

A scum-like mycelium readily identifies snowmold. Here it shows alongside a receding snowbank.

PREPARE NOW AGAINST SNOW MOLD

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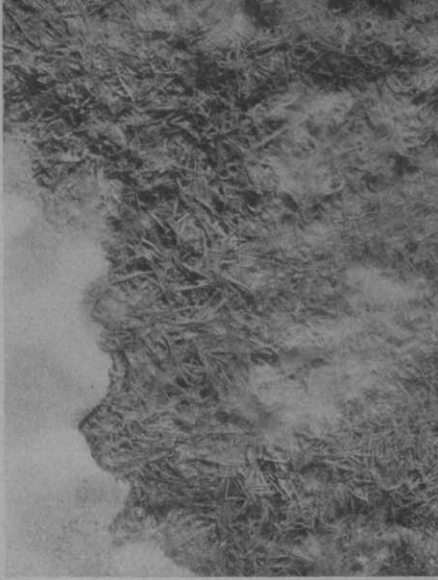
IN SECTIONS of the United States and Canada where low temperatures prevail for part of the year, accompanied by snow, rain or fog, a fungus disease known as snowmold annually does considerable damage to many fine turf areas, notably golf course greens. Scientific investigations have succeeded in designating *Fusarium nivale* as the snowmold organism. Although snowmold has been known for a comparatively short time in this country, it has been recognized in Europe for over a century. There it has been found in fields of grain in the Scandinavian countries, in Germany and in Austria.

Among turf grasses, strains of creeping bent are subject to infection, susceptibility varying with the species. Red fescue has proved especially susceptible. Kentucky bluegrass is more resistant than fescue, but not as resistant as some strains of bent.

Turf areas in Minnesota, Wisconsin, Michigan and several regions of Canada have been subject to most severe attacks, while reports of the disease on turf as far south as Virginia have been received.

Fusarium nivale (the Latin word "nivale" meaning pertaining to snow) is a fungus organism which remains dormant in the soil during most of the year.

Most *fusaria* develop best at high temperatures, but in this respect *F. nivale* is an exception, growing well at any ordinary soil temperature, but attacking grass only at very low temperatures. Successful inoculations with *F. nivale* were made at temperatures ranging from 32° to 39°



F. At these low temperatures spores are formed either in salmon-colored masses of millions of spores, or singly on the mycelium.

How Snowmold Attacks Grass

Apparently the organism attacks the grass leaves first, and if conditions are favorable invades the stems and roots, although the actual relation between parasite and host is not yet fully understood.

The disease is not directly caused by snow, although the name snowmold has led some to this misconception. Attacks generally appear during or immediately after snowfall periods. Its spread is encouraged by excessive moisture due to melting snow, heavy fog or rain in connection with low temperatures.

It has been observed that when snowfall occurs before the ground freezes, the resultant damage to turf from snowmold is more pronounced. Under such conditions frost does not penetrate the soil to the extent it otherwise would, and the fungus may become active at any time during a thaw when favorable temperatures prevail.

Coverings or mulches of straw which tend to keep the grass wet, especially after growth has commenced in spring also increase the possibility of attacks, and such practices should be avoided.

Saucer-shaped greens and poorly-

drained areas are most subject to severe injury.

Infected areas may be seen as early as December in sections where snow does not remain on the ground throughout the winter and thaws are frequent. During thaws, large snow banks create ideal conditions for the development and spread of the disease.

Snowmold Is Plainly Identified

Viewed from a distance, snowmold may resemble the so-called winter kill injury, but closer inspection reveals characteristic details which will leave no doubt in the mind of the observer as to the identity of the disease.

The affected areas may vary from an inch or so in diameter to several feet, but are commonly seen as more or less uniform-sized patches a foot or less in diameter, straw-like or dirty-gray in color. In the late fall or early spring, strips of green turf may be seen dividing the injured areas. The patches are covered with a scum-like mycelium which takes on a salmon-pink cast on exposure to the sun. Microscopic views may reveal the sclerotia which appear as minute black or reddish bodies scattered over the grass leaves.

Snowmold may be diagnosed on sight once one has become familiar with its details.

Anyone familiar with turf production will readily understand that any treatment administered the grass which tends to produce weak, succulent growth will inevitably increase danger of infection, especially if such methods are employed in the late fall, and extreme caution in this respect is advised. The selection of resistant varieties for planting, and building up a healthy turf through proper fertilizer programs and maintenance methods will pay large dividends, not only as an insurance against snowmold attacks, but from other diseases as well.

With all due precautions in this respect however, the organism is likely to develop under favorable conditions, thus a knowledge of preventive and control measures is imperative.

Describes Control Methods

Snowmold in mild form may be controlled by a brisk brooming or sweeping of the affected areas as soon as they appear. Steel or bamboo lawn brooms are ideal for this purpose. A little detailed attention in this respect assists in eliminating possible permanent injury, and

greatly aids recovery of infected turf.

Waiting until the disease appears, however, may be costly, where environmental conditions favor attacks.

Mercurial fungicides have proven effective and practical in the prevention and control of *Fusarium*. There are a number of commercial fungicides which will be found effective if used according to the manufacturer's directions.

Corrosive sublimate (bichloride of mercury) and calomel have been found satisfactory in preventing snowmold, and may be used in either the dry or liquid form. Dry applications have the advantage of eliminating the use of heavy equipment at a time when some difficulty might be experienced in reaching the areas where treatment is needed, and will serve for possible subsequent winter treatments when water will not be available on the golf courses.

If difficulty is experienced in dissolving corrosive sublimate, adding one pound of common salt to every four pounds of the fungicide will aid in making the solution.

Calomel used in the liquid state requires constant agitation to keep it in suspension, and if used in this form, a power sprayer equipped with a good agitating device is recommended.

A mixture of 1/3 corrosive sublimate and 2/3 calomel is recommended by the USGA in effecting a more speedy and lasting control.

Using 2 to 5 oz. of the fungicide to every 1,000 sq. ft. of turf (the larger amounts being used on areas which are particularly susceptible), dissolve the material in 50 gals. of water and apply with watering cans or sprinkling cart. If a power sprayer is employed, 16 to 20 gals. per 1,000 sq. ft. will give good coverage.

If the dry method is used, mix the required amount of fungicide with a pail of sand for each 1,000 sq. ft. to be treated. Applications should be made as late in the fall as possible.

Snowmold is by no means a matter to be neglected if our sports areas and lawns are to retain a fine standard of maintenance. The increase in occurrence and severity of attacks of this fungus is demanding a more detailed control program on the part of greenkeepers. It is not uncommon for golf clubs to find their greens partially ruined when spring thaws arrive. Many areas which are subject to attack seldom recover until late in the playing season, if at all, and costly repairs are necessary.