

Chemical Log

Keeping Pesticide Application Records

By Mary Owen

Successful managers maintain and use records in several aspects of their operations, including budget, personnel and labor records, inventories of materials and fuel, turf management cultural practices, as well as applications of pesticides, fertilizers and other materials.

The intent of this article is to discuss the keeping of pesticide application records as a regulatory requirement and decision making tool.

Why Keep — Pesticide Application Records?

The first and most important reason is to comply with regulations. Federal law requires that specific records be kept of applications of restricted-use products. In addition, most state laws require the

recording of specific pieces of information regarding the application of not only restricted-use but also general-use pesticides. The regulatory authority for your state may lie within the department of agriculture, the department of environmental protection, the department of environmental management or a similar body. Contact the appropriate authority in your state for specific regulations as well as sample pesticide record-keeping forms.

Second, pesticide application records provide documentation that may be needed for community right-to-know situations, for technical information in cases of accidents or emergencies, or for other cases in which documentation is needed. In some cases, well kept records can be used to support the need for additional pesticide registrations.

Third, carefully kept and analyzed records can be used as a basis for improved decision making. You can evaluate the effectiveness of materials, rates and timing chosen for the management of a specific target pest. Well kept records can serve as a basis for improved budgetary and buying decisions. They can provide a track record of material performance and field performance over time.

What Type of Information Should the Records Contain?

Specific entries required may vary from state to state. Check with your appropriate authority to determine the base data to record. The following is a suggested list of entries, along with a brief explanation and a sample entry.

Place of application. Record the specific field and its location, and include the size of the area to which the application was made. "Memorial practice fields, School St., Waterfield, MA — 3.5 acres."

Date of application. Include month, day and year of application. "4-10-96."

Brand or product name of the pesticide. Use the manufacturer's trade name of the product applied. "Keep-It-Green Crabgrass Preventer."

Active ingredient of the pesticide. Use the generic name of the product applied. "Pendimethalin."

EPA pesticide registration number. This number is listed on the label of the pesticide. It is not the EPA establishment number. "640-007."

Amount of pesticide applied to the site. Both the rate of application and the total should be recorded. "Rate: 2.5 lbs./acre. Total: 8.75 lbs."

Purpose of application. Record the pest(s) or problems for which the application was made. "Pre-emergence crabgrass control."

Method of application. How was the material applied — hydraulic sprayer, granular spreader? "Hydraulic Sprayer."

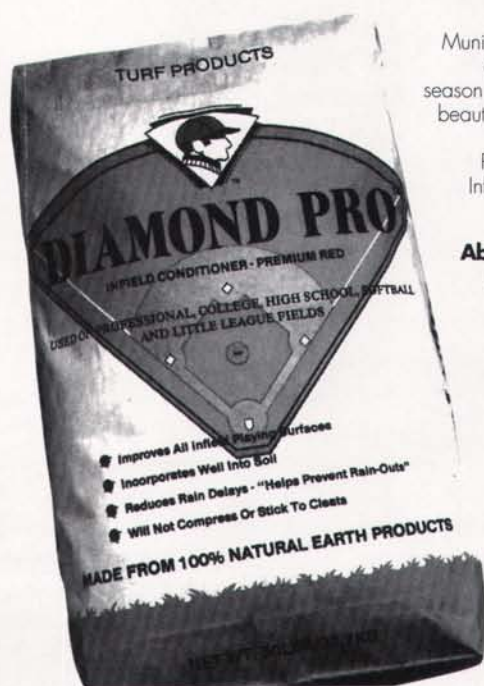
Effectiveness of application. Did the application result in sufficient control of the pest or management of the problem? "95% control; some crabgrass invasion in northwest quadrant."

Applicator. Applicator's name and, if pertinent, pesticide license number. "Samuel Jones; MA license #012345."

Accidents, etc. Record accidents, spills, incidents and injuries resulting from the application. "None."

Weather and other prevailing conditions. Describe weather and environmental conditions before, during and immediately after the application. "Dry. High temps. in low 60s, low temps. in high 30s. Soil temp. at midday: 48 F."

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Mary Owen is a turf specialist at the University of Massachusetts Extension and a member of STMA.

Protecting Turf from Winter Injury

By John M. Roberts

The short days and cool temperatures of fall signal the start of winter dormancy for turfgrasses.

Considering the heavy play most sports fields receive in early spring, it's critical that turf survives the winter. Damaged fields rarely have enough time fully to recover before the words "play ball" will be heard.

