

# Evaluation of Fungicides from Bayer to Control Pink and Gray Snow Mold on Putting Greens in Idaho and Washington 2008-09.

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May 6, 2009

Snow mold control trials were conducted at 3 different locations in the Intermountain Region of the PNW, on a practice green at the City of McCall Golf Course 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 a stand of creeping bentgrass/annual bluegrass, 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 at Pullman is a pure stand of 'T-1' creeping bentgrass grown on an USGA specification putting green. Individual treatment plots were 6' x 7' with three replications in a randomized complete-block design. Treatments were applied 23 Oct 08, 31 Oct 08, and 19 Nov 08 at McCall, Chewelah, and Pullman, respectively. Fungicides were applied at 80 GPA with a bicycle-wheeled CO<sub>2</sub> pressurized (40 psi) sprayer with 11008 flat fan TeeJet nozzles. At Pullman, snow cover was intermittent throughout the winter from the middle of Dec 08 through 17 Mar 08 (approx. 43 days). Continuous snow cover was from 9 Dec 08 to 10 Apr 08 (approx. 122 days) at Chewelah and from mid Nov 08 to 7 April 08 at McCall (approx. 143 days). At McCall, snow was not allowed to melt naturally. On April 7 approximately 2 feet of snow was mechanically removed from the green and plots were rated that day. 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 18 Mar 09 at Pullman, 13 Apr 09 at Chewelah, and 7 April 09 at McCall.

The Pullman sites experienced normal snow mold pressure with intermittent snow cover during the winter. The non-treated control had 51.7% area infected with pink snow mold (*M. nivale*) (Table 1). All treatments resulted in very good to excellent snow mold control. Both USF26019T treatments, although not significant different than the other fungicide treatments, had the highest turfgrass quality. Figures 1, 2 and 3 show the various treatments at Pullman, WA.

At Chewelah, the non-treated control had 73.3 % area infected with roughly 40% pink (*M. nivale*) and 60% gray (*Typhula spp.*) snow mold (Table 2). *Typhula incarnata* sclerotia were found in the control plots but no *T. ishikariensis* sclerotia. All treatments had significantly less disease than the check, while several had complete disease control. The USF26019T 4 fl oz + Triton FLO 0.85 fl oz had significantly more disease than the other fungicide treatments. USF26019T 5 fl oz + Triton 0.85 fl oz and USF26019T 6 fl oz + Triton 0.85 fl

oz resulted in very good disease control and turfgrass quality. There was no significant difference in regards to turfgrass quality among any of the fungicide combinations. Figures 4, 5, 6, and 7 show the various fungicide treatments at Chewelah, WA.

At McCall, the site was rated just hours after nearly 2 feet of snow was removed from the plot area. The non-treated control had 28.3 % area infected with roughly 50% pink (*M. nivale*) and 50% gray (*Typhula spp.*) snow mold (Table 3). All fungicide treatments resulted in significantly less disease compared to the check. Three treatments stood out: Triton FLO 0.85 fl oz + Compass 0.25 oz + Daconil Ultrex 5 oz, Tartan 2 fl oz + Daconil Ultrex 5 oz, and Reserve 4.8SC 5.4 fl oz + Compass 0.25 oz with no disease present and significantly higher turfgrass quality compared to the other treatments. Although not significantly different compared to the other treatments, all 3 of the USF26019T + Triton FLO treatments did not have complete disease control. Figures 8, 9, 10, and 11 show the various treatments at McCall, ID.

Overall, the USF26019T treatments at Pullman resulted in very good control of pink snow mold and when mixed with Triton FLO, at Chewelah and McCall, resulted in good control of both pink and gray snow mold. The 3 treatment that stood out were: Triton FLO 0.85 fl oz + Compass 0.25 oz + Daconil Ultrex 5 oz, Tartan 2 fl oz + Daconil Ultrex 5 oz, and Reserve 4.8SC 5.4 fl oz + Compass 0.25 oz which had no disease and high turfgrass quality.

