# University of Wisconsin Snow Mold Review

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The summer of 2014 has been relatively low on stress for most superintendents to date, though that's not to say we haven't experienced our share of difficulty (mainly heavy rains and flooding). The transition to fall is always welcome, however, and with that transition comes preparations for snow mold. To help us prepare for this winter, let's take a quick look back at the research results from 2013-2014.

The 2013-2014 Wisconsin Snow Mold Research Trials were conducted at five sites around the upper Midwest: Tumbledown Trails GC in Madison, WI; Wausau CC in Wausau, WI; Marquette CC in Marquette, MI; Cragun's Resort in Brainerd, MN; and Silver Bay CC in Silver Bay, MN. The trials were the largest since at least 2005, testing over 100 different fungicide treatments at the Madison, Wausau, and Marquette sites. Pressure was highest at Wausau (mostly pink snow mold) and Marquette (mostly speckled snow mold), moderate at both Craguns and Silver Bay, and nonexistent at Madison. The full reports for each site, including pictures of each treatment, can be viewed at the TDL's website (www.tdl.wisc.edu/results). In addition to the full reports, there were three key points observed from last year's trials. Let's look at each of these points in a little more depth.


**Figure 1: Disease pressure at Wausau CC averaged nearly 90% in non-treated areas and was nearly 100% in this plot in 2013-2014**

**1. Even under heavy pressure, you have lots of options.**
Average snow mold on non-treated plots over four replications at Wausau CC was 87.5% **(Figure 1)** and at Marquette CC was 95%. That is very heavy pressure. But despite this pressure, numerous treatments worked quite well at both locations. At Wausau, over half of the treatments (56 of 108) suppressed disease by 85% of more. At Marquette, 35 treatments provided over 80% suppression while 6 treatments provided over 95% suppression. Many of these effective treatments include widely-known products such as Instrata, Interface + Triton FLO, Torque + 26/36, and QP Enclave. However, some newer products such as Lexicon performed well when mixed with other fungicides, and Turfcide 400 also performed well when mixed with Concert II. Bottom line, you should be able to find a snow mold mixture that works for you and won't bust your budget.

**2. Multiple active ingredients are required under heavy disease pressure.**
This is not a new or novel point, but rarely is it illustrated as well as it was in Wausau last year. Interface at 3.0 fl oz per 1000 ft2 applied with Triton FLO at 0.75 fl oz per 1000 ft2 provided excellent suppression at Wausau last year, allowing only 3.8% disease. However, taking away the Triton FLO completely caused the protection to break down as Interface applied alone at 3.0 fl oz per 1000 ft2 yielded 62.5% disease. But it's not as if the Triton FLO was doing all the work in the mixture, as Triton FLO applied alone yielded 31.3% disease **(Figure 2)**. The same thing was seen with Torque + 26/36. Together the mixture had only 1.8% disease, while Torque applied alone had 33.8% disease and 26/36 applied alone had 71.3% **(Figure 3)**.

**3. Snow cover alone isn't enough to cause snow mold.**

As mentioned previously, our Madison site was basically free of snow mold despite being only 2 hours south of Wausau. It wasn't due to lack of snow cover, as Madison approached a record for consecutive days with at least 1 inch of snow cover (over 90 days). Why the lack of disease despite prolonged snow cover? While several factors likely played a role, the primary impact was likely due to colder surface temperatures under snow cover at the Madison site relative to Wausau and Marquette **(Figure 4)**.

Despite colder air temperatures at both Marquette and Wausau relative to Madison, the surface temperature was significantly colder for most of the winter at Madison. Snow mold fungi cannot grow when temperatures are well below freezing, and a deep snow cover will provide enough insulation to maintain or increase surface temperatures to near freezing (and allow for disease development). But a shallow snow cover will not insulate the surface well, leading to lesser amounts of disease during exceptionally cold winters like those experienced last year.

These trials are an important part of the research and extension program here at the University of Wisconsin, and provide you with unbiased information regarding the efficacy of a wide range of fungicides. This research would be impossible, however, without the generous support of our host facilities. I would like to extend a huge thank you to the superintendents at each host facility for their spectacular hospitality: Marc Watts of Tumbledown Trails GC, Randy Slavik of Wausau CC, Craig Moore of Marquette CC, Matt McKinnon of Cragun's Resort, and Norma O'Leary of Silver Bay CC. Without their support our extensive snow mold research program would not be possible.

If you have any questions regarding these trials or about snow mold management in general, please don't hesitate to contact me at plkoch@wisc.edu or 608-262-6531.

**Figure 2: The mixture of Interface and Triton FLO at Wausau CC in 2013-2014 provided excellent disease suppression while either fungicide applied alone provided very poor protection.**
**(Figure originally appeared in the August, 2014 issue of Golfdom.)**

**Figure 3: The mixture of Torque and 26/36 at Wausau CC in 2013-2014 provided excellent disease suppression while either fungicide applied alone provided very poor coverage.**
**(Figure originally appeared in the August, 2014 issue of Golfdom.)**

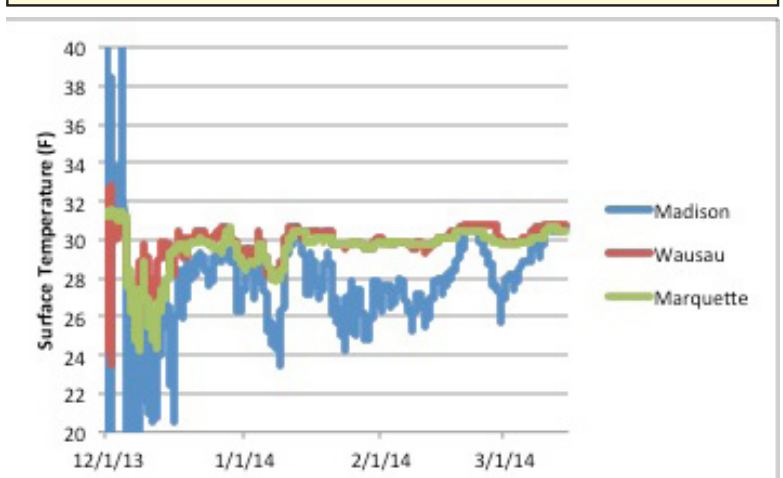


**Figure 4: Surface temperatures under snow cover at Tumbledown Trails GC in Madison, WI; Wausau CC in Wausau, WI; and Marquette CC in Marquette, MI throughout the winter of 2013-2014.**
**(Figure originally appeared in the August, 2014 issue of Golfdom.)**