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GCSAA Founded in 1926



The Golf Course Superintendents Association of America (GCSAA) was founded in 1926 at Sylvania Country Club in Toledo, Ohio. The original organization, the National Association of Greenkeepers of America (NAGA), was formed by 60 greenkeepers, the forerunners of today's professional golf course superintendent.

The fledgling association's original purposes were much the same as they are today: to advance the art of science of golf course management, to form a closer relationship among the superintendents of the U.S. and Canada and to inform and educate its membership. However, though the organization's goals remain the same, its scope has broadened tremendously in its 63 years of operation.

Today the GCSAA is a world wide organization serving more than 9,000 in 42 countries, with a full-time staff of 42 and an annual budget of more than \$6 million.

The history of GCSAA is one of progress and growth, tempered by the social changes and events of the past six decades. In the 1930s, the organization suffered a major setback when its bank in Cleveland closed its doors, wiping out the organization's assets. A Depression-era recovery was followed by World War II, which also brought the organization's activities to a halt. The annual meeting, educational conferences, the annual golf championship tournament and the issuance of new membership certificates were put on hold while the nation turned its attention toward the war effort.

The post-World War II economic boom fueled a growth in the golf industry that spurred the organization's growth and influence as well. By 1957, GCSAA membership passed the 1,000 member mark,

and association offerings included an annual conference and show, a monthly publication, an annual golf championship and publication of educational materials.

Today, the GCSAA's annual International Golf Course Conference and Show is the premier event of the golf course management industry, boasting over 550 exhibitors and more than 17,400 attendees in 1990. The association's monthly magazine, *Golf Course Management*, is the leading publication in the industry, with a circulation of more than 20,000. The GCSAA Scholarship and Research Fund has raised and disbursed more than \$600,000 toward development of the turfgrass industry since its inception in 1956. The Robert Trent Jones Endowment Fund, named for the noted golf course architect, specifically funds GCSAA scholarships.

The association also continues to pursue its original educational goals by providing its membership with everything from seminars and formal instruction to educational videotapes, cassettes and printed materials. A voluntary certification program, which was instituted by the Association in 1971, secured professional status for golf course superintendents throughout the world by upgrading and enhancing the professionalism of its members. Today, there are more than 1,000 Certified Golf Course Superintendents.

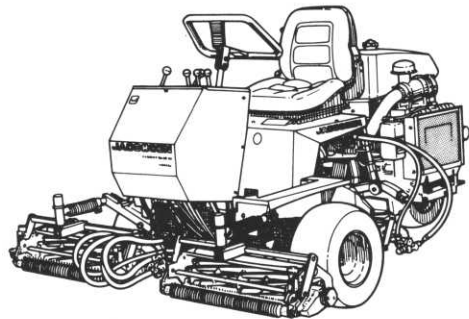
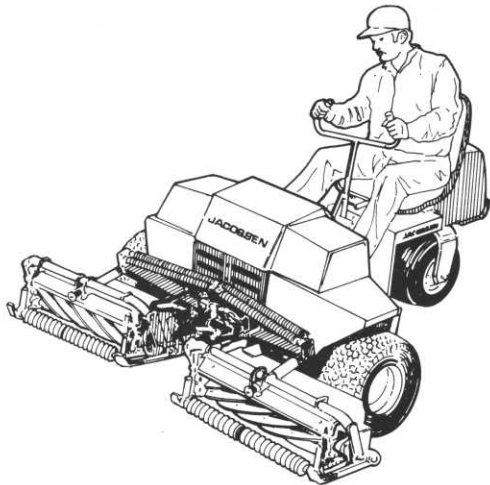
GCSAA recently established a Government Relations Program to cultivate relationships with sources of information concerning government affairs, report this information to GCSAA members and provide regulatory officials and legislators with information on the golf course management industry.



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Course Superintendent Testifies On Golf's Environmental Impact

Speaking about the environmental safety and benefits of golf courses, William R. Roberts, CGCS, an officer of the Golf Course Superintendents Association of America (GCSAA), testified March 28 before the Senate Environment and Public Works Subcommittee on Toxic Substances.

As part of the hearing on the use, regulations and potential health risk of commercially applied chemicals on turfgrass, Roberts' testimony highlighted two areas in which GCSAA is considered to be the industry leader:

Research into the Effect of Turf Chemicals on Groundwater — An independently conducted, GCSAA-funded study completed on Cape Cod, Mass., showed that virtually no turf chemicals move through the soil structure into groundwater and that golf courses which employ best management practices in their application of turf chemicals can greatly minimize the risk of potential groundwater leaching.