Rated 3/18/09.			
Fungicide treatment	Rate (fl oz/M)	Disease (% area infected)	Turfgrass quality*
USF26019T (Iprodione + Trifloxystrobin)	4 fl oz	0.0 a**	4.7 a
Instrata (Propiconazole + Fludioxonil + Chlorothalonil)	9.3 fl oz	1.7 a	4.0 a
USF26019T (Iprodione + Trifloxystrobin)	5 fl oz	2.7 a	4.7 a
Tartan (Triadimefon + Trifloxystrobin)	2 fl oz	6.0 a	3.7 a
Check	0	51.7 b	1.7 b
*Turfgrass quality rated 1 to 9, with 9 = excellent.			
**Means within a column followed by the same letter are not significantly different. LSD $P = 0.05$ .			

Figure 1. Bayer snow mold fungicide treatments. Pullman, WA. 2009.



Figure 2. Bayer snow mold fungicide treatments. Pullman, WA. 2009.



Figure 3. Bayer snow mold fungicide treatments. Pullman, WA. 2009.

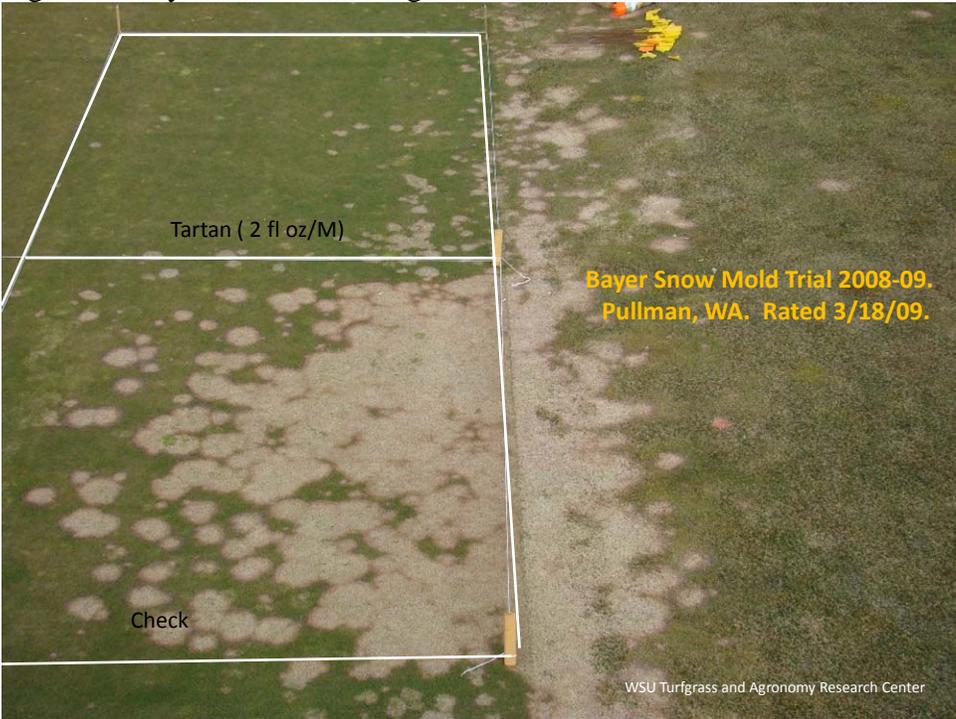


Table 2. The effect of several fungicide combinations to control pink and gray snow mold at Chewelah Golf and Country Club. Chewelah, WA. Rated 4/13/09.

