

Snow Mould

The problem

Pink and grey snow mould are destructive turf diseases that can devastate putting greens, tees, fairways and roughs under prolonged snow cover. Beyond being unsightly in spring, they weaken turf health and can make surfaces unplayable. These diseases affect all cool-season turfgrasses but are especially severe on annual bluegrass and bentgrass.

What to look for

Pink snow mould, caused by Monographella nivalis (formerly Microdochium nivale or Fusarium nivale) thrives in cold (0–10°C), wet conditions with intermittent snow cover (< 60 days). Prolonged snow insulates the turf, allowing rapid disease development. Symptoms appear at snow melt as tan patches (5–30 cm) with pink borders, turning whitish-grey as leaves bleach. Patches can merge, causing extensive turf damage.

Grey snow mould (caused by *Typhula spp.*) develops at 0–5°C under prolonged snow cover (> 60 days). After snow melt, symptoms include light yellow to grey patches (7–30 cm+), progressing to matted, greyish-white turf. A grey-white halo and small, round sclerotia (brown for T. incarnata, black for T. ishikariensis) may appear. Unlike grey snow mould, pink snow mould lacks sclerotia.

Envu solutions

Implementing proper cultural practices will assist in reducing disease severity. Management strategies include: avoiding late fall fertilization that leads to lush growth, controlling excessive thatch, removing tree leaves from the turf, controlling drifting snow and removing snow/improving drainage to promote rapid drying in the early spring.

Although snow mould symptoms develop under snow cover, infection for both pink and grey snow mould begins in the fall. As temps fall below 10°C, each degree under 10 is accumulated into what is called Heating Degree Days (HDD) (much like Growing Degree Days). A final snow mould application is recommended after the final mowing of the season when HDD reaches 100. When HDDs reach 25-50, usually 3-4 weeks before HDD=100, a "go-in clean" knockdown spray can significantly reduce inoculum before that final application.

Fame® SC has been particularly effective in this timing window, lowering disease severity the following season. See Fig 1 for an example of our TurfView™ HDD model to help you plan your best timing.

Fig 1: TurfView model showing HDD ranging from 1-100, where a "go-in clean" application is recommended between HDD=25-50, about 2-3 weeks before the final application (HDD=100).

TurfView

Toronto ON YYZ Mississauga, Ontario

Snow Mould Application Timing - HDD10°C

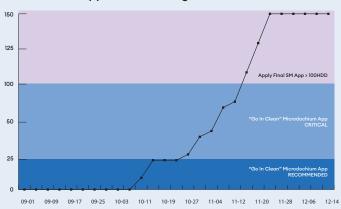
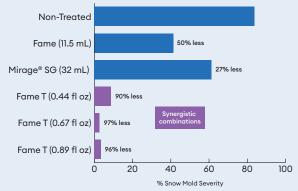


Fig 2: Trials conducted by Paul Koch at the University of Wisconsin 2015/16, showing results of the tank mix with both Fame and Tebuconazole at varying rates, all showing significant snow mould control.

Fluoxastrobin and Tebuconazole



2015/2016 Preventative Snow Mould Trial – Dr. Paul Koch, University of Wisconsin. All treatments applied once on November 3rd, 2015. Predominant snow mould was pink snow mould.

Fame T	Equivalent rates	
	Fame	Mirage
0.44 fl oz	5.8 mL	16.2 mL
0.67 fl oz	8.6 mL	25 mL
0.89 fl oz (28 mL)	11.5 mL	32 mL

Snow mould control with Fame + Mirage

Fig 3: Snow mould (SM) trial by Paul Koch, at the University of Wisconsin 2017/18, showing results of final SM Fame® + Mirage® application against both pink and speckled snow mould compared to industry standards.







Interface® (191ml) + Mirage (64ml) + Dac (175ml)



Instrata® (350ml)



Fame (8.6ml) + Mirage SG (25ml)

Trial located in Marquette Golf Club. All treatments were applied once on Nov. 6, 2017. Snow mould present was 25% pink snow mould and 75% speckled snow mould.

Solution	Rate per 100 m²	Application interval* (days)
Dedicate® Stressgard®	32-64 mL	Make 1 to 2 applications in the fall in areas that receive < 100 days of snow cover
Mirage® Stressgard®	30-60 mL*	1–2 applications late fall at 1–28 day intervals before snow cover
Fame®	11.5 mL*	1–2 applications late fall at 1–28 day intervals before snow cover

^{*}Best as a cleanup application - must be tank-mixed with other products for complete control.

The following table shows recommended products or mixtures for greens, tees, and fairways based on the type of snow mould and length of snow cover expected.*

	Less than 90 days (pink)	90 to 150 days (pink + grey)
Greens and tees	Dedicate® Stressgard® (48–64 mL)	Dedicate® Stressgard® (64 mL) + fludioxonil
	Fame SC (11.5 mL) + Mirage Stressgard (32 mL)	Fame SC (11.5 mL) + Mirage Stressgard (64 mL) (optional: + fludioxonil in high pressure)
Fairways	Dedicate® Stressgard® (32-64 mL)	Dedicate® Stressgard® (48–64 mL) – 2 fall applications

^{*}See fungicide labels for complete details. Always read and carefully follow label instructions.



Grey snow mould symptoms with fungal mycelium around margin of infection.

Photo: Jesse Benelli, Envu



Pink and grey snow mould symptoms in a research plot. Photo: Travis Russell, Envu



Snow mould symptoms showing bleached-out dead turf after snow melt.

Photo: Travis Russell, Envu



Blighted turf showing small dark sclerotia of *Typhula ishikarensis* (grey snow mould). Photo: Frank Wong

To talk about your specific needs or to learn more about our solutions, please contact an Envu representative.



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