Educational Programs — The membership of GCSAA is responsible for preserving the delicate balance of the golf course environment and, to that end, has developed a highly structured educational and certification program for its members.

Roberts, a golf course superintendent at Lochmoor Club, Grosse Pointe Woods, Mich., was invited to testify by Sen. Harry Reid (D-Nev.) because of GCSAA's recognized leadership in the field of turf chemical application and research.

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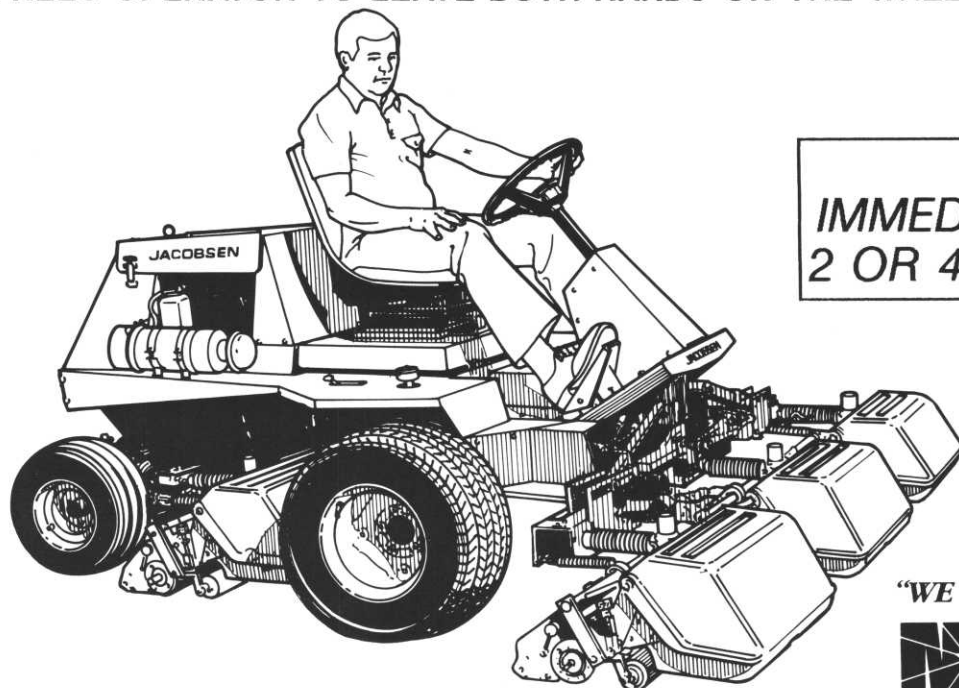
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Groundwater, Turf Management and Public Perception

By Michael L. Agnew, Extension Turfgrass Specialist
Horticulture Department, Iowa State University

Groundwater is defined as any water which occurs beneath the surface of the earth in a saturated geological formation of rock or soil. It accounts for the drinking water of half the total United States population and 95 percent of the rural population. At one time, groundwater was generally thought to be protected from contamination by impervious layers of subsoil, clay, rock and the soils' own degradation process. However, in 1979 the pesticide Aldicarb was found in wells on Long Island and in Wisconsin. This, along with detection of nitrate in groundwater, forced groundwater contamination to become the top environmental issue.

The primary sources of groundwater contamination can be classified as either point source or nonpoint source contamination.

Point source contamination can be traced back to a specific source. In 1988, the U.S. Environmental Protection Agency reported that deficient septic tanks, leaking underground storage tanks and agricultural activities (i.e. fertilizer application) were the most frequently cited sources of groundwater contamination.

A nonpoint source of contamination is one that cannot be traced back to a specific source. In waters that did not meet state use designations by the EPA, nonpoint sources of pollution were cited as the cause of water quality degradation in 76 percent of lake acres, 65 percent of stream miles and 45 percent of estuarine water. Examples of nonpoint sources of contamination include agricultural fertilizer and pesticide runoff, agricultural fertilizer and pesticide movement through the soil, and sediment from construction sites.

Factors Influencing Contamination

Understanding the soil type, solubility of chemicals, water table depths, topography and vegetation can assist in the site evaluation for groundwater protection.