Fungicide	Rate (oz or fl oz/M)	Disease (% area infected)	Turfgrass quality*
Tartan (Triadimefon + Trifloxystrobin) + Daconil Ultrex (Chlorothalonil)	2 fl oz 5 oz	0.0 a**	6.3 a
Triton FLO (Triticonazole) + Compass (Trifloxystrobin) + Daconil Ultrex (Chlorothalonil)	0.85 fl oz 0.25 oz 5 oz	0.0 a	6.0 a
Reserve 4.8SC (Chlorothalonil + Triticonazole) + Compass (Trifloxystrobin)	5.4 fl oz 0.25 oz	0.0 a	6.0 a
Instrata (Propiconazole + Fludioxonil + Chlorothalonil)	9.3 fl oz	0.0 a	5.7 a
USF26019T (Iprodione + Trifloxystrobin) + Triton FLO (Triticonazole)	6 fl oz 0.85 fl oz	0.3 a	6.3 a
USF26019T (Iprodione + Trifloxystrobin) + Triton FLO (Triticonazole)	5 fl oz 0.85 fl oz	1.7 ab	6.3 a
USF26019T (Iprodione + Trifloxystrobin) + Triton FLO (Triticonazole)	4 fl oz 0.85 fl oz	6.7 b	5.0 a
Check	0	73.3 c	1.0 b

\*Turfgrass quality rated 1 to 9, with 9 = excellent.

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

Figure 4. Bayer snow mold fungicide treatments Chewelah, WA. 2009.



Figure 5. Bayer snow mold fungicide treatments Chewelah, WA. 2009.

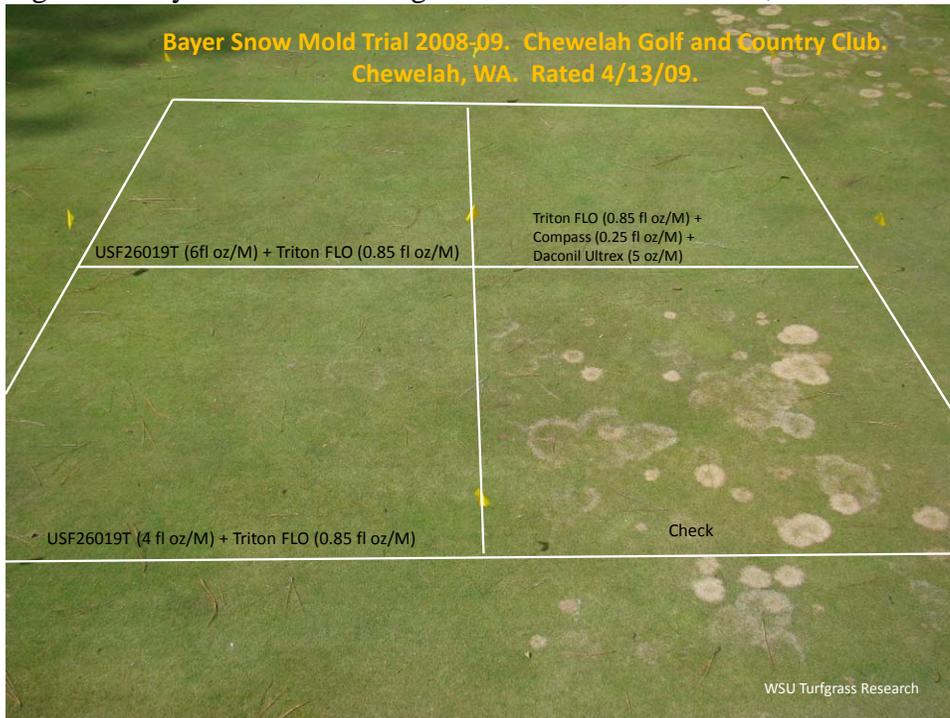


Figure 6. Bayer snow mold fungicide treatments Chewelah, WA. 2009.



Figure 7. Bayer snow mold fungicide treatments Chewelah, WA. 2009.



Table 3. The effect of several fungicide combinations to control pink and gray snow mold at the City of McCall Golf Course. McCall, ID. Rated 4/7/09.

