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Understanding Frost Delays

Presented by the Minnesota Golf Course Superintendents' Association

As winter starts to give way to spring-like temperatures, the desire to hit the golf course intensifies. It also signals a change in golf course management activities that can affect one's game and the conditions found on the course.

In many regions of the country, golfers occasionally face frost delays in the spring, thus pushing back starting tee times. When frost is present golf course superintendents delay play until the frost has melted. This is done to prevent damage that affects the quality of the playing surface and could potentially be very expensive to repair.

Frost is basically frozen dew that has crystalized on the grass, making it hard and brittle. A grass blade is actually 90 percent water, therefore it also freezes. Because of the short mowing height (sometimes as low as 1/8 inch) and fragile nature of the turf, putting greens are most affected by frost. Walking on frost-covered greens causes the plant to break and cell walls to rupture, thereby losing its ability to function normally. When the membrane is broken, much like an egg, it cannot be put back together.

Golfers who ignore frost delays will not see immediate damage. The proof generally comes 48-72 hours later as the plant leaves turn brown and die. The result is a thinning of the putting surface and a weakening of the plant. The greens in turn become more susceptible to disease and weeds. While it may not appear to be much of an issue if a foursome begins play early on frost covered greens, consider the number of footprints that may occur on any given hole by one person is approximately 60. Multiply that by 18 holes with an average of 200 rounds per day and the result is 216,000 footprints on greens in a day or 6,480,000 in a month.

As golf enthusiasts superintendents do not like to delay play, but they are more concerned about turf damage and the quality of conditions for the golfer. Frost also creates a hardship on a golf facility's staff as all course preparations are put to a halt until thawing occurs. Golf carts can cause considerable damage, therefore personnel cannot maneuver around the course to mow, change cup positions, collect range balls, etc.

One technique employed to reduce possible frost damage is to raise the cutting height of mowers to create a hardier surface. It may also be possible to reroute play to holes where the frost melts more quickly. But regardless of these methods, the best medicine is for all to understand the hows and whys of the delay and in turn gain a greater appreciation for the golf course. It would also be wise to give the course a phone call before heading out to play to see if tee times have been pushed back due to frost.

For more information regarding golf course maintenance and etiquette, contact your local superintendent or the Minnesota Golf Course Superintendents' Association at 800-642-7227.

Minnesota Golf Course Superintendents' Association

What's Up With Clopyralid in Compost?

By BRUCE KIDD, *Dow AgroSciences*

(Editor's Note: Paul Diegnau, CGCS, Keller Golf Course, forwarded this article to Brian Horgan's new turf website www.turf.umn.edu and we felt it was worth reproducing in Hole Notes. Recently, an issue has surfaced regarding the herbicide Clopyralid (Confront) and composting on the West Coast. Below is a copy of an e-mail from Bruce Kidd of Dow AgroSciences to Mr. Larry Stowell of Pace Consulting. Mr. Kidd may be reached at Dow AgroSciences, 39962 Via Espana, Murrieta, CA 92562 or by e-mail at bekidd@dow.com.)

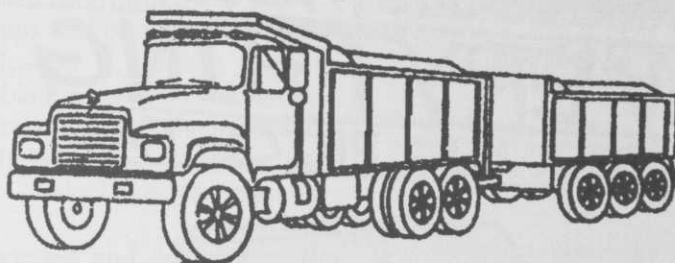
You may have heard about a developing issue concerning detection of the herbicide active ingredient, clopyralid, in compost. Clopyralid is manufactured by Dow AgroSciences and contained in several products including Confront, Lontrel, Transline, Millenium and more. Here's what's going on:

Clopyralid is active via foliar and root uptake on a narrow spectrum of broadleaf plants. The half-life of clopyralid in soils varies widely depending on soil type, temperature and biological activity. Microbial activity is essential to degrade clopyralid in soils. Turf clippings treated with clopyralid may contain ungraded residues of the herbicide. Recycled into the turf, clopyralid may then remain available to control weeds like clover and dandelion. When treated clippings are recycled into landfills, and greenwaste is processed into compost, the degradation pathways for clopyralid are disrupted. Specific microbes present in the soil

that degrade clopyralid are either not present or are killed during the composting process. The result is that trace amounts of clopyralid may pass through the composting system and be present in the finished product. When this is compost used in vegetable gardens, traces of clopyralid as low as 10 ppb have been observed to caused injury to a few susceptible garden vegetables such as tomatoes and beans. While there have been no reports of vegetable injury yet in California, several instances were reported in Washington state. This has led to calls from the compost injury to restrict the use of clopyralid-containing herbicides to protect the integrity of compost.

The problem of clopyralid persistence in compost is currently under extensive scientific review by Dow AgroSciences, University researchers and the compost industry. Unfortunately, news of the problem has also been picked up by the media, resulting in the appearance of numerous inflammatory articles online and in the editorial pages of newspapers such as the LA Times. While much of the reporting has been fair, numerous inaccuracies have been perpetuated and the perception of a widespread problem has escalated significantly. Last week, Washington State cancelled the use of clopyralid on residential lawns, but allowed its continued use on golf courses and other turf areas where clippings

(Continued on Page 14)



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Clopyralid—

(Continued from Page 13)

are not collected for recycling. I don't want to predict what will happen in California, but it is quite likely that a similar action will be taken here as the state acts proactively to prevent the problem from occurring.

In general, the compost industry has behaved very responsibly as the problem came to light, and continues to work with Dow to determine appropriate solutions. The question of what's in compost is a very sensitive matter, due to the many unknown components that enter the urban recycling stream and become part of the composting process. Heavy metals, plant and human pathogens, and various "biosolids" (a euphemism for human and animal waste) all have to be dealt with at levels far higher than a few parts per billion. A great many compromises have to be made in order that the greater good of recycling be achieved.

If you or your customers have questions about this issue, please feel free to contact me. I can refer you to Dow's regulatory group if more information is required. Here are a few facts I'd like to leave you with:

* This is not a human health issue, nor a groundwater or environmental contamination issue. Clopyralid in compost is an issue solely due to the phenomenal activity of clopyralid at extremely low rates on highly sensitive plants species, some of which are weeds, and some of which happen to be common garden vegetables.

* For clopyralid to be an issue in compost, turf clippings must first be collected and sent to a compost facility. The vast majority of golf courses, and most parks, do not collect and recycle their clippings, but instead mulch them back into the turf, where clopyralid can continue to do the job it was placed there to do.

FACTS ABOUT CLOPYRALID

* To the best of our knowledge, there has not yet been a single report of plant injury due to clopyralid residues in compost in California.

* Clopyralid residues have been detected at 11 ppb one time in unfinished greenwaste from Miramar landfill in San Diego County, but repeated tests did not find any additional detection of clopyralid.

* Recent tests by the City of Los Angeles on its greenwaste did show a positive reading for traces of clopyralid.

* Once compost is added to the soil, the degradation process for clopyralid presumably continues until harmless levels are achieved.

* When used for weed control in turf, clopyralid is used at lower rates, less frequently, and with greater safety to the turf and to the applicator than other broadleaf weed control products.

For more information, you might also want to log in on the web site of the California Integrated Waste Management Board, www.cawmb.ca.gov and follow the links.

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MGCSA Turf Student and Legacy Scholarships

By JEFFREY JOHNSON
MGCSA Scholarship Chairman

The MGCSA Scholarship Fund, originating in 1987, is now taking applications for the 2002-2003 scholarship year.

The MGCSA scholarship is an annual grant awarded to candidates interested in pursuing a career in golf course management. Students that possess high scholastic capabilities and have superior performance as an employee on the golf course are encouraged to apply.

