

AMVAC-Turfcide 400 and AMV4820 alone, combined with other fungicides, or compared to other fungicides to control pink and gray snow mold on fairways 2012-13

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A snow mold control trial was conducted on a fairway at Meadow Lake Resort Golf Course in Columbia Falls, MT. The fairway is a mixed stand of creeping bentgrass, 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 2 Nov 2012. Fungicides were applied at 80 GPA with a bicycle-wheeled CO₂ pressurized (40 psi) sprayer with 11008 flat fan TeeJet nozzles. GPS coordinates and climatic data at time of application are in Table 1. Snow cover totaled approximately 110 days from December 2011 to March 2012. On 28 Mar 2013, 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 from 1 to 9; 9 = excellent and 6 = acceptable.

At Columbia Falls, disease pressure was high, the untreated Check had over 91% of the plot area infected with both pink and gray snow mold (Table 2). It was estimated that there was 65% pink and 35% gray snow mold present in the Check. Interface 3 or 4 fl oz/M + AMV4820 8 fl oz/M or Turfcide 400 8 fl oz/M resulted in nearly complete snow mold control and better turfgrass quality compared to many of the other treatments. In addition, Concert II 8.5 fl oz/M + AMV4820 8 fl oz/M or Turfcide 400 8 fl oz/M also performed as well. Other treatments that resulted in similar disease control and turfgrass quality were the 16 and 32 fl oz/M rates of AMV4820 and Turfcide 400. Figures 1 - 7 show treatments in reps 1 and 2. Figure 8 is an overview of the entire study area.

For the most part, AMV4820 and Turfcide 400 at 8 or 12 fl oz/M, Interface 3 fl oz/M + Triton FLO 0.5 or 0.75 fl oz/M and Concert II 8.5 fl oz/M + Banner MAXX 1 fl oz/M had significantly higher disease and lower turfgrass quality compared to the treatments mentioned above.

In general, increased rates of AMV4820 or Turfcide 400 resulted in better disease control and turfgrass quality (Table 3). Even though AMV4820 and Turfcide 400 at 32 fl oz/M resulted in similar disease control turfgrass quality of AMV4820 was higher. However, the 8 or 12 fl oz/M rates of AMV4820 resulted in significantly better disease control and turfgrass quality compared to Turfcide 400 at 8 or 12 fl oz/M, respectively.

Overall, tank mixing either AMV4820 or Turfcide 400 at 8 fl oz/M with Interface at 3 or 4 fl oz/M or with Concert II at 8.5 fl oz/M resulted in the best disease control and highest turfgrass quality. AMV4820 and Turfcide 400 at 32 fl oz/M also resulted in similar disease control but these rates are 2 times higher than the recommended labeled rate. However, AMV4820 and Turfcide 400 at 16 fl oz/M were also very good treatments. In general, increased rates of AMV4820 or Turfcide 400

resulted in better disease control and turfgrass quality. Surprisingly, AMV4820 or Turfcide 400 at 32 fl oz/M did not show much phytotoxicity (yellowing of grass leaves). The 8 or 12 fl oz/M rates of AMV4820 were better compared to Turfcide 400 at 8 or 12 fl oz/M, respectively, to control disease. When compared at the same rates, AMV4820 appears, for the most part, to be more effective in controlling snow mold and resulting in higher turfgrass quality than Turfcide 400.

Table 1. GPS coordinates and climatic data and at time of application.

LOCATION: Columbia Falls, MT. Meadow Lake Resort Golf Course.

GPS coordinates: Lat.: 48° 23' 19.2" N

Long.: 114° 12' 12.0" W

Elev.: 3164'

Application date: 11/2/12

Air temperature	9.4°C
Soil temp (2")	7.8°C
RH	77%
Wind (SW)	0-2 mph

Table 2. The effect of fungicides on turfgrass quality and control of pink and gray snow mold on a fairway at Meadow Lake Resort Golf Course in Columbia Falls, MT. Rated on 28 Mar 2013.