Soils that have higher infiltration and percolation rates are more susceptible to groundwater contamination. Sandy soils, modified sand golf greens and modified sand athletic fields are examples of areas having high percolation rates. With the exception of native sandy soils, these areas are constructed in a 12 to 24-inch soil profile with water diverted from the modified soils to soils with lower percolation rates. However, native sandy soils can be found in most states. These areas are common near streams, rivers and lakes where water levels may be near the surface. These soils are highly susceptible to groundwater contamination.

The solubility of pesticides can directly influence groundwater contamination. The EPA has identified several turfgrass pesticides as having potential for leaching into the groundwater. They are Carbaryl, Chlorothalonil, 2, 4-D, DCPA, Dicamba,

Fenamiphos and Trifluralin. Only a few of these products actually remain soluble in water. The Farm Chemical Handbook provides information on pesticide solubility.

Fertilizer sources also vary in their rate of solubility. Nitrogen is more likely to move into the groundwater when present in the soil in a soluble form. Soluble forms of nitrogen include synthetic nitrogen sources (ammonium nitrate, ammonium sulfate, calcium nitrate) and urea. Slow-release nitrogen sources have a lower water solubility than the soluble forms of nitrogen. Within the slow-release nitrogen group, some slow release nitrogen sources are more soluble than others. For example, ureaform and milorganite are less soluble than short chain methylene urea.

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- Ammonium Sulfate
- Calcium Nitrate

Synthetic Organics

- Urea

The depth of the water table directly affects the susceptibility of the groundwater to contamination. Shallow water tables are more likely to be contaminated than deep aquifers. In Iowa, much of the drinking water is from shallow water sources.

The topography of the site also influences the movement of fertilizers and pesticides. Heavily sloped areas are more likely to lose water, nutrients and pesticides through runoff. All other conditions being the same, it stands to reason that the greater the degree of slope, the greater the water loss due to the increased velocity of water flow. The length of the slope also influences the movement of fertilizers and pesticides. The greater the extension of the sloped area, the greater the concentration of the flooding water.

The presence of vegetation on the soil surface will greatly affect the loss of fertilizers and pesticides through both runoff

(Continued on Page 27)

Groundwater—

(Continued from Page 26)

and leaching. The kind of grass, the thickness of the stand and the vigor of its growth greatly affect runoff and are of great importance in the control of pesticide and fertilizer movement. A thick, healthy stand of cultivated turfgrass is much less susceptible to runoff than are pastures. Pastures are more compacted and are not as thickly vegetated as lawns. In research conducted at Penn State, nutrient loss through runoff was greater on seeded sites than on sodded turfgrass sites. The loss of water by percolation is also less on vegetated lands than bare soil. The roots of a turfgrass plant will be in the upper 8 to 12 inches of the soil profile. These roots are excellent extractors of soil water.

In summary, sand turfgrass sites treated with soluble chemicals are more prone to leaching loss, whereas heavy clay turfgrass sites on sloped areas are more prone to runoff loss.

Management Practices that Protect Groundwater

The manager of a turfgrass site has ultimate control on protecting the groundwater. This is especially true for sandy turfgrass sites. Thus the nitrogen source, nitrogen application rates, timing of nitrogen application and irrigation practices can directly influence groundwater contamination on sandy sites.

As stated previously, slow-release nitrogen sources have a lower solubility than inorganic nitrogen sources. Slow-release nitrogen sources are recommended for use on sandy soils. Research has shown that nitrate leaching is less when applied as a natural organic form (Milorganite) or a synthetic organic form (ureaform).

If soluble nitrogen sources are preferred, rates should be adjusted to prevent movement through the soil profile into the groundwater. For example, nitrogen applications with urea on high sand content golf greens should be at a rate of .1 to .25 lb. N/1000 sq. ft. per application. Anything greater may leach below the root zone. Once this occurs, the nitrogen is no longer available for plant use. However, if slow-release nitrogen sources with a high water insoluble nitrogen ratio are used, N rates can be as high as 2 lb. N/1000 sq. ft. per application on Kentucky bluegrass.

Certain types of weather will favor nitrogen leaching. For instance, cool rainy weather favors the movement of nitrogen beyond the root zone into the groundwater. Increased leaching potential occurs because cool temperatures decrease denitrification, volatilization, microbial activity and plant nutrient uptake. Thus, application of high rates of nitrogen on sandy sites during the late fall, winter or early spring can lead to nitrate movement into the groundwater.