"Winter kill" is a generic term used to describe any loss or injury of turf during wintertime. From a prevention standpoint, it's helpful to break down the major causes of winter injury into more specific categories, which include the following: direct low temperature, traffic, winter desiccation, crown hydration damage (alternating freezing and thawing temperatures in wet soils), and low-temperature diseases. Ice covers are generally considered to be "indirectly" responsible for turf injury by forming a gas impermeable lens that creates an unhealthy environment for the turf below.

In a nutshell, the following preventive measures will help turf survive the winter.

High Fall Potassium Levels

Research continues to demonstrate potassium's benefit to turfgrass by improving its tolerance to various environmental and biological stresses, including drought, wear, heat and winter damage.

Potassium is highly water-soluble and easily leaches from plant tissues and sandy soils having a low cation exchange

capacity. As a result, unexpected potassium deficiencies can occur. The use of slow-release potassium sources or more frequent, light applications throughout the year helps prevent this loss.

While potassium levels should remain high throughout the growing season, late fall is an especially important period for winter survival. In effect, potassium acts like antifreeze within a turf, enhancing its winter hardiness. Applying low nitrogen, high potassium fertilizers (1:2 to 1:5 ratios) in late fall continues to be popular among grounds managers to provide fields with potassium for the winter.

Low Nitrogen During Hardening

Approximately 30 to 40 days before winter dormancy, known as the winter hardening period, nitrogen (especially fast-release sources) should be used sparingly. Other practices that encourage active growth during this period are also discouraged. Unlike potassium, nitrogen during the hardening period increases tissue hydration levels and stimulates new growth, producing tissues that have thin cell walls. The net result of this overstimulated growth is turf more susceptible to freezing stress and winter diseases.

Drainage, Drainage and More Drainage

One of the key principles in reducing winter damage on sports fields is to provide rapid soil drainage. Poorly drained fields are highly vulnerable to an array of winter injuries. Unless the drainage is improved, it's usually just a



A spring photo of a fall perennial ryegrass seeding compares a control plot (right) to one that was covered during the winter with a geotextile. Photo courtesy: John Roberts.

question of time before large sections of turf are lost.

Both the subsoil *and* the surface need to drain freely. Installing drain lines, constructing fields with coarsely textured soils, and aerifying to relieve compaction help improve the water infiltration and percolation rates. To reduce standing water and accelerate surface runoff, fields in the northern states are often crowned (14 to 18 inches) to compensate for the impervious nature of frozen soils (even sandy textures).

Avoid Overwatering in Late Fall

Late fall irrigations should be either avoided (preferably) or, if necessary to prevent drought stress, lightly applied. A grass plant prepares for winter by undergoing a number of physiological changes, including a dehydration of its tissues. This "drying out" condition in late fall is necessary for turf stands to achieve their maximum levels of winter hardiness. Otherwise, wet or saturated tissues are especially susceptible to direct low temperature kill, winter diseases and crown hydration injury.

Increase Mowing Heights

If feasible, skip the last mowing or raise the mowing height by 1/2 inch in mid fall. This allows turf to increase its carbohydrate reserves, which are vital for winter survival. Investigators have shown turfgrasses to be particularly vulnerable to winter injury during the late winter and early spring when carbohydrate levels are at their lowest. Warning! Turfgrasses are generally

more susceptible to snow molds at higher mowing heights.

Remove Excess Thatch

Thick thatch layers tend to dry out quickly and serve as a harboring place for snow mold fungi. Winter disease and desiccation damage will be reduced if coring or thatch removal is practiced during the year. Late fall aerification may lead to desiccation around the coring holes during winters when there is no snow cover.

Traffic Control

The brittle tissues of frozen turf during the winter are prone to injury by traffic. The most severe damage seems to occur when bare or slush-covered ground exists. Snow (especially dry snow) acts like an insulator, protecting the turf below from traffic and direct low temperature injury.

Disease Prevention

Two of the most common and destructive low-temperature fungi are the two snow molds, pink and gray. Like *Typhula*

blight (gray), pink snow mold can occur under snow, or is often observed in the absence of snow cover during cool (less than 50 degrees F), wet weather in fall, winter or spring. Gray snow mold is common in northern regions that receive more than 90 days of snow cover. It is particularly severe when snow covers partially or completely unfrozen ground.

