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

Charles T. Golob, William J. Johnston, and Karine Paré
Dept. Crop and Soil Sciences
Washington State University

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. 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 sand topdressing 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 12% area infected with pink snow mold (*M. nivale*) (Table 1). All treatments resulted in very good to excellent snow mold control. All treatments, except Turfcide 400 at 12 fl oz, had better turfgrass quality then the non-treated control. Figure 1 shows an overview of all treatments in reps 1 and 2.

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. All fungicide treatments resulted in snow mold control better than the non-treated control. However, no treatment resulted in 100% control. The worst treatment was Banner MAXX 4 fl oz + Medallion 0.33 oz which had 11% disease and the lowest turfgrass quality. Turfcide 400 at 12 fl oz and the Banner MAXX 2 fl oz + Turfcide

400 6 fl oz performed as well as the Instrata treatments. Figure 2 shows an overview of all treatments in reps 1 and 2.

The non-treated control had 87 % 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 resulted in significant control of snow mold compared to the non-treated control. Instrata at the 9 and 11 fl oz rate resulted in the highest disease control and the highest turf quality. Turfcide 400 at 12 fl oz resulted in very good disease control but had very low turf quality.

Overall, all Instrata treatments provided very good to excellent snow mold control. However, Instrata at the 9 and 11 fl oz rate provided the best control and quality.

Table 1. Evaluation of Syngenta 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)	Disease (% area infected)	Turf quality **
Banner MAXX 1.3ME (Propiconazole) Medallion 50WP (Flutioxonil)	4.0 fl oz 0.33 oz	0.0 a*	4.0 a
Instrata 3.61SE (Propiconazole + Flutioxonil + Chlorothalonil)	5.0 fl oz	0.3 a	4.0 a
Instrata 3.61SE (Propiconazole + Flutioxonil + Chlorothalonil)	9.0 fl oz	0.3 a	4.0 a
Turfcide 400 (40% PCNB)	12.0 fl oz	0.3 a	3.0 b
Instrata 3.61SE (Propiconazole + Flutioxonil + Chlorothalonil)	11.0 fl oz	0.7 a	4.0 a
Medallion 50WP (Flutioxonil) Daconil WeatherStik 6F (Chlorothalonil) Banner MAXX 1.3ME (Propiconazole)	0.15 oz 2.5 fl oz 1.8 fl oz	0.7 a	4.0 a
Banner MAXX 1.3ME (Propiconazole) Turfcide 400 (40% PCNB)	2.0 fl oz 6.0 fl oz	0.7 a	3.7 a
CHECK	0.0	11.7 b	2.7 b

*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. Syngenta snow mold trial at the WSU Turfgrass and Agronomy Research Center. Pullman, WA. 2006-07.

