



TURFAX™



of the  
International Sports Turf Institute, Inc.

Volume III Number 1

January-February 1995

TURFAX™ — The International Newsletter about Current Developments in Turfgrass

©1995 International Sports Turf Institute, Inc. - All rights reserved.

CONTENTS:

- Winter Ice Cover Problems?
- Upcoming JB Visitations.
- Upcoming International Events.
- JB Visitations.
- Publications Available
- Comparative dollar spot (*Sclerotinia homoeocarpa*) susceptibility of seventeen bentgrass (*Agrostis* spp.) cultivars under putting green conditions

The goal of this 6 issue per year newsletter is to provide international turf specialists with a network for current information about turf. It is FAXed to all Institute Affiliates that use the ISTI technical assistance services on an annual basis. FAXing is more costly, but ensures quick delivery to those outside the United States.

For non-affiliates, a TURFAX™ subscription is available by annual payment of U.S. \$60.00. Payment may be made by sending a check to the address below. Foreign orders please send a check or money order on a U.S. bank.

Payment of the 1995 subscription to TURFAX™ of \$60.00 is now being accepted from our 1994 subscribers.

WINTER ICE COVER PROBLEMS?

The injury mechanism and factors influencing low temperature kill were discussed in the most recent Turfax™. In the past four decades numerous writers have included ice cover damage caused by oxygen suffocation or toxic gases accumulation under the ice layer as being a major causes of winterkill. A survey of the turfgrass research literature on this subject reveals no valid scientific data to support this ill-founded concept.

One specific published study and numerous "real-world" field observations demonstrate that C<sub>3</sub> cool-season, perennial turfgrasses readily survive more than 50 days under dense ice coverage with no injury. A commonly published guideline advises removal of an ice cover after 20 days in place. There is no validity to this guideline as related to the fibrous roots and small crowns of perennial grasses. The 1960's origin of this 20-day maximum is based on Wisconsin studies with the very fleshy, high carbohydrate tap rooted alfalfa species. Physiologically, the root-crown system of this legume and of a turfgrass are drastically different.

The most complete ice cover study was conducted at Michigan State University by the author and Research Technician Jack Eaton. Three mature turfs, creeping bentgrass (*Agrostis stolonifera* var. *stolonifera*), Kentucky bluegrass

Production Editor: Harriet Beard

Direct inquiries to: International Sports Turf Institute, Inc.  
1812 Shadowood Drive,  
College Station, Texas 77840 USA.

Telephone: (409) 693-4066.  
Fax: (409) 693-4878.

(*Poa pratensis*), and annual bluegrass (*Poa annua* var. *annua*) were allowed to fully harden well into December in East Lansing, Michigan, and then 4-inch (100 mm) turf plugs drawn. The turfs were placed in ball jars, filled with water, and slowly frozen. Then the top was capped off with a small amount of water, the cover plate with a rubber gasket ball jar sleeve screwed tight, and the ice encasement system frozen. There were four replications involved, with the turfs encased in ice being held at 25°F (-4°C) for 15-day durations up to 5 months. A set of 4 replications were removed at 15-day intervals, thawed slowly, and evaluated for turf survival in a glasshouse.

PERCENT PLANT SURVIVAL AFTER 50 TO 150 DAYS BEING ENCASED IN ICE AT 25°F (-4°C).

Turfgrass species	Days encased in ice						
	50	75	90	105	120	135	150
creeping bentgrass	0	0	0	0	0	0	0
Kentucky bluegrass	0	0	0	0	0	0	0
annual bluegrass	0	0	100	100	100	100	100

The results as summarized in the accompanying table revealed that both creeping bentgrass and Kentucky bluegrass survived 5 months or 150 days of dense ice encasement without significant injury. In contrast, the annual bluegrass was killed between the 75th and 90th days. These results revealed that ice coverage for up to 150 days should not be of concern where creeping bentgrass and Kentucky bluegrass turfs are involved. However, for annual bluegrass an ice coverage exceeding 75 days is of concern. After 75 days of ice coverage efforts should be taken to remove the ice sheet by powered mechanical means down to within 1-inch (25 mm) of the turf surface.

A common occurrence associated with ice covers is turf kill in a pattern directly associated where the ice cover that existed the previous winter. Typically, ice coverage would be in place for a much shorter time than 150 days.

The mechanism for this type of kill is direct low temperature kill as discussed in the last Turfax™. Turf kill occurs (a) prior to freeze-up of the ice cover, (b) following a period of extensive water accumulation which increases the grass crown hydration level, and (c) a subsequent very rapid freeze to below 20°F (-7°C). Turf kill also may occur during the thawing period when the resultant standing water where the ice cover existed causes increased crown hydration and is then followed by rapid freeze to below 20°F (-7°C). These crown hydration situations followed by a rapid freeze typically occur in locations where ice covers were observed during the winter. Thus, the confusion in which the ice covers are assumed to directly cause the turf injury, when in fact that is not the case.

#### UPCOMING JB VISITATIONS:

Provided for Institute Affiliates who might wish to request a visitation when I'm nearby.

- February 21 to 27 - San Francisco, Calif.
- March 6 to 9 - Sioux Falls, South Dakota.
- March 17 to April 4 - Kuala Lumpur, Malaysia.
- April 17 to 19 - Columbus, Ohio.
- May 3 to 5 - Orlando, Florida.
- May 14 to 20 - Buenos Aires, Argentina
- June 1 to 9 - Italy, Europe

#### UPCOMING INTERNATIONAL EVENTS:

February 20 to 27, 1995. GCSAA International Golf Course Conference and Show. San Francisco, California, USA. The theme is "Golden Opportunity." Host site the Moscone Center.

Contact: Golf Course Superintendents Association Conference Registration, Dept. 458, P.O. Box 419263, Kansas City, Missouri, 64193-0458, USA.

Phone: (913) 832-4430.

Fax: (913) 832-4420.