Syngenta Fungicides to Control Snow Mold on Fairways in Idaho and Montana 2012-2013

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Snow mold control trials were conducted at 2 locations in the Intermountain Region of the PNW, on a fairway at Meadow Lake Resort Golf Course in Columbia Falls, MT, and a fairway at the City of McCall Golf Course in McCall, ID. The fairway at Meadow Lake is a mixed stand of creeping bentgrass, Kentucky bluegrass, perennial ryegrass, and annual bluegrass. The fairway at McCall is a mixed stand of, Kentucky bluegrass, perennial ryegrass, and annual bluegrass. Individual treatment plots were 6' x 7' with four replications in a randomized complete-block design. Treatments were applied 29 Oct 2012 and 2 Nov 2012 at McCall and Columbia Falls, respectively. Fungicides were applied at 80 GPA with a bicycle-wheeled CO_2 pressurized (40 psi) sprayer with 11008 flat fan TeeJet nozzles. GPS coordinates for each location is in Table 1. Weather data at time of application at each location is in Table 2. Columbia Falls had snow cover totaling approximately 110 days from December 2012 to the third week of March 2013. Continuous snow cover lasted from the beginning of December 2012 through mid-April 2013 (approx. 140 days) at McCall. Individual plots were evaluated for pink (*Microdochium nivale*) and/or gray (*Typhula spp.*) snow mold disease severity (% area infected), turfgrass quality rated on a scale from 1 to 9; 9 = excellent and 6 = acceptable on 28 Mar and 23 Apr 2013 at Columbia Falls and McCall, respectively.

At Columbia Falls, MT, disease pressure was very high, the untreated control had 90% of the plot area infected with both pink and gray snow mold (Table 3). It was estimated that there was 65% pink and 35% gray snow mold in these untreated control. All fungicide treatments significantly reduced snow mold to 8 to 10%. However, there were no significant differences in disease or turfgrass quality among any of the fungicide treatments. The addition of PAR 0.37 fl oz/M to Concert II 8.5 fl oz/M + Banner MAXX 1 fl oz/M or Secure 0.5 fl oz/M did not result in an increase in turfgrass quality. These treatments also performed as well as Interface 4 fl oz/M + Triton FLO 0.55 fl oz/M. Figs. 1 through 3 show the fungicide treatments in reps 1 and 2. Figure 4 is an overview of the entire study area.

At McCall, ID, disease pressure was very high, the untreated control had approximately 92% of the plot area infected with both pink and gray snow mold (Table 4). It was estimated to have approximately 75% pink and 25% gray. Concert II 8.5 fl oz/M + Banner MAXX 1 fl oz/M or Secure 0.5 fl oz/M with or without PAR 0.37 fl oz/M resulted in about a 50% reduction in snow mold. These treatments had between 35 and 50% snow mold when rated. However, Interface 4 fl oz + Triton FLO 0.55 fl oz resulted in the best control with approximately 15% of the plot area infected with snow mold.

Overall, Concert II 8.5 fl oz/M + Banner MAXX 1 fl oz/M or Secure 0.5 fl oz/M with or without PAR 0.37 fl oz/M resulted in better control (8 to 10% snow mold) at Columbia Falls with 110 days of snow cover compared to snow mold control (35 to 50% snow mold) at McCall with 140 days of snow cover (Tables 3 and 4). The addition of PAR in the tank mix did not, for the most part, increase turfgrass quality. However, at McCall the Interface 4 fl oz/M + Triton FLO 055 fl oz/M treatment did better compared to the treatments mentioned above.

Table 1. GPS coordinates of the study sites at Columbia Falls, MT and McCall, ID.

Location: McCall, ID. City of McCall Golf Course.
GPS coordinates: Lat.: 44° 54' 55.94" N
Long.: 116° 04' 47.71" W
Elev. 5048'

Location: Columbia Falls, MT. Meadow Lake Resort Golf Course.
GPS coordinates: Lat.: 48° 22' 18.5" N
Long. : 114° 12' 13.2" W
Elev.: 3162'

Table 2. Weather data at time of application at Columbia Falls, MT and McCall, ID.

	Columbia Falls, MT	McCall, ID
Application date	2-Nov-12	28-Oct-12
Air temperature	8.9°C	10.4°C
Soil temp 2"	7.2°C	4.2°C
RH	84%	71%
Wind (East)	0-1 mph	0-4 mph

Table 3. The effect of fungicides on turfgrass quality and control of pink and gray mold on a fairway at Meadow Lake Resort Golf Course in Columbia Falls, MT. Rated 28 Mar 2013.