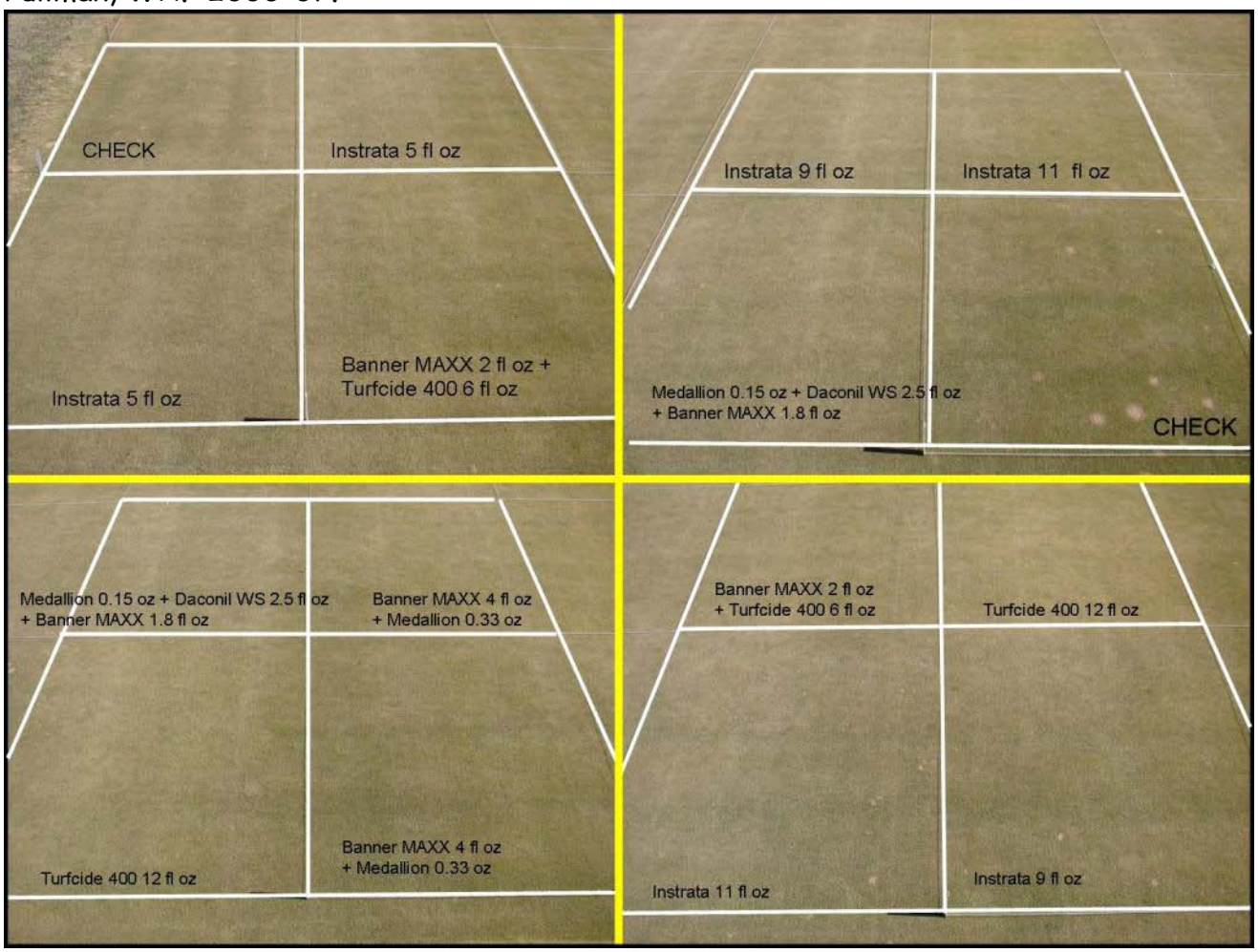

Table 2. Evaluation of Syngenta fungicides to control snow mold at Chewelah Golf and Country Club. Chewelah, WA. Rated 23 Mar 2007.

Treatment	Rate (oz or fl oz) prod/M)	Disease (% area infected)	Turf quality**
Medallion 50WP (Flutioxonil) Daconil WeatherStik 6F (Chlorothalonil) Banner MAXX 1.3ME (Propiconazole)	0.15 oz 2.5 fl oz 1.8 fl oz	**0.7 a***	**5.0 a**
Turfcide 400 (40% PCNB)	12.0 fl oz	**1.3 a**	**4.3 ab**
Banner MAXX 1.3ME (Propiconazole) Turfcide 400 (40% PCNB)	2.0 fl oz 6.0 fl oz	**2.7 a**	**4.0 bc**
Instrata 3.61SE (Propiconazole + Flutioxonil + Chlorothalonil)	9.0 fl oz	**3.0 a**	**5.0 a**
Instrata 3.61SE (Propiconazole + Flutioxonil + Chlorothalonil)	11.0 fl oz	**3.0 a**	**4.3 ab**
Instrata 3.61SE (Propiconazole + Flutioxonil + Chlorothalonil)	5.0 fl oz	**4.3 ab**	**4.7 ab**
Banner MAXX 1.3ME (Propiconazole) Medallion 50WP (Flutioxonil)	4.0 fl oz 0.33 oz	**11.0 b**	**3.3 c**
CHECK	0.0	**85.0 c**	**1.0 d**

*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 2. Syngenta snow mold trial at Chewelah Golf and Country Club. Chewelah, WA. 2006-07.