Turf Student Scholarships will be available to students completing the first year of a two-year turfgrass technical program or students completing the second year of a four-year or baccalaureate program with a major emphasis in turf management. Candidates must be a resident of Minnesota or be employed by a MGCSA member. The MGCSA Scholarship Committee processes and determines recipients for the scholarships. Applicants for these scholarships have until July 1 to return completed applications to the MGCSA business office. The Trans-Mississippi Golf Association will also have monies available for turf scholarships. Two \$2,000 scholarships will be awarded this year.

Two \$1,000 Legacy Scholarships will be awarded for the 2002-03 school year. One Joseph S. Garske Legacy Scholarship of \$2,000 is renewable for a second year in the recipient completes an application and meets the minimum standards set by the Citizens Scholarship Foundation. Also available is one \$2,000 Joseph S. Garske Legacy Scholarship to a new recipient.

Legacy Scholarships are processed and determined by the Citizens Scholarship Foundation (CSF) of America. In no instance will any member of the MGCSA play a part in the confidential selection process of Legacy awards. These scholarships will be awarded to high school seniors or graduates who study at an accredited two or four year college, university or vocational-technical school. Recipients of the Joseph S. Garske award and at least one of the MGCSA awards must be children or grandchildren of Class AA, A, B, or C members (for at least three years) of the MGCSA. A child or grandchild who qualifies of Class D, Associate, or Affiliate members (for at least three years) of the MGCSA would also be eligible for the second MGCSA Legacy Scholarship. MGCSA Legacy awards are for one year only. However, students may re-apply to the program each year that they meet the requirements. The Joseph S. Garske Legacy Scholarship is renewable for a second year if the recipient completes an application and meets the requirements set by CSF. Applications must be in by June 1, 2002.

Scholarship recipients are selected on the basis of academic record, potential to succeed, leadership, and partici-

pation in school and community activities, honors, work experience, a statement of education and career goals, and an outside appraisal. Students are eligible to apply for both a Turf Student Scholarship and a Legacy Scholarship, but are only allowed to receive one.

Applications for each of the scholarships are available on request by contacting the MGCSA business office. A personal photograph will be requested of successful applicants to accompany articles published in *Hole Notes*.

APPLICATIONS FOR 2002-2003 MGCSA SCHOLARSHIPS AND LEGACY AWARDS ARE NOW AVAILABLE

The MGCSA provides scholarships to students attending college or vocational programs at any accredited post secondary institution.

Scholarship recipients are selected on the basis of academic record, potential to succeed, leadership and participation in school and community activities, honors, work experience, a statement of education and career goals and an outside appraisal.

The MGCSA Legacy Awards offer educational aid to the children and grandchildren of Class AA, A, B, C, D and Affiliate members who have been active members.

Questions regarding the scholarship program
should be addressed to:

MGCSA SCHOLARSHIP COMMITTEE
240 Minnetonka Ave S., Suite 212
P.O. Box 617
Wayzata, MN 55391

Phone: (952) 473-0557 Fax (952) 473-0576
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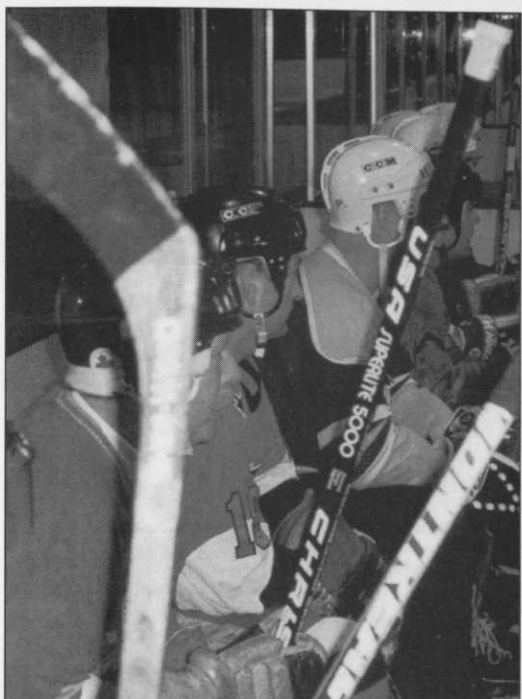