Product	Active Ingredient	Formulation	Product/A	Snow mold		
				Rate (fl oz/M)	(% area infected)	*Turfgrass quality
Interface + AMV4820	iprodisone + trifloxystrobin PCNB	2.27SC 4A	1.36 gal	4	0.0 f**	5.4 a
			2.72 gal	8		
Interface + Turficide 400	iprodisone + trifloxystrobin PCNB	2.27SC 400 (4F)	1.02 gal	3	0.8 f	5.3 ab
			2.72 gal	8		
Interface + Turficide 400	iprodisone + trifloxystrobin PCNB	2.27SC 400 (4F)	1.36 gal	4	0.9 f	5.4 a
			2.72 gal	8		
Interface + AMV4820	iprodisone + trifloxystrobin PCNB	2.27SC 4A	1.02 gal	3	0.9 f	5.1 ab
			2.72 gal	8		
Concert II + Turficide 400	chlorothalonil + propiconazole + PCNB	4.3L 400 (4F)	2.89 gal	8.5	1.5 f	4.8 bc
			2.72 gal	8		
Turficide 400	PCNB	400 (4F)	10.89 gal	32	2.8 f	4.1 d
AMV4820	PCNB	4A	10.89 gal	32	2.9 f	4.9 abc
Concert II + AMV4820	chlorothalonil + propiconazole PCNB	4.3L 4A	2.89 gal	8.5	3.0 f	4.9 abc
			2.72 gal	8		
Turficide 400	PCNB	400 (4F)	5.45 gal	16	3.3 ef	4.4 cd
AMV4820	PCNB	4A	5.45 gal	16	3.5 ef	4.1 d
AMV4820	PCNB	4A	4.08 gal	12	7.8 de	4.1 d
Concert II + Banner Maxx	chlorothalonil + propiconazole + propiconazole	4.3L 1.3ME	2.89 gal	8.5	10.3 cd	3.8 de
			43.56 fl.oz.	1		
Interface + Triton FLO	iprodisone + trifloxystrobin triticonazole	2.27SC 3F	1.02 gal	3	10.5 cd	3.8 de
			32.67 fl.oz.	0.5		
Interface + Triton FLO	iprodisone + trifloxystrobin triticonazole	2.27SC 3F	1.36 gal	3	12.3 cd	3.9 de
				0.75		
AMV4820	PCNB	4A	2.72 gal	8	13.5 c	3.4 e
Turficide 400	PCNB	400 (4F)	2.72 gal	8	21.0 b	2.9 e
Turficide 400	PCNB	400 (4F)	4.08 gal	12	23.5 b	2.6 g
Check				0	91.3 a	1.0 f

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

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

Table 3. Comparison of AMV4820 to Turfcide 400 for pink and gray snow mold control on a fairway at Meadow Lake Resort Golf Course in Columbia Falls, MT. Rated on 28 Mar 2013.

Product	Active Ingredient	Formulation	Product/A	Rate	Snow mold	*Turfgrass
				(fl oz/M)	(% area infected)	quality
AMV4820	PCNB	4A	10.89 gal	32	2.9 f	4.9 abc
Turfcide 400	PCNB	400 (4F)	10.89 gal	32	2.8 f	4.1 d
AMV4820	PCNB	4A	5.45 gal	16	3.5 ef	4.1 d
Turfcide 400	PCNB	400 (4F)	5.45 gal	16	3.3 ef	4.4 cd
AMV4820	PCNB	4A	4.08 gal	12	7.8 de	4.1 d
Turfcide 400	PCNB	400 (4F)	4.08 gal	12	23.5 b	2.6 g
AMV4820	PCNB	4A	2.72 gal	8	13.5 c	3.4 e
Turfcide 400	PCNB	400 (4F)	2.72 gal	8	21.0 b	2.9 e
Check				0	91.3 a	1.0 f

