When Snow Mold Season Comes Around

By Dr. Julie R. Meyer
Extension Plant Pathologist
University of Wisconsin-Madison

It's too early to be thinking of snow drifts and freezing rains, so don't let this article interrupt your enjoyment of our mild sunny mornings. But, inevitably, planning for the winter must be done. When that time comes, here is some information I've gathered on snow mold control this past year that you may find helpful as you plan your snow mold management strategy.

First of all, I'd like to share with you some results of fungicide trials conducted this year in several northern and southern locations in Wisconsin. The purpose of the trials was to evaluate the efficacy of currently labeled and experimental fungicides, and combinations of fungicides, in controlling gray snow mold. Gray snow mold is caused by several species of the Typhula fungus, including *Typhula incarnata* and *Typhula ishikaiensis*. The freezing rains in early winter, the heavy snowfalls throughout the winter, and the spring that was slow in coming, all contributed to extensive outbreaks of Typhula snow mold throughout the state. In plant pathology, we call that disease pressure. Even in southern areas, the snow mold we observed was caused mainly by Typhula spp and less by *Microdochium nivale*, the fungus that causes pink snow mold (although this fungus was active, too, especially during our long, cold spring).

Because of the phase-out of mercury fungicides, the trials emphasized fungicides that do not contain mercury. Treatments were applied once in late October in the north and early November in the south to bentgrass putting greens and practice greens and a practice range of about 40% Kentucky bluegrass and 60% fescue. The plots were rated for snow mold injury in mid-April by determining the percent of 6 ft. x 9 ft. plots that had typical symptoms of snow mold.

It was good to see that several labeled, nonmercury fungicides gave good control of gray snow mold, even in a severe year. Combinations of fungicides were often especially effective. The results in Table 1 are from a bentgrass green in northern Wisconsin but are typical for what we found in all of the trials, including the bluegrass/fescue site. Several of the experimental compounds also looked promising. Please remember that these are results from a single year and, therefore, the fungicides cannot necessarily be expected to perform in the same way under different conditions. However, we will conduct evaluations of the most promising fungicides every year which will help determine how consistently they are working.

New York state has banned the use of mercury fungicides and I have gathered together their current recommendations for chemical controls. They include anilzine (Dyrene), thiram (Spotrete, Thiramad), chloroneb (Terreneb SP) and quintozene (Turfcide, Terrachlor) as contact fungicide options, and chlorothalonil (Daconil 2787), fenarimol (Rubigan), iproddione (Chipco 26019), propiconazole (Banner), and triadimefon (Bayleton) as systemic chemical control options. Remember that systemic fungicides are effective only when the turf is not yet dormant, as they must be taken up by the plant.

Healthy, nonstressed turf which hardens off in a timely manner has the most resistance to snow mold. So our job in research and in turf management is to think of how we can enhance chemical control, and perhaps reduce the amount needed, by getting the turf in a healthy, nonstressed state during the time when the fungus is most active (late fall and early winter). This will reduce the ability of the fungus to get into the leaf and colonize it.

Fertilization and other management practices affect carbohydrate reserves (important because long, deep snow cover subjects the plants to nutrient exhaustion), dormancy, hardening off and subsequent freezing tolerance—all of which play a role in the development of snow mold.

There is some controversy about the effects of fall fertilization on snow mold. I think this stems from the type and timing of fertilization. In general, if the effect of added N is to encourage growth and delay the onset of dormancy, then the turf is likely to be more susceptible to snow mold. However, moderate applications of balanced fertilizer, with special attention to adequate K, applied in the fall when turf is nearly dormant, encourages rapid growth and recovery in the spring. Recovery time is an important part of snow mold management. I do not know yet exactly what role potassium may have in the resistance of turf to snow mold, but I have seen and heard several reports of this.

This year the plots were rated only once at snow melt. This gives us a snapshot of the presence and severity of gray snow mold, but doesn't give us the whole picture. How quickly does the turf recover? How quickly does dead turf fill in? Does injury to bentgrass result in invasion by *Poa annua*? These aspects are as important, or more important, to you than simply the amount of gray snow mold present after the snow melts. I was often taken by surprise at how quickly some heavily damaged turf was able to recover. In fact, because of the late snowfall, we postponed rating some of the tests and barely made it before the grass had recovered! In the future, I think we should be looking at the dynamics of this disease and how control strategies affect the entire process of getting the turf back in shape after the winter.

There is much to do in the area of gray snow mold control and it will be challenging from the biological as well as turf management perspective to figure out our most effective strategies.

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