Treatment	RATE (fl oz/M)	Snow mold (% area infected)	*Turfgrass quality
Interface (iprodione + trifloxystrobin) + Triton FLO (triticonazole)	4 0.55	8.3 b**	3.8 a
Concert II (propiconazole + chlorothalonil) + Banner MAXX (propiconazole) + PAR (proprietary pigment concentrate)	8.5 1 0.37	8.5 b	3.9 a
Concert II (propiconazole + chlorothalonil) + Secure (fluazinam) +	8.5 0.5	8.8 b	3.9 a
Concert II (propiconazole + chlorothalonil) + Secure (fluazinam) + PAR (proprietary pigment concentrate)	8.5 0.5 0.37	9.5 b	3.9 a
Concert II (propiconazole + chlorothalonil) + Banner MAXX (propiconazole)	8.5 1	10.3 b	3.8 a
Untreated control	0	90.0 a	1.1 b

*Turfgrass quality rated 1 to 9; 9 = excellent.

**Means within columns followed by the same letter are not significantly different. LSD (P = 0.05).

Fig. 1. Snow mold fungicide treatments on a fairway at Meadow Lake Resort Golf Course in Columbia Falls, MT. Rated 28 Mar 2013.

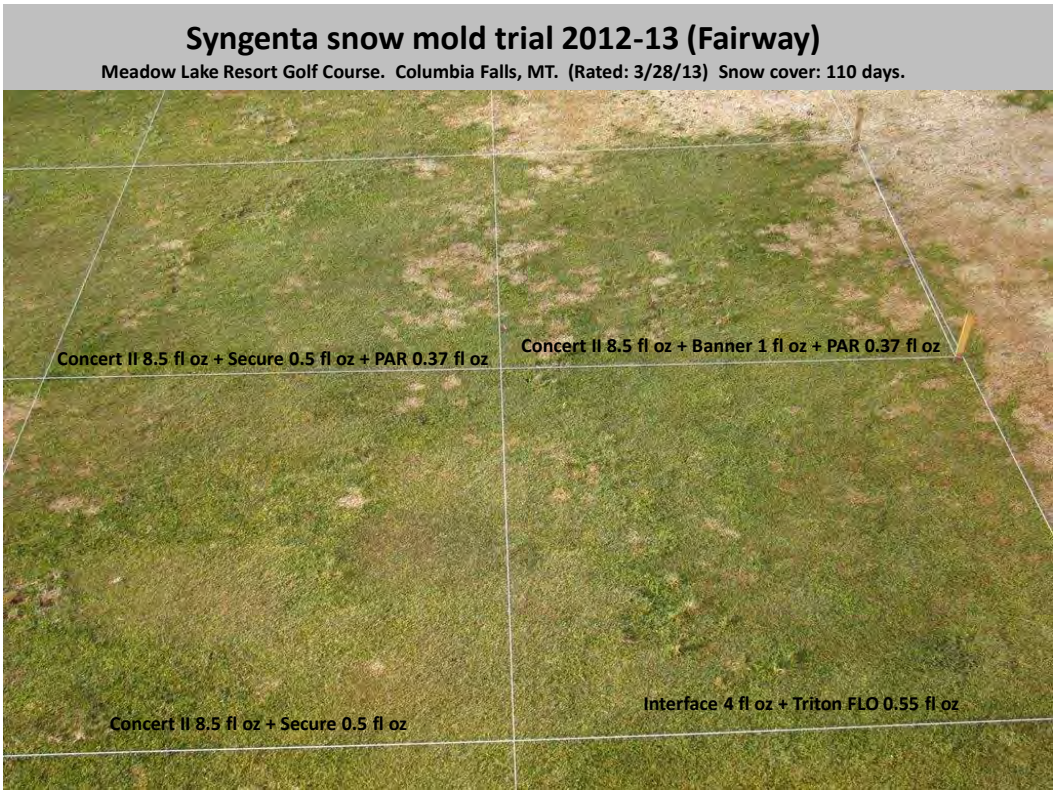

Fig. 2. Snow mold fungicide treatments on a fairway at Meadow Lake Resort Golf Course in Columbia Falls, MT. Rated 28 Mar 2013.