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

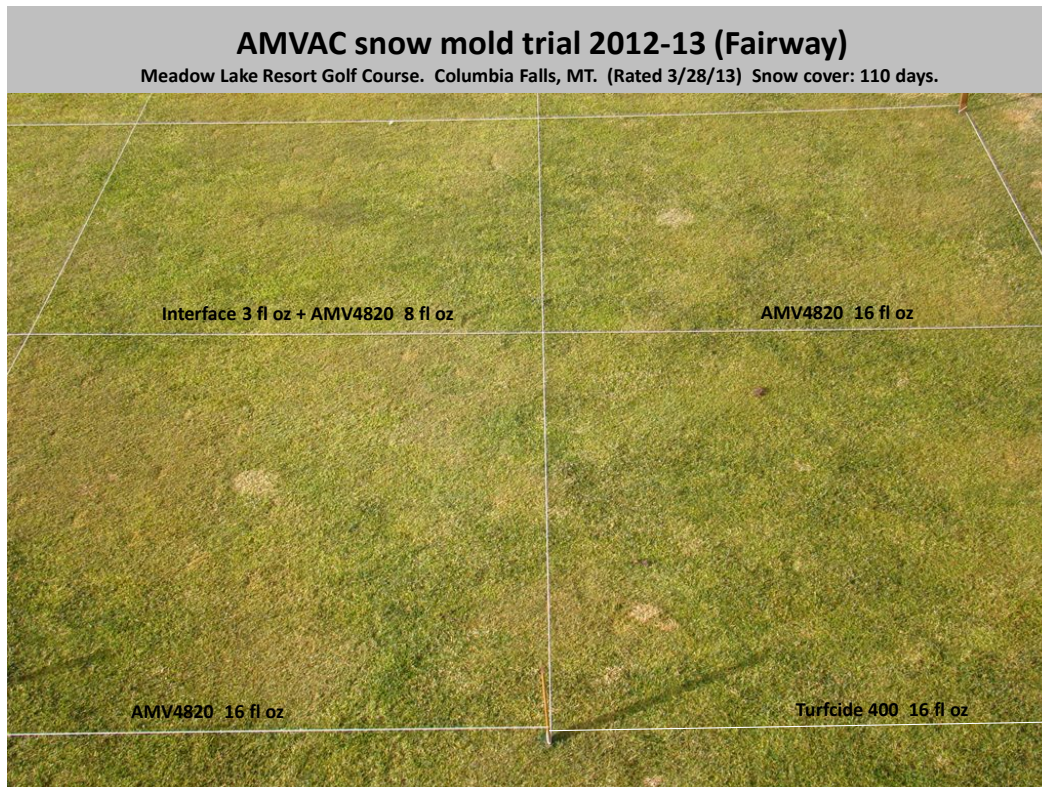


Fig. 2. The effect of fungicides to control pink and gray snow mold on a fairway at Meadow Lake Resort Golf Course in Columbia Falls, MT. Rated on 28 Mar 2013.

