Evaluation of Fungicides from Cleary's to Control of Pink and Gray Snow Mold on Putting Greens in Idaho and Washington 2006-2007.

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Snow mold control trials were conducted at 3 different locations in the Intermountain Region of the PNW, on a practice green at the Whitetail Golf Club in McCall, ID, a nursery green at the Chewelah Golf and Country Club in Chewelah, WA, and on a research green at the WSU Turfgrass and Agronomy Research Center (TARC) in Pullman, WA. The practice green at McCall is an USGA green of 'Providence' creeping bentgrass, the nursery green at Chewelah is a push-up green covered with 3" to 4" of sand with a mixed stand of 'Penncross' creeping bentgrass and annual bluegrass, and the research green is a pure stand of 'T-1' creeping bentgrass grown on an USGA green at Pullman. Individual treatment plots were 6' x 7' at McCall, Chewelah, and Pullman with three replications in a randomized complete-block design. Early treatments were applied 2 Oct 06, 13 Oct 06, and 31 Oct 06 at McCall, Chewelah, and Pullman, respectively. Late treatments were applied 27 Oct 06, 9 Nov 06, and 20 Nov 06, at McCall, Chewelah, and Pullman, respectively. Fungicides were applied at 70 GPA with a bicycle-wheeled CO_2 pressurized (40 psi) sprayer with 11008 flat fan TeeJet nozzles. At McCall immediately following the application of the fungicide treatments a heavy topdressing of sand was applied over the entire research area (Figure 7). At Pullman snow cover was intermittent throughout the winter from the end of November through the first of March (approx. 50 days). Continuous snow cover was from 22 Nov 06 to 19 Mar 07 (approx. 120 days) at Chewelah and from mid Nov 06 to 10 Apr 07 at McCall (approx. 150 days). Individual plots were evaluated for pink (*Microdochium nivale*) and/or gray (*Typhula spp.*) snow mold disease severity (% area infected) and turfgrass quality (rated on a scale of 1-9; 9 = excellent) on 6 Mar 07 at Pullman, 23 Mar 07 at Chewelah, and 17 Apr 07 at McCall.

Even though the Pullman sites experienced normal snow mold pressure, the non-treated control had less then 2% area infected with pink snow mold (*M. nivale*) (Table 1). There were no significant differences between any of the fungicide treatments.

At Chewelah, the non-treated control had 85% area infected with roughly 40% pink (*M. nivale*) and 60% gray (*Typhula spp.*) snow mold (Table 2). No sclerotia were found in any of the control plots; therefore, no determination as to the percent of *Typhula incarnata* or *T. ishikariensis* could be made. The treatment with the best control and overall turfgrass quality was Spectro 90 4 oz (early) + 26/36 4 fl oz (late) + CL EXP-9 1.2 oz (late). The treatment 26/36 4 fl oz (late) + Endorse 4.3 oz (late) had the worst snow mold control of all the treatments. Interestingly, the 2 best treatments had an early application of Spectro 90 at 4 oz/M. Figure 1 shows all treatments in reps 1 and 2.

The non-treated control had 30% area infected with roughly 75% pink (*M. nivale*) and 25% gray (*Typhula spp.*) snow mold (Table 3). No sclerotia were found in any of the control plots, therefore, no determination as to the percent of *Typhula incarnata* or *T. ishikariensis* could be made. All treatments, except for 23/36 4 fl oz (late) + Endorse 4.3 oz (late), resulted in significant control of snow mold compared to the non-treated control. CL EXP-9 1.2 oz (late) in combination with Spectro 90 (early or late) and/or 26/36 (late) provided excellent snow control, but the turf quality was not as high as the 2 treatments with Daconil Ultrex 5.5 oz. Surprisingly, Daconil Ultrex 5.5 oz (late) + 26/36 4 fl oz (late) and Daconil Ultrex 5.5 oz (late) + Spectro 90 4 oz (early) + 26/36 4 fl oz (late) resulted in very good control and had the highest turf quality.

Overall, all treatments provided very good to excellent snow mold control, except for 26/36 4 fl oz (late) + Endorse (4.3 oz (late), at Chewelah and McCall. For the most part, CL EXP-9 in combination with Spectro 90 and/or 26/36 provided very good snow mold control.

Table 1. Evaluation of Cleary's fungicides to control pink snow mold at the WSU Turfgrass and Agronomy Research Center. Pullman, WA. Rated 6 Mar 2007.