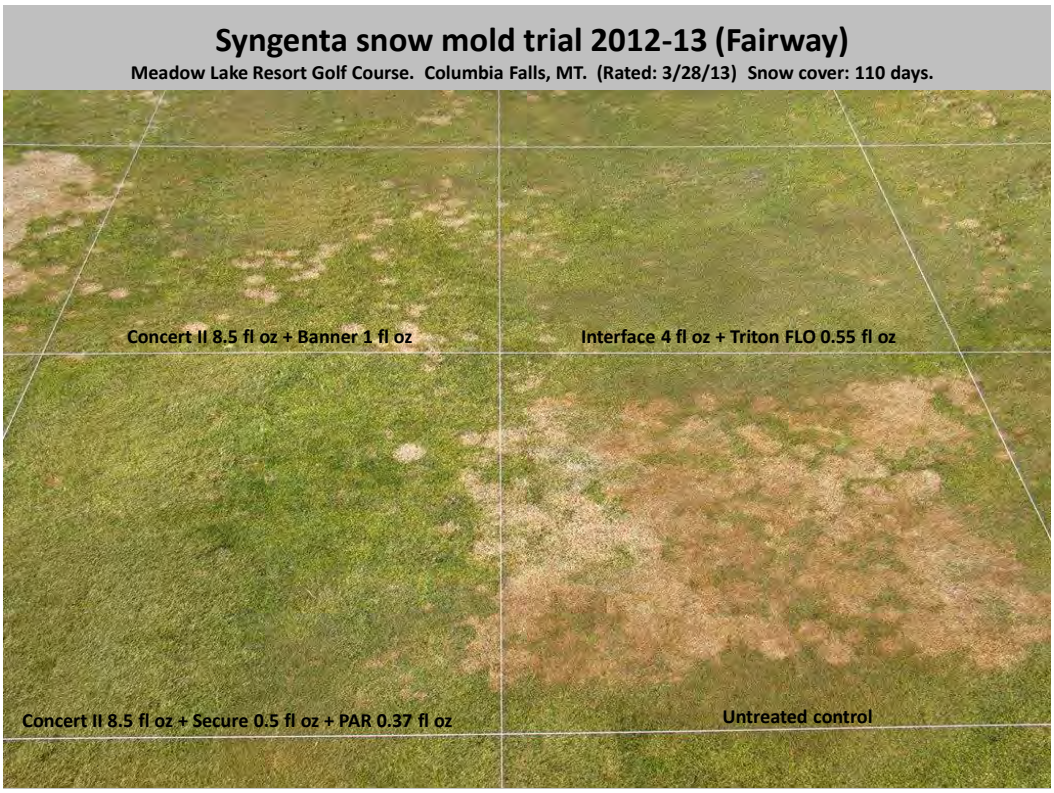

Fig. 3. Snow mold fungicide treatments on a fairway at Meadow Lake Resort Golf Course in Columbia Falls, MT. Rated 28 Mar 2013.

