

Snow Mold Disease Control of Kentucky Bluegrass
November 2006-May 2007
Wormcast Report (2007/6/4)
T.Hsiang and L.Tian
Department of Environmental Biology, University of Guelph

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Abstract

Four rates of Wormcast (23 kg, 46 kg, 116 kg and 231 kg/100m²) and two control treatments were evaluated for control of snow mold disease on a 12.5 -year-old sward of Kentucky bluegrass in southern Ontario during November to May 2007. Plots were inoculated with *Microdochium nivale* for pink snow mold on 23 November 2006. The treatments tested included the snow mold standard fungicide Daconil 2787 plus Rovral Green (240 ml & 250 ml/100m²) which is registered for controlling snow mold disease of turfgrass in Ontario, and an inoculated check. All treatments were applied on 24 November 2006 over bare ground. Biotic plus abiotic injury and phytotoxicity were assessed weekly as total winter injury from snowmelt (25 March 2007) until greenup (3 May 2007). Because of the lack of disease development, it was not possible to evaluate the disease-suppressive potential of Wormcast in this trial; however, there was no phytotoxicity observed during this trial.

Methods

All treatments were evaluated on a 12.5yearold sward of Kentucky bluegrass (*Poa pratensis*) at the Guelph Turfgrass Institute, Guelph, Ontario. Turfgrass cultural treatments were similar to those used for the maintenance of golf course fairways in Ontario.. Mowing height during the growing season was set at 25 mm. Sulfur-coated urea (N-P-K: 25-4-10) was applied at a rate of 2 kg/100m² in April and November annually.)

The snow mold disease caused by *Microdochium nivale* (pink snow mold), was evaluated in these trials. Inoculum was prepared by incubating the fungi on autoclaved wheat bran for 1 month. The inocula were dried and chopped into small particles with a domestic mixer. Inocula from the five strains of the pink snow mold fungus (*M. nivale*) were mixed, and 10 g/m² were evenly applied on 23 November 2006. The experimental design consisted of a randomized complete block design with 4 replicate 1 m x 2 m plots. All treatments were applied in the morning on 24 November 2006. Biotic plus abiotic injury was assessed as total winter injury weekly from 25 March 2007 (snowmelt), until 3 May 2007 (greenup). Injury was an overall measure of incidence of foliar necrosis and the severity of damage. Analysis of variance was performed with PROC ANOVA in SAS7. When a significant treatment effect was found, mean separation was done with the test of least significant difference (LSD, P=0.05)

Results and Discussion

The winter of 2006-2007 was unusual in extremes of warmth and cold (Figure 1). Throughout December, temperatures remained warm with many days exceeding 15C. Temperatures remained warm until 9 Jan 2007, when snowfall occurred. Due to very cold temperatures throughout the remainder of January and February and into the early part of March, snow cover was present on the plots until mid-March. However, in spite of the inoculation and snow cover, little to no disease diseased on the plots, although winter injury was observed. Weekly winter injury results from snowmelt (25 March 2007) until greenup (3 May 2007) are presented in Table 1. Only during the final ratings were some significant differences seen between the inoculated control and some of the treatment plots. Wormcast applied at 115 kg/100m² showed significant suppression of winter injury on 19 and 26 April, 2007, and Wormcast at 231 kg/100m² also showed significant suppression on 26 Apr 2007. Because of the lack of disease development (no difference between inoculated plots and fungicide treated plots), it is not possible to evaluate the disease-suppressive nature of Wormcast from data in this trial. However, Wormcast applications did not cause phytotoxicity nor at the rates applied, was any smothering of the grass observed. Longer term observation may be required to see the effects of Wormcast on turf growth.

Table 1: Treatment, application rate, and percent area injury in 1 m by 2 m plots with 4 replicates were inoculated with *M. nivale* in fall 2006 and rated in spring 2007 after snowmelt (25 March) and greenup (3 May) on Kentucky bluegrass without tarp.