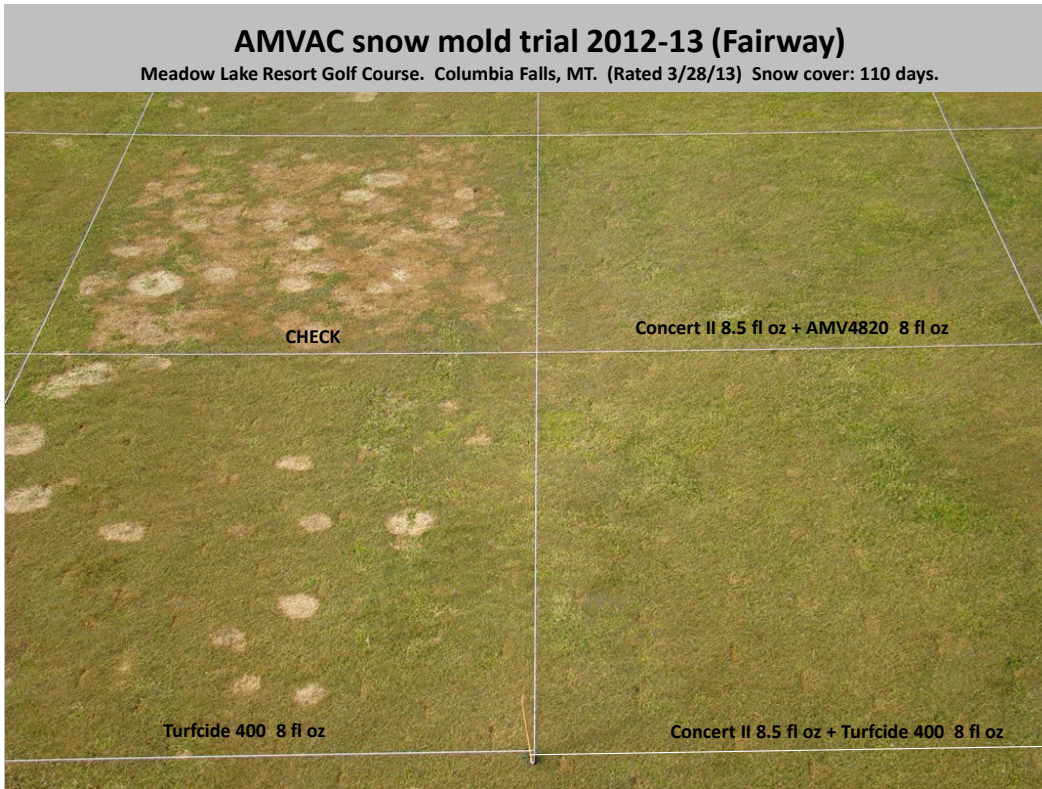


Fig. 3. The effect of fungicides to control pink and gray snow mold on a fairway at Meadow Lake Resort Golf Course in Columbia Falls, MT. Rated on 28 Mar 2013.

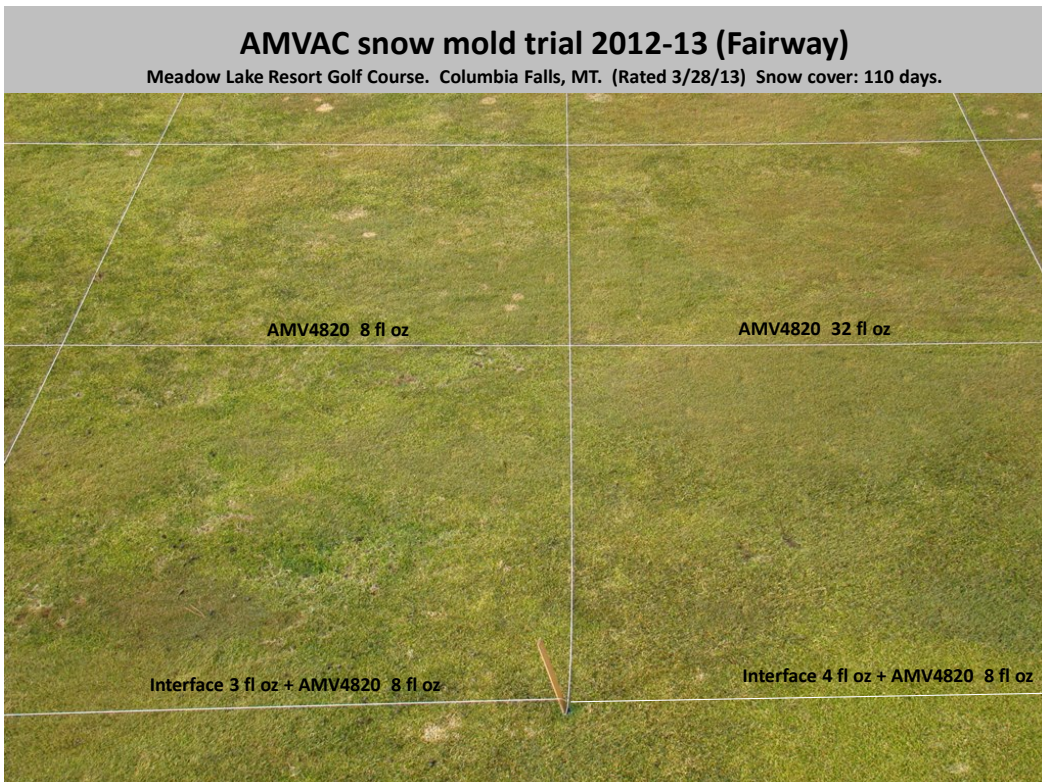


Fig. 4. The effect of fungicides to control pink and gray snow mold on a fairway at Meadow Lake Resort Golf Course in Columbia Falls, MT. Rated on 28 Mar 2013.