Fungicide treatment	Rate (oz or fl oz/M)	Disease (% area infected)	Turfgrass quality*
Triton FLO (Triticonazole) + Compass (Trifloxystrobin) + Daconil Ultrex (Chlorothalonil)	0.85 fl oz 0.25 oz 5 oz	0.0 a**	7.0 a
Tartan (Triadimefon + Trifloxystrobin) + Daconil Ultrex (Chlorothalonil)	2 fl oz 5 oz	0.0 a	6.8 a
Reserve 4.8SC (Chlorothalonil + Triticonazole) + Compass (Trifloxystrobin)	5.4 fl oz 0.25 oz	0.0 a	6.7 a
Instrata (Propiconazole + Fludioxonil + Chlorothalonil)	9.3 fl oz	0.0 a	5.7 b
USF26019T (Iprodione + Trifloxystrobin) + Triton FLO (Triticonazole)	5 fl oz 0.85 fl oz	2.0 a	5.7 b
USF26019T (Iprodione + Trifloxystrobin) + Triton FLO (Triticonazole)	6 fl oz 0.85 fl oz	4.3 a	5.7 b
USF26019T (Iprodione + Trifloxystrobin) + Triton FLO (Triticonazole)	4 fl oz 0.85 fl oz	5.3 a	5.7 b
Check	0	28.3 b	2.3 c

\*Turfgrass quality rated 1 to 9, with 9 = excellent.

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

Figure 8. Bayer snow mold fungicide treatments McCall, ID. 2009.



Figure 9. Bayer snow mold fungicide treatments McCall, ID. 2009.

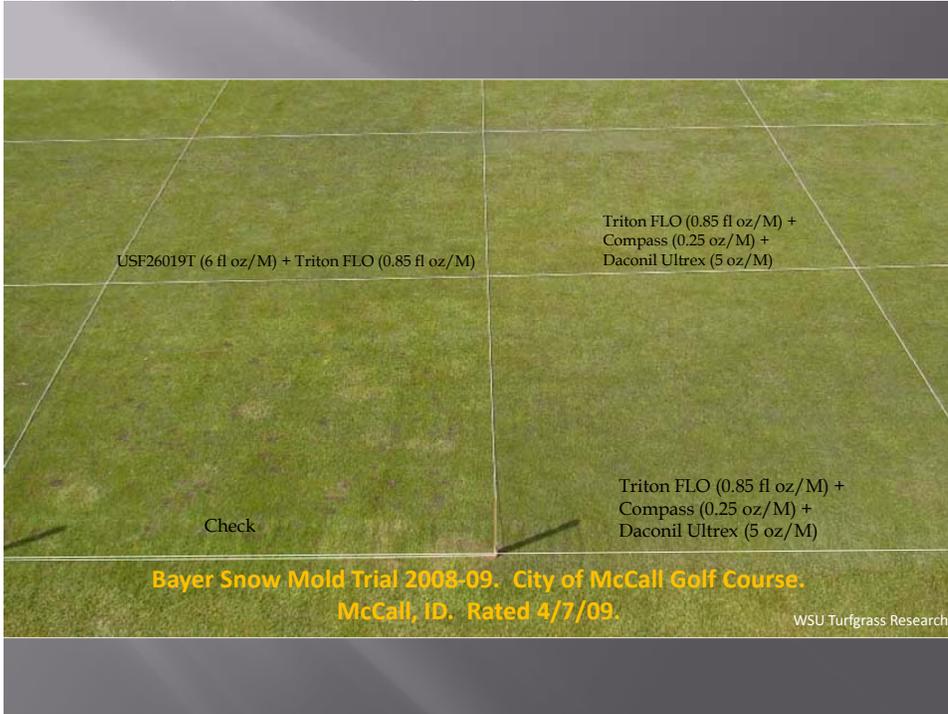


Figure 10. Bayer snow mold fungicide treatments McCall, ID. 2009.



Figure 11. Bayer snow mold fungicide treatments McCall, ID. 2009.

