

Preventing Injury to Frosted or Frozen Turf

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Each fall turf superintendents are faced with the problem of how to protect fine turf areas such as putting greens, athletic fields, fairways and lawns from frost injury. Later in the season the problem expands to include the management of turf areas while they are frozen and also during freezing and thawing.

Any traffic on turf while frost is present results in injury to the turf. For example, walking across a frosty putting green results in the death of the grass blades in the footprints. The same is true for a vehicle driven over frosted turf. There is

Any traffic on frosted turf causes injury.

usually little or no damage to the crown or roots.

The preferred management practice for frosted turf areas is to prevent all traffic until the frost has melted.

Turning to the management of freezing, frozen or thawing turf areas, it is helpful to keep in mind that the most severe damage from traffic occurs during the freezing and thawing processes. Traffic of any kind should be prevented while either of these processes are taking place. Limited traffic may be permitted under certain conditions when the ground is frozen solid.

While the turf and soil are in the process of freezing, cells are particularly vulnerable to damage from traffic. Areas of turf that would otherwise remain alive have frequently been killed by traffic during the freezing process.

Bentgrass and other species of cool season turf are also vulnerable to injury from traffic during the thawing process. The most



Damage caused by foot traffic across a partially frozen lawn. (Photo courtesy Davey Lawnscape)

If you leave footprints on turf, further thawing is needed.

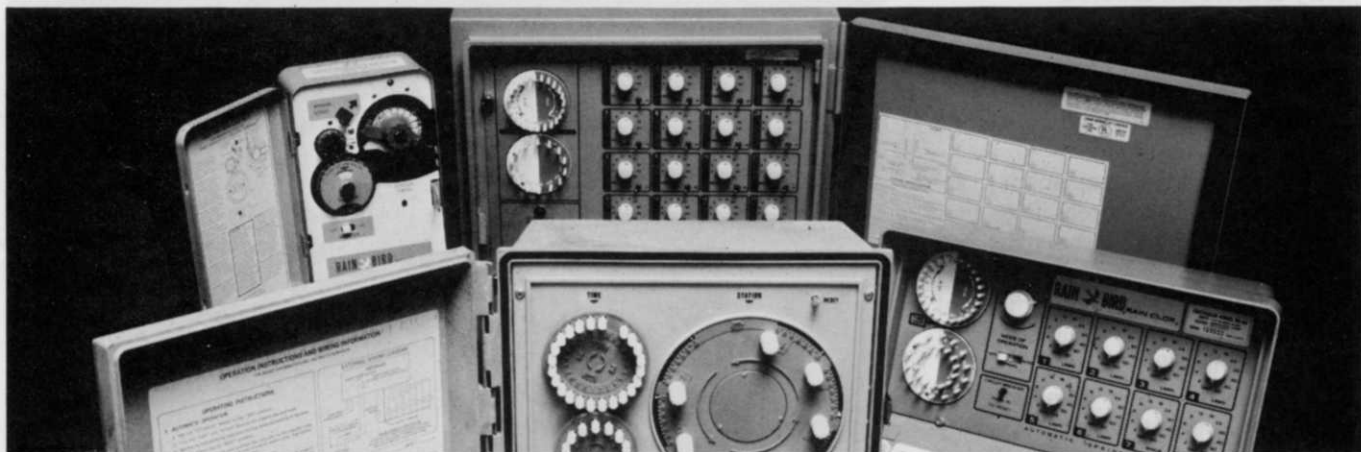
vulnerable time is when the surface of the green has thawed but the soil just underneath the surface of the green remains frozen. This is true from the time the surface of the green begins to thaw and may remain true until the green has thawed to a depth of perhaps 2 to 3 inches. During this period, roots are easily injured by traffic. Furthermore, the frozen portion of the green prevents the internal drainage of moisture, resulting in a condition where the green is too wet for play.

After the turf has frozen solid and enough time has elapsed for the frost and ice to disappear from the surface of the blades and from the cells within the blades, little damage occurs from play so long as the area remains firmly frozen and traffic is limited to individuals walking, running, etc. Golf cars and heavier vehicles should not be permitted on high priority turf areas. While light play can be permitted under these conditions, heavy traffic may result in

injury to the blades by abrasive action resulting from crushing the turf between the foot and the firmly frozen surface.

The most pressure to open golf courses and playgrounds usually occurs when the weather moderates following a cold spell and players want to get on the turf before the soil has had an opportunity to thaw deep enough to avoid injury to the turf. Good judgement dictates that the golf courses, playgrounds and similar turf areas should be opened as early as possible under these conditions, but not so soon that the turf is injured. A rule of thumb to consider under these conditions is to permit play if the soil has thawed and dried to the point that the surface of the turf is firm enough to support a person's weight without leaving footprints as he walks across it. When you feel your foot sinking into the soft upper portion of the turf, play should be avoided. □

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