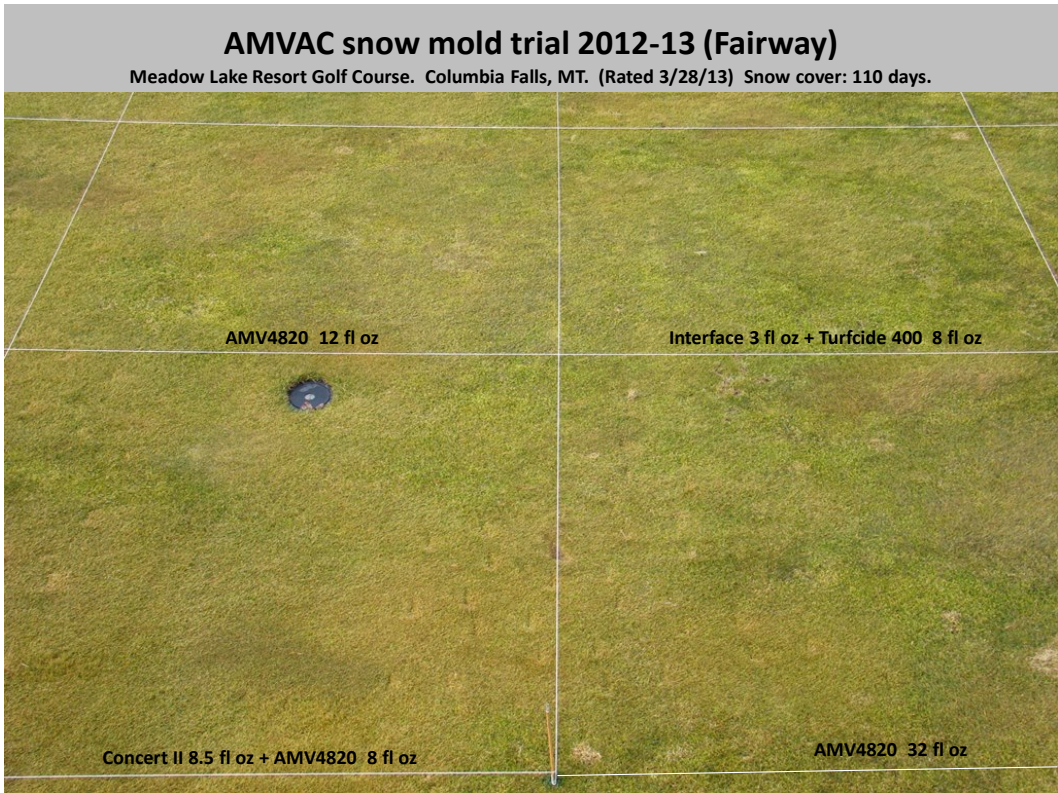


Fig. 5. The effect of fungicides to control pink and gray snow mold on a fairway at Meadow Lake Resort Golf Course in Columbia Falls, MT. Rated on 28 Mar 2013.