A combination of fungicides and cultural practices is needed to provide acceptable levels of control in locations where disease pressure is high. Cultural practices that improve drainage, reduce thatch and maintain a balanced fertility program (moderate nitrogen levels) help reduce both diseases. In general, contact-type fungicides are used for the prevention of gray snow mold and should be applied within a few days of snowfall.

Protective Blankets, Topdressing or Straw

Protection from low temperature injury, earlier spring green-up, and reduced desiccation are just a few of

the benefits synthetic covers, topdressing, straw or the selective placement of snow fences can provide. Geotextile covers are also used to protect young seedlings and speed up germination or regrowth between hash marks and around the goal mouths of soccer fields.

Unfortunately, winter covers are not a panacea and will not solve all winter problems, including ice-related damage and crown hydration injury. Unless treated, cool-weather diseases are also more damaging under covers.

Summary

A better understanding, innovative ideas, genetic breakthroughs and even small miracles might be necessary to eliminate all forms of winter injury. However, using today's "best management practices" that promote rapid soil drainage and encourage healthy, winter-hardened turf going into winter is a grounds manager's best line of defense. □

John Roberts is an extension turf specialist at the University of New Hampshire.




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The Orange Bowl enhanced Florida Chapter #1's meeting with its beauty and history.

Florida STMA Goes to the Orange Bowl

The warm sunny weather that attracts so many tourists to Miami was in full force on August 6 as nearly 50 Florida STMA Chapter #1 members and guests gathered at the Orange Bowl. President Tom Curran and Treasurer John Mascaro welcomed attendants, gave state of the chapter reports and outlined the events of the day.

National STMA's executive director, Steve Trusty, followed with a presentation on the benefits of national membership and details on what National provides to the chapter affiliates. These chapter visits are funded by chapter sponsors John Deere and The Scotts Company to encourage an ongoing dialogue between National and local chapters that will strengthen the effectiveness of both.

Dale Sandin, facilities grounds and turf manager for the Orange Bowl, spoke on "Managing the Orange Bowl." That beautiful facility, often the highlight of college football bowl games and the playoff for the number one ranking, seldom gets a rest. The full schedule of multiple uses — along with Florida's heat, humidity, and alternating periods of too wet or too dry conditions — makes sports turf management a constant challenge.

Sandin has invested 20 years in the Orange Bowl, bringing to the job solid turf experience from his previous position as a golf course superintendent.

Sandin explained that regrading the Orange Bowl for Olympic soccer matches began in the summer of 1995 when a wall was moved back ten feet. The field was sodded with 42-inch rolls of 419 bermudagrass in early 1996, right after the football season. Sandin noted that they got some bad sod, and the rolls used for replacement were a darker green than the original. The supplier said that extra fertilizer applied in the growing fields made the difference and the color would even out, but as of the meeting date, that hadn't happened. Sandin also had problems getting good rooting on the sod, though he followed his standard procedures. So far, there's no explanation for the rooting problem. He explained the adjustments he had to make in irrigation to compensate.

Security for the Olympics was intense. Sandin said that all fertilizer had to be removed from the premises because it was viewed as a possible ingredient for bombs.

continued on page 19



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STMA in ACTION

continued from page 14

All shipments had to be checked by security and marked. Anything found without the proper marking stamp was dealt with as if it was a bomb. Bomb squads scoured the stadium daily.

Flexibility was the key. Sandin and crews fit field repair, mowing, irrigation and other maintenance into the intervals between games. Sandin needed to be on the field at all times during the games to be at the beck and call of the officials. For example, the officials changed their idea on how the players' benches were to be placed, which meant Sandin was repainting lines during the opening ceremony.

He noted that he didn't have any real hassles because he followed his regular practice of trying to anticipate problems and keep them from occurring.

Attendants then moved down to the field. Sandin described maintenance practices in greater detail and encouraged input and suggestions on his program. The flow of comments back and forth among attendants provided useful tips to all.



John Mascaro demonstrates the Turf-Tec Soil Sampler. Photos courtesy: Steve and Suz Trusty.

John Mascaro demonstrated the Turf-Tec Soil Profile Sampler, pulling "slices" for examination. This not only showed the proper sampling technique, but also allowed the group to examine the Orange Bowl soil profile and turf development.

With so much history surrounding them, attendants couldn't resist discussing past games and their favorite great plays.

The meeting wrapped up with Sandin conducting a behind-the-scenes tour of the rest of the stadium, including the press boxes, dressing rooms, and equipment storage area.