Treatment	Rate (oz or fl oz) prod/M)	App. date*	Disease (% area infected)	Turf quality***
Spectro 90WDG (Chlorothalonil + Thiophanate-methyl) 26/36 (Iprodione + Thiophanate-methyl) Daconil Ultrex 82.5WDG (Chlorothalonil)	4.0 oz 4.0 fl oz 5.5 oz	early late late	0.0	4.7
26/36 (Iprodione + Thiophanate-methyl) Endorse (Polyoxin D zinc salt)	4.0 fl oz 4.3 oz	late late	0.0	4.3
Spectro 90WDG (Chlorothalonil + Thiophanate-methyl) CL EXP-9 (Tebuconazole 45DF)	5.75 oz 1.2 oz	late late	0.0	4.0
26/36 (Iprodione + Thiophanate-methyl) CL EXP-9 (Tebuconazole 45DF)	4.0 fl oz 1.2 oz	late late	0.0	4.0
Spectro 90WDG (Chlorothalonil + Thiophanate-methyl) 26/36 (Iprodione + Thiophanate-methyl) CL EXP-9 (Tebuconazole 45DF)	4.0 oz 4.0 fl oz 1.2 oz	early late late	0.3	4.0
26/36 (Iprodione + Thiophanate-methyl) Daconil Ultrex 82.5WDG (Chlorothalonil)	4.0 fl oz 5.5 oz	late late	0.7	4.3
CHECK	0.0	late	1.7	4.0
			ns**	ns

*Application dates: Early = 31 Oct 06 and Late = 20 Nov 06.

** No significant differences between treatments.

***Turf quality rated 1-9; 9 = excellent.

Table 2. Evaluation of Cleary's fungicides to control snow mold at Chewelah Golf and Country Club. Chewelah, WA. Rated 23 Mar 2007.

Treatment	Rate (oz or fl oz) prod/M)	App. date*	Disease (% area infected)	Turf quality***
Spectro 90WDG (Chlorothalonil + Thiophanate-methyl)	4.0 oz	early	**1.3 a****	**5.3 a**
26/36 (Iprodione + Thiophanate-methyl)	4.0 fl oz	late		
CL EXP-9 (Tebuconazole 45DF)	1.2 oz	late		
Spectro 90WDG (Chlorothalonil + Thiophanate-methyl)	4.0 oz	early	**2.7 ab**	**4.0 b**
26/36 (Iprodione + Thiophanate-methyl)	4.0 fl oz	late		
Daconil Ultrex 82.5WDG (Chlorothalonil)	5.5 oz	late		
26/36 (Iprodione + Thiophanate-methyl)	4.0 fl oz	late	**4.7 ab**	**4.3 ab**
Daconil Ultrex 82.5WDG (Chlorothalonil)	5.5 oz	late		
Spectro 90WDG (Chlorothalonil + Thiophanate-methyl)	5.75 oz	late	**7.7 ab**	**4.0 b**
CL EXP-9 (Tebuconazole 45DF)	1.2 oz	late		
26/36 (Iprodione + Thiophanate-methyl)	4.0 fl oz	late	**11.7 b**	**4.0 b**
CL EXP-9 (Tebuconazole 45DF)	1.2 oz	late		
26/36 (Iprodione + Thiophanate-methyl)	4.0 fl oz	late	**23.3 c**	**2.3 c**
Endorse (Polyoxin D zinc salt)	4.3 oz	late		
CHECK	0.0	late	**85.0 d**	**1.0 d**

*Application dates: Early = 13 Oct 06 and Late = 9 Nov 06.

*Values within a column followed by the same letter are not significantly different LSD *P* =0.05.

**Turf quality rated 1-9; 9 = excellent.

Figure 1. Cleary's snow mold trial at Chewelah Golf and Country Club. Chewelah, WA. 2006-07.