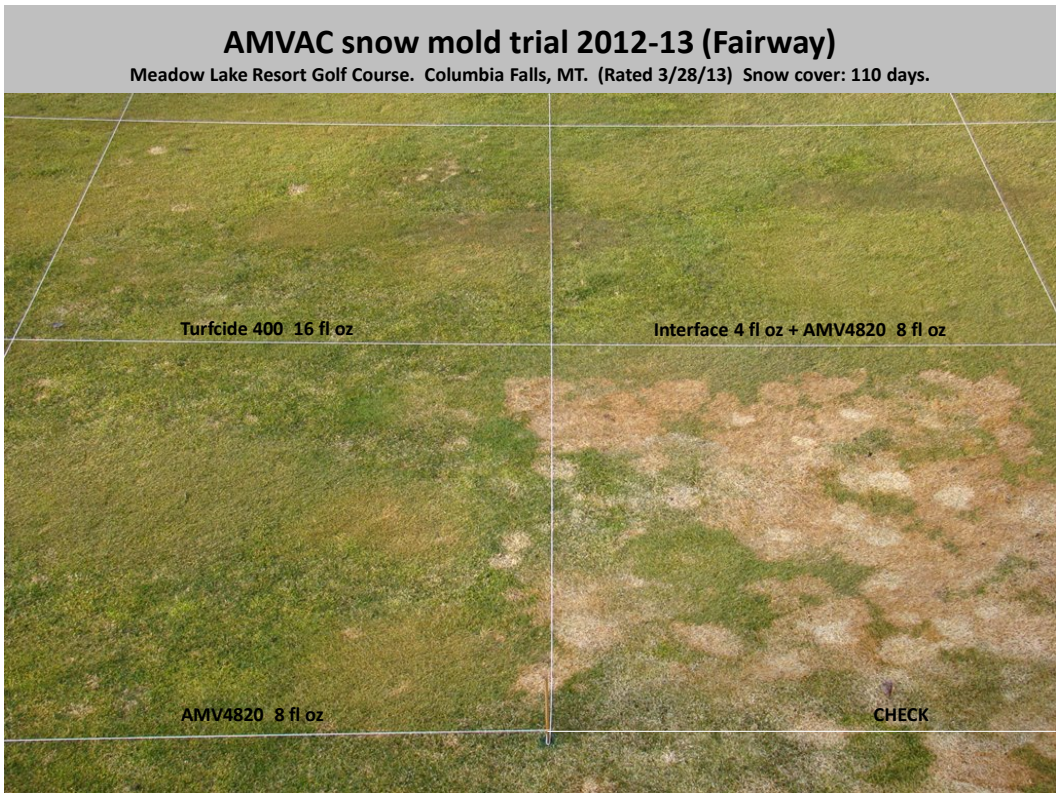


Fig. 6. The effect of fungicides to control pink and gray snow mold on a fairway at Meadow Lake Resort Golf Course in Columbia Falls, MT. Rated on 28 Mar 2013.

