

The Effects of Various Fungicides on the Control of Overwintering Diseases 2008-09

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Summary

This trial was developed in order to evaluate various fungicides for their control of overwintering diseases. The site at Greywolf Golf Resort was chosen due to consistently high disease on their creeping bentgrass. As a result, plots were not inoculated as significant natural infections typically occur at this site.

Plots were laid out and treatments were applied on October 25, 2008. Two evaluations to determine the effectiveness of the various treatments were conducted on April 11 and June 1, 2009. The winter of 2008-09 was considered to be one where snow pack was well below normal and disease pressure was very low. It was thought that the conditions leading up to permanent snow cover affected the incidence of disease. The fact that the turf was frozen for a long period of time prior to snow cover was thought to be the reason for the low amounts of snow mould this year.

Introduction

Fine turfgrasses, which are not protected by fungicides, are predisposed to damage caused by snow moulds. On golf greens, where creeping bentgrass (*Agrostis palustris*) or annual bluegrass (*Poa annua*) are the predominant, species disease damage is a frequent occurrence. Turfgrasses weakened or damaged by snow moulds are extremely slow to recover and are often invaded by opportunistic weedy grass species. As the possibility of chemical resistance to snow moulds increases, new fungicides may be of benefit.



Grey snow mould that formed under long duration snow cover.

A typical snow mold prevention program consists of three fall applications and a single application in the spring and fungicides with different modes of action are alternated. However, in this trial, the same products were applied either on a single date or on both dates so that the individual fungicides or tank mixes could be evaluated for snow mould control.

Materials and Methods

Plots were located on a Penn A-4 creeping bentgrass nursery green at the Greywolf Golf Resort, Panorama, British Columbia, Canada. This site was chosen due to consistently high disease pressure as a result of winters with lasting snow cover. 1 m x 2 m plots were arranged in a randomized complete block design with four replications. A 0.5 meter buffer was maintained around each plot. Treatments were applied with a compressed air sprayer on October 25, 2008 which was 38 days prior to permanent snow cover. The sprayer was equipped with TeeJet 8004 nozzles and was calibrated to apply 10.3 litres/100m². Plots were not inoculated.

Disease ratings were conducted on April 11 and June 1, 2009 and were based on percent area symptomatic. The rating scale for disease severity is based on area covered with the disease and is classed as very low (0-19%), low (20-39%), moderate (40%-59%), high (60%-79%) and very high (>80%).

Table 1 – List of treatments

1. Untreated
2. BUC 375 00F 3.3g /100m²
3. BUC 375 00F 6.6g /100m²
4. BUC 375 00F 10g /100m²
5. BUC 375 00F 20g /100m²
6. BUC 375 00F 6.6g /100m² + Premis 32ml/100m²
7. BUC 375 00F 10g /100m² + Premis 32ml/100m²
8. BUC 375 00F 6.6g /100m² + Insignia 17ml/100m²
9. BUC 375 00F 10g /100m² + Insignia 17ml/100m²
10. BUC 375 00F 6.6g /100m² + Insignia 25ml/100m²
11. BUC 375 00F 10g /100m² + Insignia 25ml/100m²
12. Premis 32ml/100m²
13. Insignia 25ml/100m²
14. Premis 32mls /100m² + Insignia 25ml/100m²
15. Rovral Green GT 250ml/100m² + Daconil 2787 240ml/100m²
16. Instrata 300ml /100m²

Results

Weather Conditions 2008-09

The Greywolf Golf Resort is located in Panorama, British Columbia. It is a golf/ski resort and is located above the town site of Invermere in mountainous terrain. Snow pack was well below and maximum cover on the test site was 60 cm. Permanent snow cover occurred on December 2, 2008 and had completely melted by April 10, 2009. Duration of snow cover was approximately 129 days which produced very low disease severity (less than 20% on control plots). The turf was frozen when permanent snow cover arrived and had been frozen for some time.



Spring photo of deep snow cover on unfrozen turf

Comparison of Various Treatments

Minimal snow mould was present on the plots at the first rating and was non-existent on the second rating date. This is the first year that there has been no snow mould injury on test plots at Greywolf. Typically, snow cover falls on unfrozen turf and has a long duration of snow cover. This typically produces an abundance of pink and grey snow mould.



Research plots at Greywolf showing variability in control with various products

Table 2 – Percent area with disease symptoms at Greywolf Golf Resort, April 11, 2009

Product & application rate	% area diseased
Untreated	2.2a
BUC 375 00F (3.3g /100m ²)	2.7a
BUC 375 00F (6.6g /100m ²)	5.5a
BUC 375 00F (10g /100m ²)	4.2a
BUC 375 00F (20g /100m ²)	1.0a
BUC 375 00F (6.6g /100m ²) + Premis (32mls /100m ²)	1.5a
BUC 375 00F (10g /100m ²) + Premis (32mls /100m ²)	2.2a
BUC 375 00F (6.6g /100m ²) + Insignia (17mls /100m ²)	1.7a
BUC 375 00F (10g /100m ²) + Insignia (17mls /100m ²)	2.7a
BUC 375 00F (6.6g /100m ²) + Insignia (25mls /100m ²)	1.5a
BUC 375 00F (10g /100m ²) + Insignia (25mls /100m ²)	1.5a
Premis (32mls /100m ²)	3.7a
Insignia (25mls /100m ²)	2.0a
Premis (32mls /100m ²) + Insignia (25mls /100m ²)	0.0a
Rovral Green GT (250mls /100m ²) + Daconil 2787 (240mls /100m ²)	1.2a
Instrata (300ml /100m ²)	0.5a
	LSD _{0.05} = n/s

* Values that have the same letter as a suffix are not significant from each other.

Discussion

This site has always had a high level of natural infections. The difference between this year and previous years was thought to be as a result of the turf being frozen for a significant period of time prior to permanent snow cover. This would then be outside of the normal temperature range for the development of the disease.

This trial was conducted with funding support from BASF. The Greywolf Golf Resort and Superintendent Darren Reddekopp are also gratefully acknowledged.