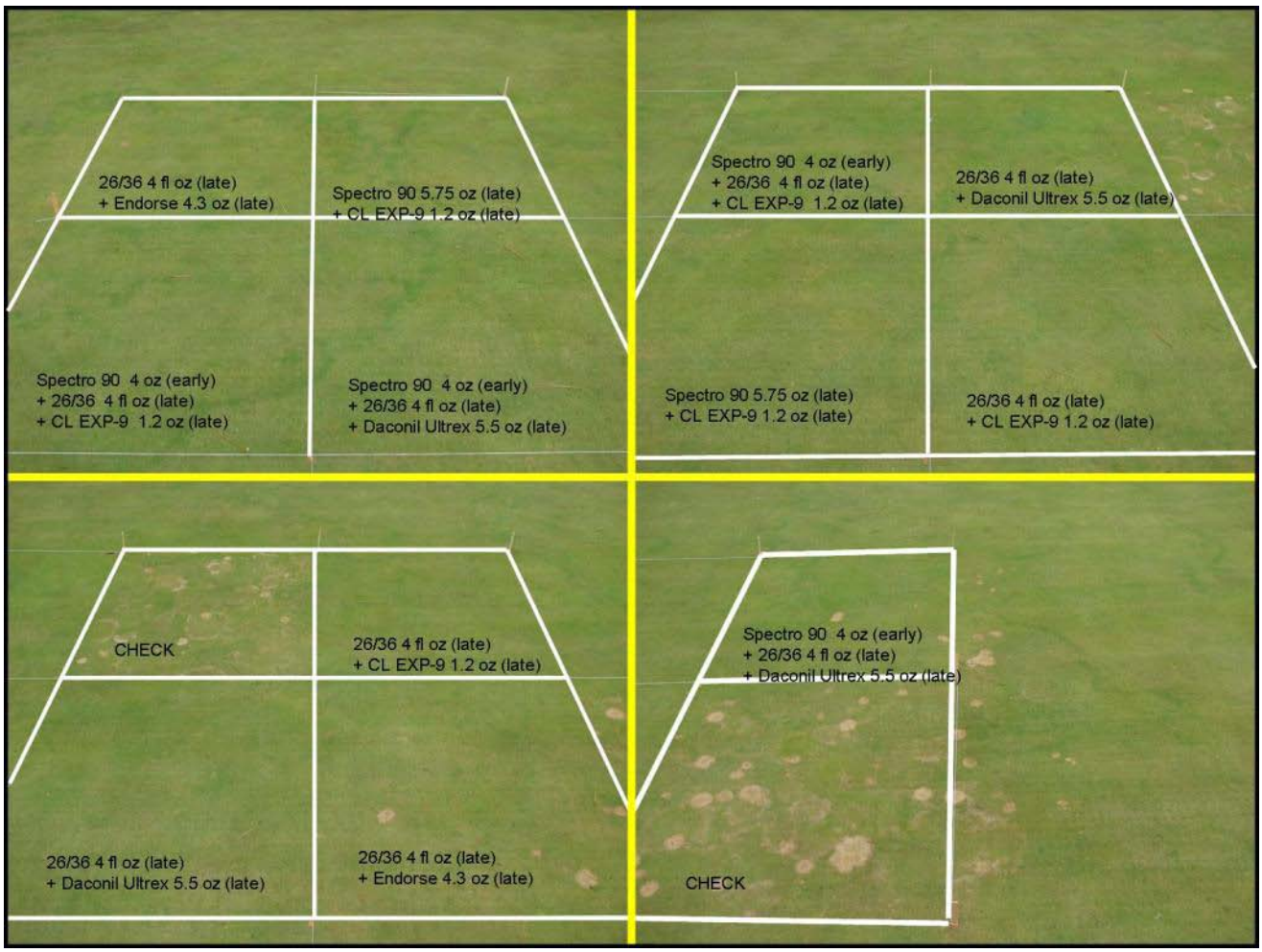

Table 3. Evaluation of Cleary's fungicides to control snow mold at the Whitetail Golf Club. McCall, ID. Rated 17 Apr 2007.

Treatment	Rate (oz or fl oz) prod/M)	App. date*	Disease (% area infected)	Turf quality***
Spectro 90WDG (Chlorothalonil + Thiophanate-methyl) +	5.75 oz	late	**0.0 a****	**4.7 ab**
CL EXP-9 (Tebuconazole 45DF)	1.2 oz	late		
26/36 (Iprodione + Thiophanate-methyl) +	4.0 fl oz	late	**0.3 a**	**5.7 a**
Daconil Ultrex 82.5WDG (Chlorothalonil)	5.5 oz	late		
26/36 (Iprodione + Thiophanate-methyl) +	4.0 fl oz	late	**1.0 a**	**4.0 b**
CL EXP-9 (Tebuconazole 45DF)	1.2 oz	late		
Spectro 90WDG (Chlorothalonil + Thiophanate-methyl) +	4.0 oz	early	**1.7 a**	**4.0 b**
26/36 (Iprodione + Thiophanate-methyl) +	4.0 fl oz	late		
CL EXP-9 (Tebuconazole 45DF)	1.2 oz	late		
Spectro 90WDG (Chlorothalonil + Thiophanate-methyl) +	4.0 oz	early	**2.0 a**	**5.3 a**
26/36 (Iprodione + Thiophanate-methyl) +	4.0 fl oz	late		
Daconil Ultrex 82.5WDG (Chlorothalonil)	5.5 oz	late		
26/36 (Iprodione + Thiophanate-methyl) +	4.0 fl oz	late	**21.7 b**	**2.3 c**
Endorse (Polyoxin D zinc salt)	4.3 oz	late		
CHECK	0.0	late	**30.0 b**	**2.3 c**

*Application date: Early = 2 Oct 06 and Late = 27 Oct 06.

**Values within a column followed by the same letter are not significantly different LSD *P* =0.05.

***Turf quality rated 1-9; 9 = excellent.