Irrigation practices that result in water movement below the root system will increase potential nitrogen and pesticide leaching. Irrigation on a daily basis during cool months will increase leaching losses. On the other hand, infrequent deep irrigation to well below the root system will more than likely move nutrients with the water. Irrigation should only be provided to replace what water has been removed by plant uptake and evaporation.

Public Perception

The turfgrass industry is a highly visible industry. The presence of a lawn care applicator only increases the fears of some people. They perceive that the applications of fertilizers and herbicides to lawns is contaminating the groundwater. In

reality, the application of fertilizers may well be more beneficial in protecting the groundwater than contaminating it. The healthy, more dense lawn will become a buffer to both runoff and leaching losses of both pesticides and nitrogen. In most cases, the person treating lawns is a highly trained individual with equipment specially made for such an application, while the average homeowner does not possess the equipment or the knowledge to apply fertilizers and pesticides safely.

Misapplication of chemicals can adversely affect the groundwater. However, a healthy, dense turfgrass stand is the first step in protecting the groundwater.—(From *Iowa Turf Grass Grower*)

Brookview's 18-Hole Course Closed for Repair of Greens

Brookview's 18-hole course in Golden Valley is closed for the 1990 season, according to Course Superintendent Greg Spencer.

Fifteen poa annua greens are being rebuilt. The other three were reconstructed previously. Under the supervision of architect Garrett Gill, Arnt Construction began the work on April 18.

"We would have had to play 14 temporaries if we stayed open this year," said Spencer. "We hope to open the course again next spring."

Meantime, Brookview's nine-hole course remains open for play.

Record Set for Foreign Visitors at Golf Course Show

The worldwide nature of the golf boom was evident from the record number of foreign visitors who attended February's International Golf Course Conference and Show held in Orlando, Fla.

Nearly 1,600 international guests representing 44 countries outside the United States took part in the event, sponsored by the Golf Course Superintendents Association of America.

The previous record of 1,030 for international attendance was set at the 1989 show in Anaheim. This year's attendance reflects an almost 55% increase in visitors from outside the U.S.

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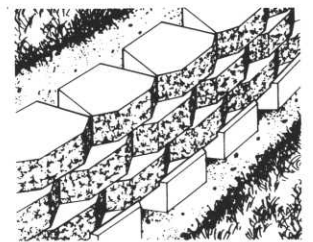
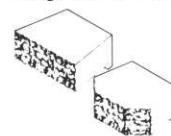
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Golf Course Operations Must Supply Information About Hazardous Chemicals

Congress recently approved the largest appropriation to date — \$27 million for fiscal 1990 — for the U.S. Environmental Protection Agency to implement the federal right-to-know act, specifically to encourage local emergency planning. Congress also has ordered the Federal Emergency Management Agency (FEMA) to prepare, by March 31, a study on the major threats facing communities and local emergency management coordinators.

In 1986, the U.S. Congress enacted the Emergency Planning and Community Right-To-Know Act (EPCRA) as a response to growing concerns about the effects of chemical releases on communities. The act (1) supports emergency planning efforts at the state and local levels, (2) provides citizens and local governments with information concerning potential chemical hazards present in their communities and (3) establishes enforcement procedures and civil, administrative and criminal penalties for non-compliance.

Subtitle A establishes the framework for emergency planning by state and local governments by calling for the creation of state emergency response commissions and local emergency planning committees. These local panels are designed to work on emergency response plans in cooperation with representatives of facilities — including golf courses — covered by the law.

Subtitle B, which was designed to provide information to appropriate local, state and federal officials on the type, amount, location, use, disposal and release of chemicals, includes three reporting provisions:

Section 311 applies to all facilities, such as golf courses, that are subject to the Occupational Safety and Health Act of 1970 and subsequent OSHA regulations. The owner or operator of a golf facility must submit material safety data sheets (MSDSs) or a list of the chemicals for which the facility is required to keep MSDSs to state emergency response commissions and local emergency planning committees and fire departments.

Updates are due within three months after OSHA regulations require the owner/operator to prepare or have availa-

ble an MSDS for a specific hazardous chemical. A revised MSDS must be submitted for significant new information regarding a chemical for which an MSDS was previously submitted.

Also under Section 311, EPA can establish threshold quantities for hazardous chemicals, so that no reporting is required if a facility has a below-threshold amount of a hazardous chemical.

