

# What You Can Do to Minimize Winterkill

**O**. J. NOER is preparing a program for clubs confronted by conditions Neipp describes in his letter (see box).

Noer points out that players on the 9-hole courses now expect conditions almost equal to those at the famous 18-hole courses where the budgets are big.

On the winter kill problem he commented during a recent Canadian trip:

"Some clubs in Montreal fared badly this year with so-called winterkill. Loss was mostly in parts of greens where there was no heat — exclusively *poa annua*. Kanawaki and Royal Montreal came through good because they have good drainage and good bent cover.

"The problem is not one of getting a fertilizer in the spring to bring the grass back; it is one of eliminating the underlying causes. Good surface and under-drainage comes first; then use of a good grass, such as C-19 Congressional or Washington, is important because both resist snow mold. Late in the fall apply fungicide and again in the spring.

"St. Charles in Winnipeg never loses grass since it switched to Washington many years ago. This club does well with Seaside despite its susceptibility to snow mold."

J. R. Watson, chief agronomist of the Toro Mfg. Co., who has made a major project of winterkill studies for several years, outlined a program that gives the answers to the problem in Duluth.—Editor

**By JAMES R. WATSON**

Each year in the northern U. S. and Canada, much golf course turf is destroyed by so-called winterkill. The loss of turf on greens is by far more serious than that on tees and fairways. The loss on the two latter areas should be minimized but, in comparison, the loss of turf on these areas does not interfere with play to the extent that it does on greens. Too, the investment in greens is much greater and it is more difficult to restore greens to satisfactory playing conditions than tees and fairways.

## **Causes of Winterkill**

Winterkill results from several factors operating alone and in combination. The major factors which influence winterkill may be listed as desiccation, thatch and mat, and snowmold. Heaving which results from alternate freezing and thawing causes some winterkill, particularly of young plants.

*Desiccation* is a physiological phenomenon essentially identical to wilt. It results from the inability of the grass plant to absorb sufficient water to offset that lost by transpiration. Desiccation occurs most often in late winter and early spring when the soil is still frozen and when atmospheric temperatures are sufficiently high to stimulate additional metabolic (growth) activity (beyond that carried on by the dormant turf).

### **What Prompted This Article**

A recent letter from J. C. Neipp of the Duluth Automobile Club, Pike Lake, Minn., called for a lot of help.

The Duluth Automobile Club is the only club in the world with an 87-acre country club on a lake with 500 ft. of beach, a 9-hole course, largest flower gardens in the city, tennis courts and other recreational facilities. The golf fee to the club members is 60 cents per 9 holes.

Mr. Neipp's letter:

I believe there is a real need for a complete operation to insure less winterkill and quicker recovery of greens affected. We, up North, suffer from heavy snow and alternate freezing and thawing conditions in spring. I believe Golfdom can accomplish a real service if you can outline a complete system of preparing greens in the Fall and a doctoring system in Spring to restore greens with serious winter kill.

Up North our springs are late and very cool. We need, I believe, a strong liquid fertilizers to quickly restore the winter damage. I say liquid, because we have so much wind in spring that dry fertilizers (except Milorganite) can't be spread.

I hope someone can give us a complete schedule for better greens control.

Somewhere, someone must come up with an outline to follow that will give us better winter protection.

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Three factors, absence of snow cover, wind movement and temperatures in excess of 32 degs. (approximately), are conducive to desiccation if the soil is partially or completely frozen. The greater the wind movement and the higher the temperature, the more critical the situation becomes. For these reasons, high, exposed areas usually suffer greatest damage.

Thatch and mat (organic accumulation of undecomposed and partially decomposed leaves, stems and roots) contributes to winterkill in a more or less indirect manner. Excessive thatch and mat tends to weaken the plant by reducing root development. Thatch harbors disease organisms and, because of its somewhat impervious nature, reduces the effectiveness of fungicides.

Thatch and its related problems are particularly significant insofar as winterkill is concerned. First, in climatic areas where winterkill is most serious, thatch and mat tend to build up excessively. The degree of natural accumulation is a function of temperature and moisture.

The prevailing climate — cool temperatures, short growing seasons and sufficient moisture to support abundant vegetative growth — of the northern areas is more

conducive to thatch accumulation than to decomposition. Secondly, the heavy thatch and mat accumulations prevent effective control of snowmold, an ever present problem in these areas.

Much basic research is needed on the control of thatch on golf greens.

Snowmold, in addition to causing varying degrees of direct damage to turfgrass, also contributes indirectly to winterkill. Turf attacked by this fungus disease is weakened materially; hence, more subject to destruction by desiccation. For a detailed discussion of snowmold, see article entitled "Snowmold Control" in October, 1956, "Golfdom," and the September-October, 1956, issue of "The Golf Course Reporter."

Heaving resulting from alternate freezing and thawing exposes the root system of plants and hence causes them to be killed, either directly when severe temperatures changes occur, or indirectly because of lack of contact with soil moisture.

*Next Month — Watson discusses protection against winterkill*

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