Iowa Chapter: The Iowa Sports Turf Managers Association is planning a meeting on football and baseball post-season repairs October 15 at Upper Iowa University, Fayette, IA.

A meeting on football and soccer post-season repairs will be held November 5 at Iowa State University and Ames High School in Ames, IA.

Both meetings will include sessions on the following: field inventory and prioritizing; seeding and overseeding practices; aeration and topdressing; irrigation alternatives; and soil sampling and turning test results into a fertilization program. Vendor displays will be included at each meeting site, and time will be allocated for meeting with the vendors.

For more information, contact Lori Westrum at The Turf Office: (515) 232-8222 (phone) or (515) 232-8228 (fax).

Minnesota Chapter: The Minnesota Chapter annual meeting will be held in conjunction with the Minnesota Turf and Grounds Foundation (MTGF) Conference, December 11-13 at the

continued on page 20

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continued from page 19

Minneapolis Convention Center. For more information on the MTGF Conference, contact Executive Director Scott Turtinen at (612) 473-8169.

For information on the annual meeting, the Minnesota Chapter or other upcoming activities, contact Brian Deyak at (320) 255-7223.

Florida Chapter #1: The Florida Chapter will meet from 7:45 a.m. to 4:45 p.m. on October 24 in conjunction with the Dade County Extension Office educational program. CEUs will be issued. The meeting will be held at Miami-Dade Community College in Kendall, FL. For further details on this meeting, contact Alan Fehrman at (305) 248-3311, extension 227.

A meeting is being planned for December 3 at Homestead Stadium in Homestead, FL. Baseball field maintenance and preparation will be the focus of this meeting.

For more information, contact John Mascaro, (305) 938-7477.

Southern California Chapter: The Southern California Chapter will "do it again," adopting for their 1996 field renovation project the combination field-hockey/soccer/football field of Rancho Buena Vista High School in Buena Vista, CA, on October 25 and 26. The chapter will meet at the school on October 25. The group will finalize the renovation plan, then move outdoors for hands-on demonstrations of the tasks that will be involved. On October 26, the volunteers will converge on the field for the renovation work day. Plan now to join in this hands-on experience of learning and giving.

For more information, contact Chris Bunnell at (619) 432-2421.

Colorado Chapter: For information on the Colorado Chapter or upcoming events, call the 24-Hour CSTMA Chapter Hotline/FAX: (303) 438-9645 and leave a message. Or contact Troy Smith, Denver Broncos, at (303) 649-9000.

Midwest Chapter: For information on the Midwest Chapter or upcoming events, call the Chapter Hotline: (847) 439-4727.

STMA Chapters on the Grow

Great Plains: The Great Plains Sports Turf Managers Association will hold its next meeting on Wednesday, October 30. For information on the chapter or pending events, contact Mark Schimming, of Wichita Baseball Inc., at (316) 292-2907, extension 205.

Arizona: The Sports Turf Managers Association of Arizona has scheduled a Floyd Perry-conducted Sports Turf and Grounds Maintenance Workshop for Tuesday, October 1, in Scottsdale, AZ. Morning sessions include football, softball and baseball topics. Afternoon sessions will focus on hands-on demonstrations covering both turfed and skinned areas of a ball field.

For more details, contact Bill Murphy, City of Scottsdale Parks and Recreation Department, at (602) 994-7954. □

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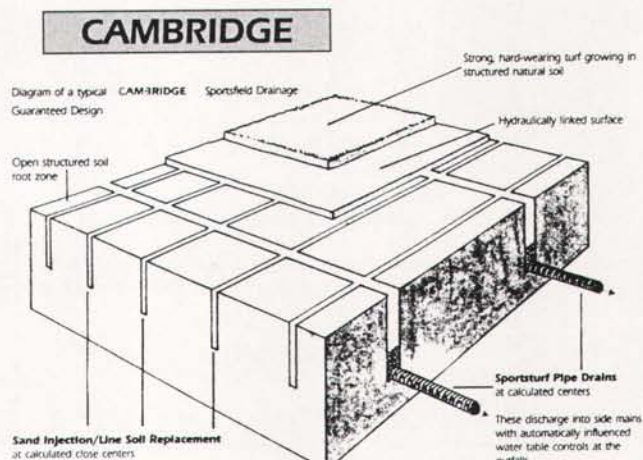
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