

WINTER TURF INJURY

We are faced with four major types of turfgrass winter injury in our Mid-Atlantic area.

1. low temperature kill
2. desiccation
3. low temperature disease
4. foot and vehicular injury

Unfortunately in our area all four types of winter injury may be present at one time, but one will usually be dominant and result in greater damage to the grass. This month's newsletter will stress the low temperature injuries, including ice damage to turf.

In low temperature kill the actual killing temperature is determined not by the air temperature, but rather the soil temperature surrounding the grass crown and nodes of lateral shoots such as rhizomes and stolons.

Symptoms — At the time of spring thaw the leaves initially appear water-soaked with a whitish — brown color that turns rapidly to a dark brown. The leaves tend to lay in a limp mat over the soil surface. The damaged area is frequently associated with poor drainage such as depressions or drainage swales where water has been allowed to stand for a period of time. The appearance will vary in a large irregular pattern or patches associated with sites where standing water occurred. In some cases a distinct, pungent odor occurs within 14 days after spring thaw.

The relative degree of low temperature hardiness varies seasonally throughout the winter. Maximum hardiness is reached in December followed by a gradual decline until a minimal hardiness level exists just at the time of spring thaw. At this point, the hydration level of the plant tissues is quite high and thus the plant is most prone to direct low temperature kill during this late winter — early spring period prior to the initiation of growth. Direct low temperature kill may occur as there is a rapid decrease in temperatures to below 20 degrees.

Preventing low temperature injury — Aside from selecting a low temperature hard turfgrass, the most effective method of minimizing low temperature injury is to ensure adequate surface and subsurface drainage. The importance of proper drainage and the avoidance of standing water in depressional areas cannot be stressed too much.

Some cultural practices can either promote the fall hardening off process or increase insulation against low temperature stress.

1. Avoid excessive stimulation of shoot growth — use moderate nitrogen levels.
2. Provide adequate potassium levels to encourage adequate hardening capability.
3. Raise height of cut.
4. Eliminate thatch which serves to elevate the vital crown tissues above the protective layer of the soil.
5. Avoid excessive irrigation that would saturate the soil and increase the degree of crown hydration.

Ice sheets — Contrary to the statements appearing in some literature, ice sheets that cause oxygen suffocation or lethal gas accumulations under the ice cover are not a major concern in the terms of turfgrass winter injury. Most perennial cool season turfgrasses will survive at least 60 days of ice coverage. Serious injury to annual bluegrass can be anticipated if the ice cover remains in place, for a period of 70 to 90 days. (Merion Kentucky bluegrass and Toronto creeping bentgrass have been subjected to ice coverage for up to 150 days with no significant injury.)

Removing ice and snow covers — The best way of minimizing damage associated with ice covers is to ensure that there is adequate surface drainage from the area. From a turfgrass standpoint, the plants should enter the winter at a moderate growth rate with adequate but not excessive nitrogen nutritional levels of potassium nutrition.

The situations that have been documented where ice removal has reduced the degree of winter injury have usually been associated with direct low temperature kill. Rather than breaking up the ice barrier to enhance gas movement, the professional turfman was actually mechanically removing water from the turfgrass area; thus minimizing the degree of crown hydration that could occur and in turn reducing the chance of direct low temperature kill.

Where crown hydration due to standing water and subsequent direct low temperature kill associated with the ice cover is of primary concern, it is important to remove the ice cover and snow prior to periods of anticipated thaw.

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One should not attempt to remove the entire ice or snow cover but should leave a protective layer of between one and two inches remaining on the surface. This modest layer will serve to protect against winter desiccation injury and will also function to a certain degree in insulation against direct low temperature stress.

It is preferable to remove the ice and snow during periods when the turf and underlying soil are frozen in order to minimize damage to the surface itself.

Excerpts from the preceding article were taken from an article appearing in *Weeds Trees and Turf*, Nov. 72, written by DR. JAMES B. BEARD, Professor, Department of Crop and Soil Sciences, Michigan State University.

OUT OF BOUNDS IS REALLY OUT

Canon City, Colo. (AP) - When the golf tournament opens here Saturday all shots over the wall will be unplayable.

The tournament will be held among inmates at the Colorado State Penitentiary medium security unit.

Associate Warden Jack M. Capelli said prisoners have been working for several years to install the nine-hole, par 34 course at the main yards of the medium security section. The longest hole is 325 yards and the shortest is 105.

Reprinted from the "Tri-State News".

MODERN BUG-A-BOO

While the gypsy moth and the fir tree moth eat up millions of acres of our forests and destroy millions of board feet of needed lumber, DDT is banned because it might upset the tummy of some freak fish way out at sea. Protected from harm, Mr. Moth strips the forests and kills billions of trees, displacing birds and wildlife, who are being protected from DDT aftereffects, so they are told, while they shiver and die. So now, the dumbest animal of all, MAN, not only protects murderers and rapists, but gypsy moths, insects & shop lifters. Teach pornography in school, coddle killers, encourage dop addiction, throw bottles and cans along the roadside, drive drunken, but don't touch the gypsy moth or fir tree moth. Please!!

The preceding was contributed by Bob Miller. It is reprinted from *Deere Tracks*, published by The Milton James Co.

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