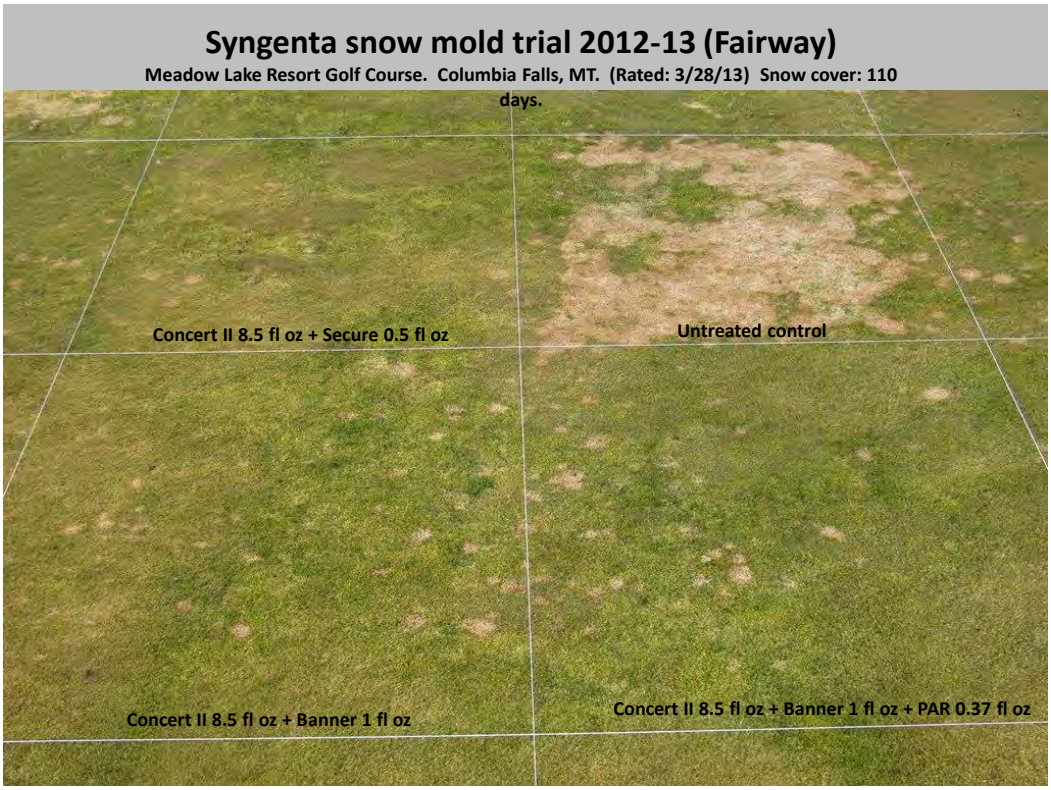

Fig. 4. Snow mold fungicide treatments on a fairway at Meadow Lake Resort Golf Course in Columbia Falls, MT. Rated 28 Mar 2013.

Table 4. The effect of fungicides on turfgrass quality and control of pink and gray mold on a fairway at the City of McCall Golf Course in McCall, ID. Rated 23 Apr 2013.

Fungicide treatment	RATE (fl oz/M)	Snow Mold (% area infected)	Turfgrass quality*
Interface (iprodione + trifloxystrobin) + Triton FLO (triticonazole)	4 0.55	14.3 c**	4.0 a
Concert II (propiconazole + chlorothalonil) + Secure (fluazinam) + PAR (proprietary colorant)	8.5 0.5 0.37	34.8 b	2.9 b
Concert II (propiconazole + chlorothalonil) + Secure (fluazinam) +	8.5 0.5	45.0 b	2.4 bc
Concert II (propiconazole + chlorothalonil) + Banner MAXX (propiconazole) + PAR (proprietary colorant)	8.5 1 0.37	46.3 b	2.4 bc
Concert II (propiconazole + chlorothalonil) + Banner MAXX (propiconazole)	8.5 1	52.5 b	1.9 cd
Untreated control	0	91.8 a	1.0 d

*Turfgrass quality was rated on a scale from 1 to 9; with 9 = excellent.

**Means within columns followed by the same letter are not significantly different. LSD *P* = 0.05.

Fig. 5. Snow mold fungicide treatments on a fairway at the City of McCall Golf Course in McCall, ID. Rated 23 Apr 2013.

