdochium nivale</i> )		
Demethylation Inhibitors (DMI)	Fenarimol	Rubigan A.S.	8.0	1 or 2 days				8	1 to 2 days	
			GSM/Typhula blight ( <i>T. incarnata</i> )( <i>T. ishikariensis</i> )					F	One application	
			2-4	One application				2-4	One application	
			GSM (Typhula spp.)					PSM ( <i>Microdochium nivale</i> )		
Dicarboximides	Myclobutanil	Eagle® WSP	2 preventive	10 to 21 days					2 preventive	
			4 curative	10 to 21 days					10 to 21 days	
			GSM						Fusarium patch and PSM	
			1							
Dithiocarbamates and Carbamates	Iprodione	Chipco® 26019	GSM ( <i>T. incarnata</i> )						F. patch & PSM ( <i>Microdochium</i> )	
			2-4	One or two appli					2-4	One or two appli
			GSM (Typhula spp.)						PSM ( <i>Microdochium nivale</i> )	
			9.6-12.8	2 to 6 weeks					2 to 6 weeks	
Strobilurins	Azoxystrobin	Heritage®	0.7	One application					0.7	One application
			0.4	14 days					0.4	14 days
			GSM/Typhula Blight ( <i>T. incarnata</i> , <i>T. ishikariensis</i> )						PSM ( <i>Microdochium nivale</i> )	
									0.25	Late fall
Benzimidazole	Thiophanate-methyl	Cavalier 50 WSB							PSM	
									2	
									PSM ( <i>Microdochium nivale</i> )	
									13.6 pounds	In combination
Nitriles	Chlorothalonil	Manicure™ 6 Flowable® Turf Care® Daconil Ultrex®	13.6-27.2 pounds	One application					PSM ( <i>Gerlachia</i> or <i>Fusarium</i> patch)	
			GSM by Typhula spp.						13.6 pound	In combination
			13.6-27.2 pounds	One application					PSM ( <i>Gerlachia</i> or <i>Fusarium</i> patch)	
			GSM by Typhula spp.						16	One or more
Aromatic Hydrocarbons	Quintozone (PCNB)	Engage® 75W Terraclor® Turficide®400 Reverse™ 10G	16	One or more					Fusarium patch/PSM ( <i>M. nivale</i> )	
			Typhula blight/GSM ( <i>T. incarnata</i> )( <i>T. ishikariensis</i> )						8	One application
			8	One application					PSM ( <i>Fusarium nivale</i> )	
			GSM by Typhula spp.						13.6-27.2 pounds	One application

The information in this table was abstracted from Turf & Ornamental Reference for Plant Protection Products, 2000. Rate is based on fl. oz/1000 sq. ft. unless specific information is provided. Additional directions of tank mix with other products for the control of snow molds were not included in the table due to the limitation of a space. Abbreviations: GSM (gray snow mold), PSM (pink snow mold), F. patch (*Fusarium* patch), T. blight (*Typhula* blight), *M. nivale* (*Microdochium nivale*), and spp. (species).

Table 2. Scientific and common names of snow molds caused by fungal pathogens.

	Typhula blight			
Scientific name	<i>T. incarnata</i>	<i>T. ishikariensis</i>		<i>Microdochium nivale</i>
		var. <i>ishikariensis</i>	var. <i>canadensis</i>	
Common name	Gray snow mold	Speckled snow mold		Pink snow mold   Fusarium patch

Nomenclature was adapted from Smith et al. (1989) and Smiley et al. (1992).

information labeled for snow mold control. I discovered a few interesting findings (Tables 1 and 2). First of all, there were a series of both scientific and common names used for the same snow mold. Some of them may be due to misspellings made in the printing process. However, I firmly believe that a majority of them was due to the lack of knowledge about the disease. Here are some instances that I discovered from the T&OR 2000. For example, what exactly does "gray snow mold (*Typhula* spp.)" mean (Table 1)? Does it mean all of *Typhula* species (*T. ishikariensis*, *T. incarnata*, and *T. phacorrhiza*), both *T. ishikariensis* and *T. incarnata*, or just one of the three species? In some cases, either *T. ishikariensis* or *T. incarnata*, or both were clearly mentioned. Another example is about pink snow mold. The name like "*Gerlachia*" and "*Fusarium nivale*" still appears in spite of the fact that the name for pink snow mold has been revised to the genus "*Microdochium*" (Smiley et al., 1992) (Table 1). As researchers learn more about the snow molds, things such as the nomenclature must be corrected.

Another important piece of information presented in Table 1 is that there are only a few fungicides, such as Rubigan, Heritage, and TwoSome, actually labeled for the control of *T. ishikariensis* species. In fact, our preliminary research results indicated that *T. ishikariensis* is the predominant species causing snow mold in

Northern Wisconsin and in other areas where the snow cover stays longer. Also, *T. ishikariensis* is generally associated with snow mold outbreaks, where fungicide applications have failed.

In this article, I attempted to summarize the names of the snow molds used in the T&OR 2000 so that Wisconsin superintendents will have a better idea of the fungicides available for a specific snow mold species and better communication between researchers, superintendents, and chemical representatives (Table 2).

Two names, pink snow mold and Fusarium patch were agreed upon by researchers and were maintained because of phases of a disease caused by *Microdochium nivale* (Fr.) Samuels & I.C. Hallett (Smiley et al., 1992). Smiley et al. (1992) also described the reason for keeping two names for pink snow mold: 1) the names do not fully and always describe the diseases, the pinkish color on the margin of the diseased patch, 2) the disease is not always related with the snow, and 3) the pathogen name has been renamed several times, from the genus *Fusarium* to *Gerlachia* and then to *Microdochium*. The authors also suggested that pink snow mold is for the description of disease associated with snow cover. In contrast, *Fusarium* patch is for the description of the disease without snow cover. For example, in May in Southern Wisconsin *Fusarium* patch can be a problem as *Microdochium*

*nivale* can be active and cause death of turfgrass.

For more practical information on snow mold fungicides, please schedule in advance to visit one of five snow mold field days sometime spring of 2002.

**References cited**

Smiley Richard, P.H. Dernoeden, and B. Clarke. 1992. Compendium of Turfgrass Diseases. APS Press, The American Phytopathological Society.  
 Smith, J.D., N. Jackson, and A.R. Woolhouse. 1989. Fungal Diseases of Amenity Turfgrasses. 3rd. Edition. E. and F. Spon, London.  
 Turf & Ornamental Reference for Plant Protection Products. 2000.

**Bayer** 

---

Agriculture Division

---

**Gardens & Professional Care**

**John Turner**  
Field Sales Representative

---

**Bayer Corporation**

40 W 665 Campton Woods Drive  
Elburn, IL 60119  
Phone: 630-443-7807  
Fax: 630-443-7839  
Voicemail: 888-242-4200  
Extension: 3101  
john.turner.b@bayer.com