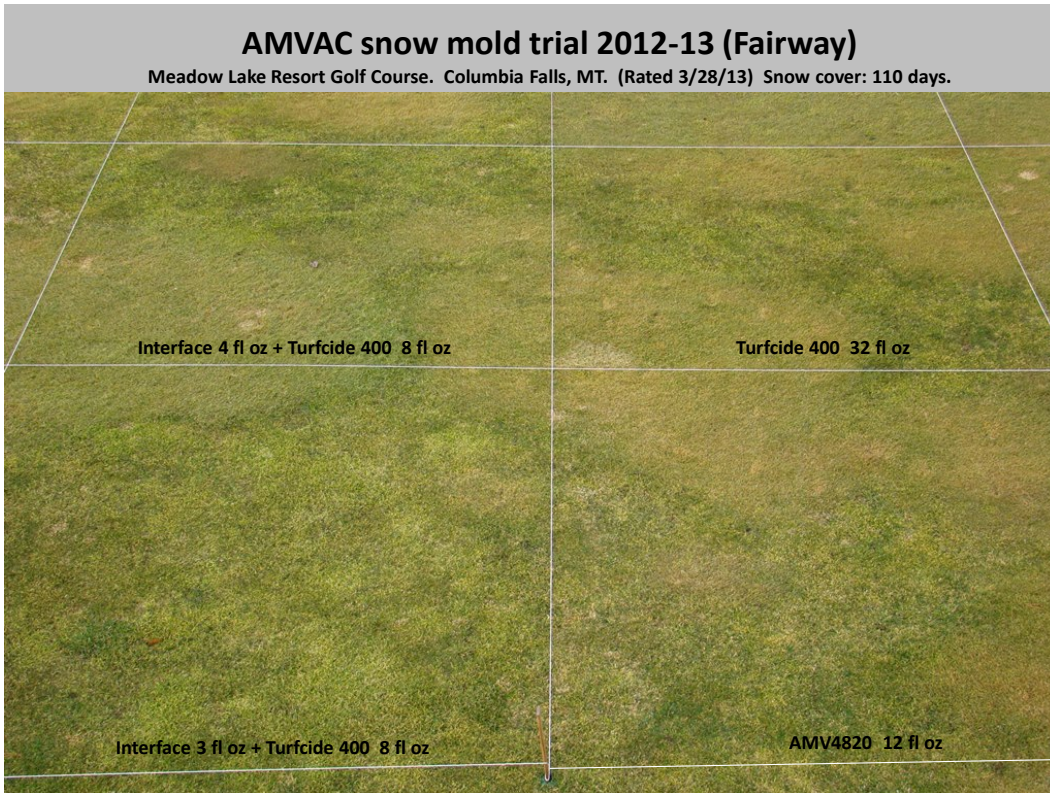


Fig.7. The effect of fungicides to control pink and gray snow mold on a fairway at Meadow Lake Resort Golf Course in Columbia Falls, MT. Rated on 28 Mar 2013.

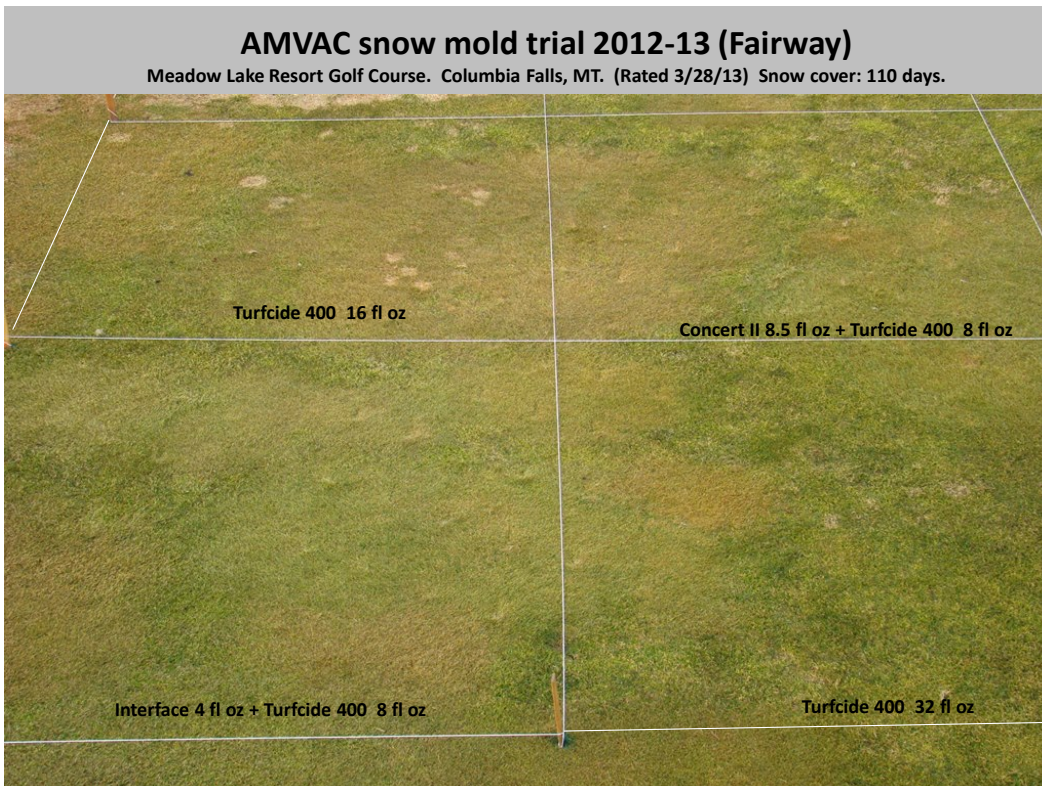


Fig.8. The effect of fungicides to control pink and gray snow mold on a fairway at Meadow Lake Resort Golf Course in Columbia Falls, MT. Overview of entire study area. Rated on 28 Mar 2013.

AMVAC snow mold trial 2012-13 (Fairway)

Meadow Lake Resort Golf Course. Columbia Falls, MT. (Rated 3/28/13) Snow cover: 110 days.