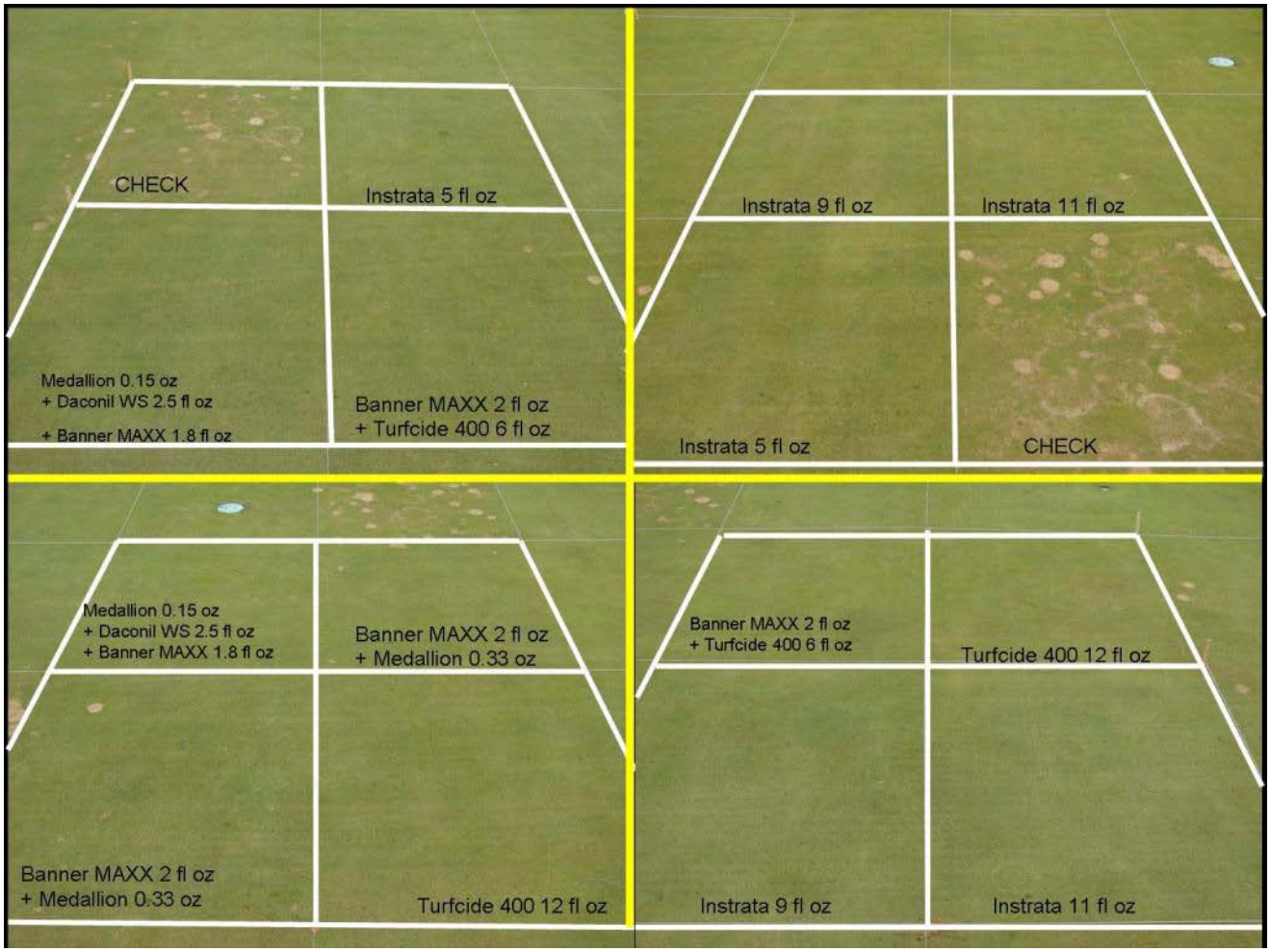

Table 3. Evaluation of Syngenta fungicides to control snow mold at the Whitetail Golf Club. McCall, ID. Rated 17 April 2007.

Treatment	Rate (oz or fl oz) prod/M)	Disease (% area infected)	Turf quality**
Instrata 3.61SE (Propiconazole + Flutioxonil + Chlorothalonil)	11.0 fl oz	**0.0 a***	**5.3 a**
Instrata 3.61SE (Propiconazole + Flutioxonil + Chlorothalonil)	9.0 fl oz	**0.3 a**	**5.0 ab**
Banner MAXX 1.3ME (Propiconazole) + Turfcide 400 (40% PCNB)	2.0 fl oz 6.0 fl oz	**4.3 a**	**4.3 abc**
Turfcide 400 (40% PCNB)	12.0 fl oz	**4.3 a**	**3.3 c**
Instrata 3.61SE (Propiconazole + Flutioxonil + Chlorothalonil)	5.0 fl oz	**8.3 a**	**4.0 abc**
Medallion 50WP (Flutioxonil) + Daconil WeatherStik 6F (Chlorothalonil) + Banner MAXX 1.3ME (Propiconazole)	0.15 oz 2.5 fl oz 1.8 fl oz	**12.3 a**	**3.7 bc**
Banner MAXX 1.3ME (Propiconazole) + Medallion 50WP (Flutioxonil)	4.0 fl oz 0.33 oz	**13.0 a**	**3.7 bc**
CHECK	0.0	**87.3 b**	**1.0 d**

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

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