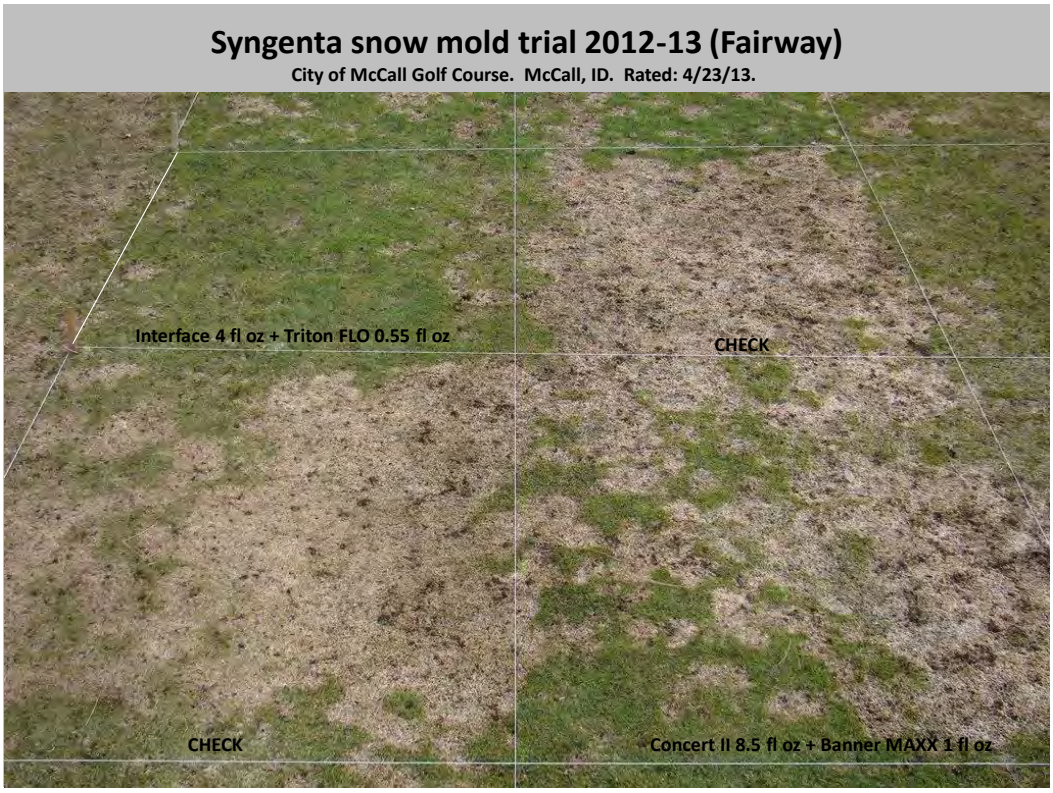

Fig. 6. Snow mold fungicide treatments on a fairway at the City of McCall Golf Course in McCall, ID. Rated 23 Apr 2013.

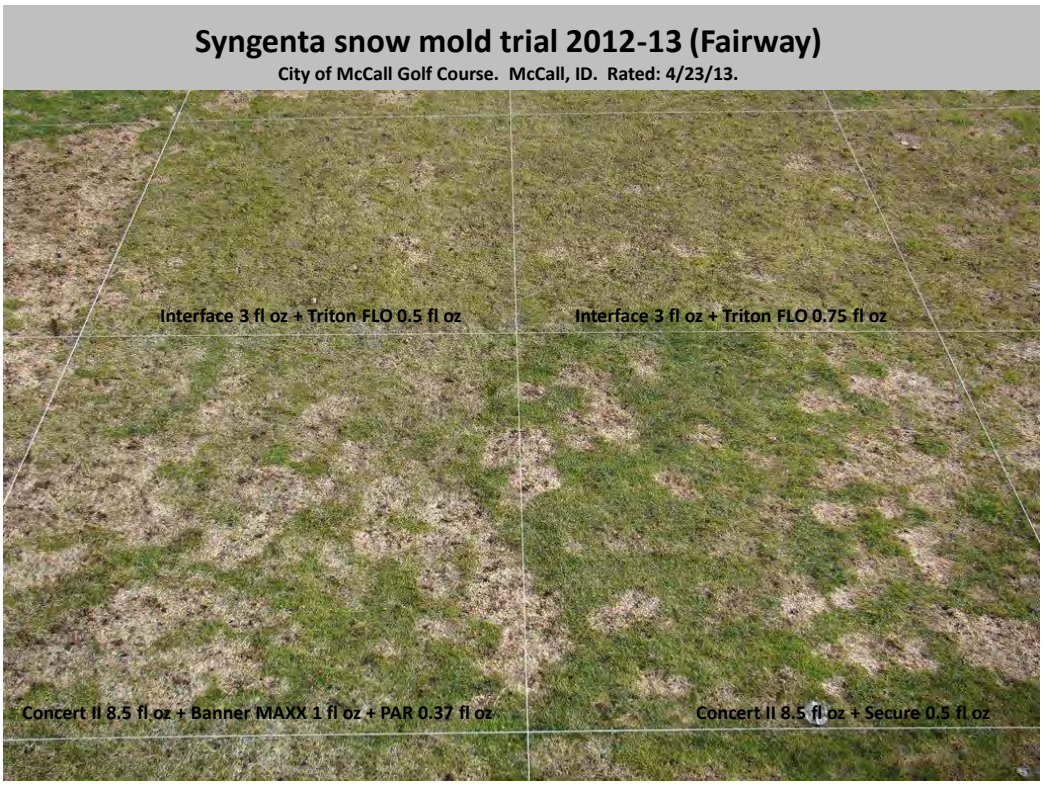

Fig. 7. Snow mold fungicide treatments on a fairway at the City of McCall Golf Course in McCall, ID. Rated 23 Apr 2013.