

Winter Injury by Snow Mold Prevented by Fungicide

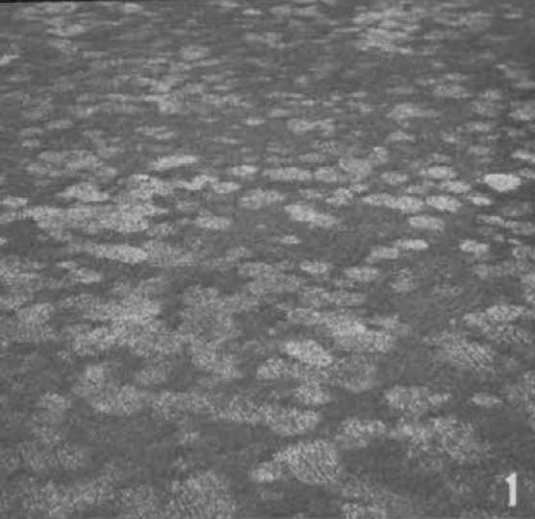
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There are three principal types of winter injury on bent grass putting greens, snow mold, wind burn, and water damage. Injury usually comes in the spring when the snow melts, but may happen during mid or late winter thaws.

Snow mold is caused by a fungus which flourishes at low temperatures. Snow furnishes the moisture required by all fungi for growth. In that respect the name is a misnomer. Heavy rains in winter or early spring bring snow mold when conditions otherwise are favorable for growth of the causal organism. Wind burn and water damage will be described and illustrated next month.

Grasses differ in their susceptibility to snow mold. Seaside is very susceptible, but Colonial, Washington, and some of the other vegetative strains are more resistant. Many Canadian clubs use New Zealand bent or brown top, which is a Colonial type, for that reason.

Anything which keeps the green excessively wet, such as poor surface drainage, protective coverings of straw, manure, etc., and excessive amounts of peat or other types of humus in the surface soil accentuate snow mold by keeping the turf wet. Likewise, late fall fertilization with soluble nitrogen, or excessive amounts of nitrogen in the fall aggravate snow mold. The deadline for fall fertilization should fall between September First and Fifteenth. The effects of nitrogen should be spent before winter starts so the turf hardens-off in late fall. Snow mold is sure to be bad, and hard to control when the grass is green, leaf blades are lush, and turf is in active growth when covered with the permanent winter blanket of snow. There is evidence to support the contention that excessive soil acidity promotes snow mold. The effect is probably indirect. Strong acidity makes the grass less vigorous. Weak-



1. A heavy infestation of snow mold on Seaside Bent green. Spots typical and moderate in size. 2. Severe example of snow mold on mixed bent green in Winnipeg. The large spots have been spiked to help recovery by breaking surface scum. 3. Calomel-corrosive mixture applied in late fall at 4 ounces per 1,000 square feet prevented disease on this Seaside bent green in Ottawa, Canada. Picture taken to show line where treatment stopped. 4. The four PK (phosphate-potash) plots got no nitrogen. Calomel-corrosive mixture (Calo-Clor) applied at 1, 2, 4 ounces per 1,000 square feet. No snow mold on treated plots, or

ened turf is less able to withstand attack by the disease producing organism. Greens should be limed in fall when soil reaction is below pH 6.0.

Snow mold can be prevented by late fall applications of fungicide, provided the conditions mentioned above have been met. To date the mercurial materials have been most effective. The cadmium complexes have not performed as well. Most clubs use a two-to-one mixture of calomel and corrosive sublimate, but some apply semesan and have had good results. Calomel-corrosive mixture or semesan are applied in late fall, after the last heavy rain, and before the greens are permanently covered with snow. Selecting the time is not an easy matter. Water systems have been drained by that time, so dry sand, compost, etc. are used to provide the bulk needed to insure uniform distribution. Another treatment, but at half rate is made should snow disappear during a midwinter thaw, or when it melts in the spring. Slopes and banks that drain onto the putting green are treated as well as the putting surface proper. Even though the fungicide does not always prevent the disease, it usually reduces its severity so the injury is superficial. Then recovery occurs quickly after growth starts in the spring.

Some clubs remove snow in spring at the time it disappears normally by melting. This is good practice, especially when the snow covering is deep. Otherwise the water from the melting snow washes the fungicide away and keeps the grass wet for a week or more. Then snow mold damage occurs.

There were two reasons why snow mold was bad in 1947-1948. Summer weather continued right up to the first snow in mid-November. Grass was green and in active growth when snow came and stayed all winter. As a result few clubs applied any fungicide. The greenkeeper at one club made treatments on top of the snow right after the first snowfall. His greens came through the winter exceptionally well.

on the untreated check. Turf got no nitrogen all season. 5. Fungicide failed to prevent snow mold on the PK-ammonium sulphate plots. Fertilizer consisted of phosphate and potash spring and fall, and ammonium sulphate at 5 pounds per 1,000 square feet each month. Treatments stopped in late September. Even 4 ounce rate of calomel-corrosive did not prevent snow mold. 6. Snow removal in early spring from a green in New England. Removal is customary practice at this club, although it makes no difference some years. Benefits in odd years more than offset labor cost in other years.