Section 312 requires facilities covered by Section 311 to submit a chemical inventory form annually by March 1. The inventory forms must contain an estimate of the maximum amount of the hazardous chemicals present at the facility during the preceding year, an estimate of the average daily amount of hazardous chemicals at the facility and the location of these chemicals at the facility.

Section 312 calls for two reporting “tiers.” Tier I requires only general information on the amount and location of hazardous chemicals at the facility. Tier II information, which need not be submitted unless requested by the state commission or the local planning committee or fire department, requires more detailed information about each chemical.

Section 313 requires EPA to establish an inventory of toxic chemical emissions from facilities that meet certain criteria. The information will be used to establish a computerized national database accessible by the general public.

Under Section 313, owners and operators of certain facilities must complete a toxic chemical release form for specified chemicals, reflecting releases during the preceding calendar year, to be submitted to EPA and state officials on or before July 1.

Facilities that use more than 10,000 pounds of a single listed toxic chemical or that manufacture or process more than 25,000 pounds total of any of the listed chemicals must submit toxic chemical release forms. These forms request information on the maximum amount present at the location treatment and disposal methods and annual quantity released into the environment for each listed chemical or chemical category.

The initial list of toxic chemicals subject to reporting requirements consists of 329 entries, including 20 categories of chemicals. EPA’s administrator may add or delete chemicals on the list based upon an agency determination of health or environmental hazards. State governors and the public may petition the administrator to add or to delete from the list.

Title III of EPCRA outlines trade secret protection and enforcement procedures:

Section 322 applies to trade secret claims under reporting requirements for emergency planning and Sections 311, 312 and 313. Even if specific chemical identity of an extremely hazardous substance or chemical is allowed to be withheld as a trade secret, the generic class or category of the chemical must be provided.

Section 323 requires that chemical information withheld from the public as a trade secret must be made available to health professionals for diagnostic purposes and emergency assessment activities. In these cases, the person receiving the information must be willing to sign a confidentiality agreement with the facility.

Section 325 provides for enforcement procedures and penalties as follows:

- Civil penalties for owner/operators not complying with emergency planning requirements
- Civil, administrative and criminal penalties for owner/operators not complying with emergency notification requirements following the release of a listed hazardous substance
- Civil and administrative penalties for owner/operators not complying with reporting requirements in Sections 311, 312 and 313
- Civil and administrative penalties for trade secret claims that are ruled frivolous
- Criminal penalties for disclosure of trade secret information.

How EPCRA Works In Minnesota

As a response to growing concerns about the effects of chemical releases on communities, the U.S. Congress enacted the Emergency Planning and Community Right-To-Know Act (EPCRA) in 1986. The act supports state and local emergency planning efforts and provides citizens and local governments with information concerning potential chemical hazards present in their communities by requiring reports from businesses — including golf courses — that deal with hazardous chemicals.

Minnesota's own 1986 Hazardous Substance Exposure Act provides for on-site inspections and public disclosure of workplace data if public health and safety are at risk. Another state law passed in 1986, the Community Emergency Response Hazardous Substances Protection Act, requires employers to submit to local fire departments a hazardous substance information report and any requested update information. Community right-to-know legislation enacted in 1989 establishes the state emergency response commission, codified federal EPCRA requirements into state law and requires public sector facilities to report hazardous substance information.

The State Department of Health administers the Hazardous Substance Exposure Act, while the state Department of Public Safety administers the Community Emergency Response Hazardous Substances Protection Act and the Community Right-To-Know Act.

The laws apply to all Minnesota golf course operations.

Local fire departments are responsible for distributing hazardous substance report forms to employers and then maintaining files of the completed forms. The form, developed by the state Department of Public Safety, must contain the following information:

- Range of maximum combined quantities of all hazardous substances contained in each designated hazard category present in the workplace
- Street address and any other special workplace identifier
- Employer's name, address and telephone number
- Telephone numbers of employer emergency contact representatives who can be reached at all times.

If requested, golf facilities must provide the fire department with copies of material safety data sheets (MSDSs) and clarification of any information provided on the hazardous substance notification form within 30 days.

Upon request, local fire departments will provide MSDS and hazardous substance notification form information to emergency response personnel.

The State Emergency Response Commission is authorized to assess fees to recover costs for data management, including a \$10 fee per MSDS when a facility submits MSDs instead of the required list of hazardous chemicals, as well as other filing fees and late fees.