Treatment	Product (per 100 m ²)	Percent area injured						
		25 Mar	29 Mar	4 Apr	11 Apr	19 Apr	26 Apr	3 May
Inoculated		32.5	23.8	13.8	20.0	22.5	8.8	7.0
Daconil 2787/ Rovral Green	240ml / 250ml	33.8	25.0	11.3	22.5	20.0	7.3	7.5
Wormcast	23 kg	31.3	26.3	16.3	22.5	21.3	5.5	4.3
Wormcast	46 kg	33.8	28.8	15.0	20.0	20.0	6.5	5.5
Wormcast	115 kg	31.3	27.5	16.3	21.3	17.5	4.8	4.0
Wormcast	231 kg	27.5	27.5	16.3	26.3	18.8	4.5	3.8
LSD (p=0.05)		7.2	6.8	10.0	9.8	4.3	3.9	4.1

Shaded cells hold mean percent area injured values that are significantly less than the inoculated control (differs by the LSD amount) indicating statistically significant suppression by p=0.05.

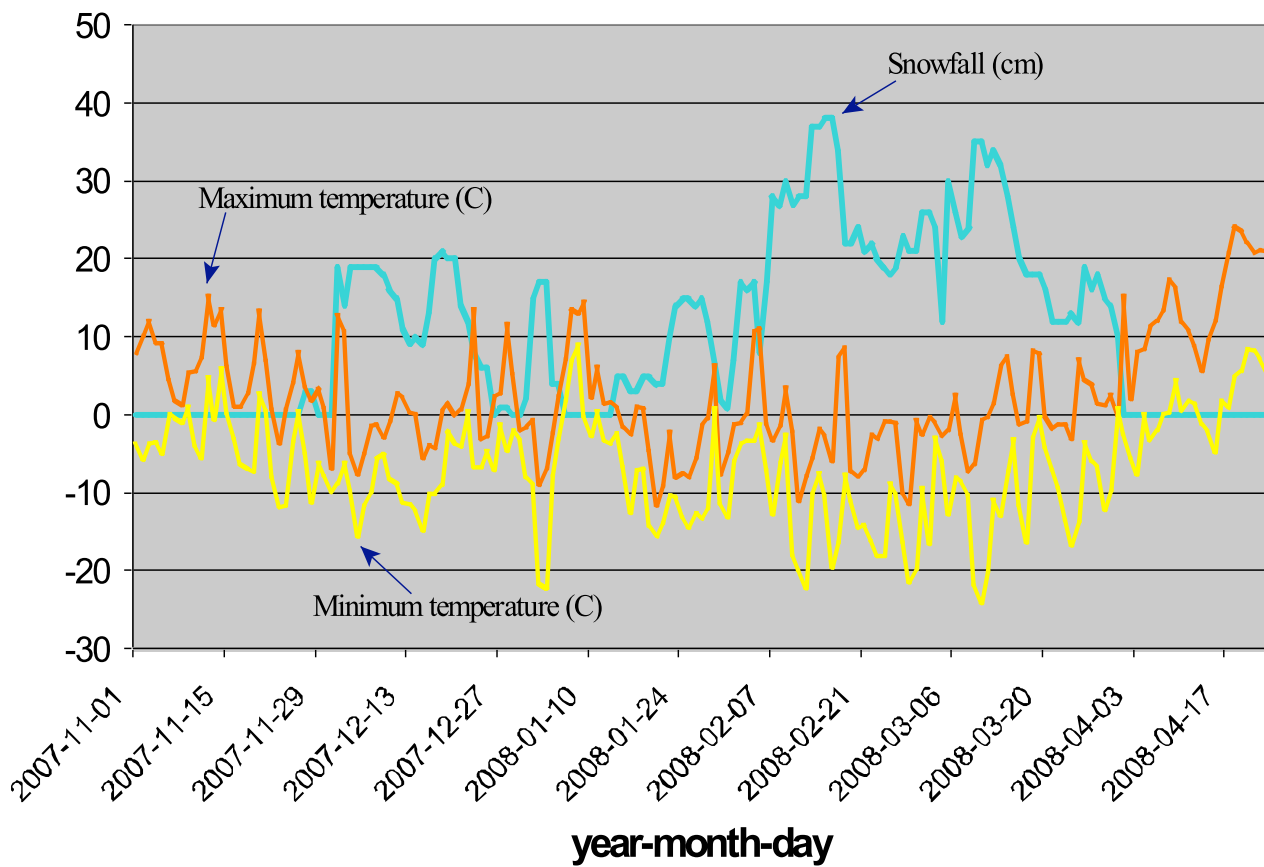


Figure 1: Snowfall and temperatures in the Guelph area from October 2006 until mid-April 2007.