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THE FIRST ANNUAL HOCKEY GAME BETWEEN THE MGCSA AND THE MINNESOTA SECTION OF THE PGA was a lot of fun and no one got hurt! Outmaning the pros by a few players was a bonus for the MGCSA as the game went on and bench time became a welcome site. However, the first annual hockey game spoils go to the golf pro's after MGCSA co-captain Kevin Clunis, CGCS, announced near the end of the session that the next goal wins. One final burst by the golf pro's provided the difference. More games are being scheduled!

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- Our service technicians keep current on the latest technology through annual factory training.
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- MTI offers a variety of shipping options and we ship all orders placed by 3:00 pm the same day.

To Education

MTI's interest in customers doesn't end with the sale. The purchase is just the beginning. We believe strongly in providing training and educational opportunities for our customers.

- When you purchase Toro commercial golf equipment, MTI will train your staff to take advantage of the incredible features of the equipment and will provide tips for safe and efficient operation.
- Our commitment to continuing industry education is realized each winter, as we offer MTI University, a comprehensive roster of courses designed to heighten industry knowledge.

To Being Here When You Need Us

MTI has been in business since 1948, and we're as committed to our customers today as the day we first opened our doors. With the strength and stability of the Toro Company behind us, you can count on MTI to be here for the long haul. Our veteran employees have devoted their careers to the turf industry. Quite simply, they know turf. They're here, armed with vast knowledge, ready to serve you.



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MGCSA Membership Report

New Members: February 26, 2002

	Class
Dave Lorentz Twin Pines Golf Course..... Rt. 2, Box 77C, Bagley, MN 56621 W: 218-694-2454	B - GCSAA (pending)
Jesse Gatowski Hudson Golf Club..... 748 B Wilfred Rd., Hudson, WI 54016 W: 715-386-9262	C
Brian Moffitt Sawmill Golf Club & Loggers Trail Golf Club..... 2566 Ariel St. N., North St. Paul, MN 55109 W: 651-439-7819	C
Aaron Moren Eagle Ridge Golf Course..... P.O. Box 128, Bovey, MN 55709 W: 218-245-2217	C
Mark Plombon Sawmill Golf Club..... 2243 11th St., White Bear Lake, MN 55110 W: 651-983-2824	C
Edward Tietel New Ulm Country Club..... 408 4th N. St., #3, New Ulm, MN 56073 W: 507-354-6510	C
Brett Wenzel Keller Golf Course..... 4836 Carolyn Lane, White Bear Lake, MN 55110 W: 651-766-4173	C
Matthew Blomquist Northland Country Club..... 2211 W. 11th St., Duluth, MN 55806 W: 218-525-1941	D
Rodney Christy Giants Ridge Golf & Ski Resort..... 1191/2 5th Ave. N., P.O. Box 25, Biwabik, MN 55708 W: 218-865-4143	D
Michael Hall Edinburgh USA / Penn State University..... 9539 Oliver Ave. N., Brooklyn Park, MN 55444 W: 612-812-5756	Student
Vic Peterson Country Club Turf..... 9109 Glacier Rd., St. Bonifacius, MN 55375 H: 952-446-8222	Affiliate
Mark Stennes Top Notch Tree Care..... 462 Old Hwy. 8 SW, New Brighton, MN 55112-7707 W: 763-253-0027	Affiliate
RECLASSIFICATIONS	
Jeff Normandt Valley High Golf Course.....	B to A - GCSAA
Kurt Knox Interlaken Golf Course.....	C to B - GCSAA
Lee Mahnke Chippewa Valley Golf Course.....	C to B - GCSAA
Ross Pudenz St. Croix National.....	C to B - GCSAA
William Vollbrecht Eagle & Glen Lake Golf Courses.....	C to B - GCSAA
Clifton Cline Hillcrest Golf Club.....	D to C

Submitted by Daniel Swenson
Membership Chairman