The Minnesota Department of Health may conduct on-site inspections to investigate the actual, suspected or potential release of a hazardous substance in order to determine community exposure and risk.

Information gathered during on-site inspections may be disclosed to individuals or the community if:

- Evidence confirms that the individual or group requesting the information may have suffered or is likely to suffer illness or injury from exposure to a substance
- Evidence of a community health risk exists and the Minnesota Department of Health seeks to have the employer cease an activity that results in the release of a hazardous substance
- The information is required by physicians to diagnose, treat or prevent illness or injury.

A civil penalty not to exceed \$1,000 may be assessed for each violation of Minnesota's Community Emergency Response Hazardous Substances Protection Act.

The state emergency response commission may take legal action in state district court to punish EPCRA violations. A fine of up to \$25,000 may be assessed for violations of EPCRA emergency release notification requirements. Repeat violators may be assessed a fine of up to \$50,000.

Community Right-To-Know Contacts

For emergency release notification, call

800/422-0798 from outside the Minneapolis/St. Paul area or 612/649-5451 from within the metropolitan area.

For general information, call the Emergency Response Commission at 612/643-3000. For emergency planning notification and document submissions, call the commission at 612/296-0488.

Submit follow-up emergency release notification, MSDSs, chemical inventories and annual toxic chemical release forms to State Emergency Response Commission, 290 Bigelow Building, 450 N. Syndicate St., St. Paul, MN 55104.



Chester Mendenhall Honored by USGA

Chester Mendenhall, who helped pioneer the role of the modern superintendent during the post-World War II golf boom, has been named the recipient of the 1990 Green Section Award of the United States Golf Association.

The announcement was made by F. Morgan Taylor Jr., chairman of the USGA Green Section Award Committee.

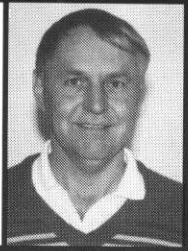
The award has been presented by the USGA annually since 1961 in recognition of distinguished service to golf through work with turfgrass. Mendenhall was honored at the Golf Course Superintendents Association of America Conference and Show, in Orlando, Fla.

As golf expanded in the 1950s and 1960s, Mendenhall led the way to make sure golf course superintendents kept pace. He actively participated in the growth and development of new machinery, the use of new chemicals, and the improving management techniques of those vital years.

A charter member of the Golf Course Superintendents Association of America, he was elected in 1948 as the organization's 12th president. In 1968 he received the Distinguished Service Award from the GCSAA.

EDITOR'S CORNER

By Bill Johnson
Edina Country Club



"How did the course come through the winter?"

That is a question asked of Minnesota superintendents many times every spring. If your answer to that question is "Great! The greens, tees and fairways all survived in good shape, and we are going to open soon," you are very fortunate.

If, however, your answer is, "Not so good, we lost a large amount of poa annua on some greens, tees and fairways, and we may have to play some temporaries for a while," it is not much fun. I speak from experience, because we have had it both ways at Edina Country Club.

I believe Dr. Don White once said, "In Minnesota, we could expect to have weather conditions, leading to potential loss of a large percentage of poa annua, about once every five or six years.

With the exception of these past two years, I believe that estimate is fairly accurate. In the 25 years that I have been superintendent at Edina, we lost substantial amounts of poa annua in 1965, 1976, 1980, 1985, 1989 and again in 1990.

The weather conditions have varied from the open, mostly mild winter we just had, to a winter with large amounts of snow, along with an ice layer for a prolonged period in 1965.

The results are the same: poa annua lost mostly to direct low temperature kill. This potential situation occurs most often in late winter-early spring freezing and thawing period. When the soil is either covered with water, or is saturated, the grass plant may become full of water (hydrated) also.

This condition, followed by a rapid decrease in temperature, causes large ice crystals to form within the plant tissues, causing mechanical destruction of the frozen, brittle protoplasm. The higher the water content of the tissue, the larger the ice crystals, and the more severe the kill. The late winter-early spring period just happens to be the time when the turf is least hardy, and most susceptible to damage of any type.

Added to this is the fact that poa annua is much more susceptible to damage of this type than bentgrass, and it leaves those of us with a large amount of poa annua in a very precarious position.

At ECC we have been covering our greens since 1985, and, needless to say, I am less than pleased with the results we have had. Although there are covers that have provided excellent results, unfortunately, we have not been using them. I hope some conclusions regarding green covers will come out of the winter golf course preparation survey.

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