# Handling Pesticides Responsibly

Pesticides are valuable to any integrated pest management program. However responsibility goes hand-in-hand with the benefits of pesticide use.

As a golf course superintendent, you need to protect yourself, your workers, your players and your community from possible injury. The way to do this is to know all there is to know about all precautions to take when applying chemicals that require safe application procedures.

Accidents will happen, but many accidents are avoidable. Most accidents result from careless practices or lack of knowledge about safe pesticide handling. Pesticides have four routes of exposure:

- The Mouth. Pesticides can come in contact with your mouth from your hands, food eaten with unwashed hands, cigarettes or other tobacco products, or splashes of pesticide.
- The Skin. Your skin can be exposed when you handle and open pesticide packages, adjust sprayer nozzles, contact spray mist, touch pesticide spills or broken hoses, wear pesticide-contaminated clothing or fail to wear adequate protective clothing and equipment.
- The Eyes. If you are not wearing eye protection, pesticides can get into your eyes from accidental splashes, pesticide blowing in the wind, or your hands if you rub your eyes without washing your hands first.
- The Lungs. Without protective equipment, pesticides can enter your lungs from inhaling fumes, dust or fine mist, from prolonged exposure to pesticides in poorly ventilated areas, from re-entering a pesticide-treated area too soon, or from using inadequate equipment.

### PROTECTING YOUR BODY

You can help prevent pesticide exposure by wearing the right clothing and using the correct equipment. Follow all directions and precautions that appear on product labels.

Make sure all your employees understand what they should be wearing. Require them to wear protectiv equipment whenever they are handling pesticides.

The following are various items of protective clothing and equipment you should consider for yourself and your employees who will be handling pesticides.

- Body Covering. Always cover as much skin as possible with long-sleeved coveralls, shirts or pants. They should be clean, dry, and free of holes and tears. Collars and cuffs should fit snugly when you fasten them.
- Gloves. Liquid-proof neoprene gloves are recommended for handling liquid pesticides. The gloves should be long enough to protect your wrists. However, they should not be lined with fabric because fabric can absorb chemicals. Keep sleeves outside your gloves to help prevent chemicals from seeping down inside your gloves.
- Hat. A wide-brimmed hat will protect your neck, eyes, mouth and face. You also can attach a protective hood that attaches to special coveralls. The hat should not have a cloth or leather sweatband. Consider a plastic, liquid-proof hard hat that's cool in hot weather.

- Boots or Shoes. Neoprene boots are recommended when you handle large quantities of pesticides because canvas, cloth or leather shoes can absorb pesticides. Sturdy shoes and socks are sufficient for some lighter applications. Wear pant leg outside to keep pesticides from seeping into your boots or shoes.
- Apron. It's a good idea to wear a rubber apron when mixing and handling liquid pesticides. It gives you a lot of protection against spills, container leaks and broken hoses.
- Goggles or Face Shield. Wear eye protection anytime there is any chance of pesticides getting in your eyes. Eye protection is an absolute if you are mixing pesticides marked *Warning* or *Danger*. If you wear prescription glasses, use a face shield.
- Respirator. A dust mask is no substitute for a proper respirator. There are several types of acceptable respirators, with cartridge and canister types being the most common. Choose the correct respirator for the types of jobs that you are doing. Be sure the respirator is approved for pesticide use and that it fits the applicator. Keep the respirator clean and change filters regularly. Respirators may feel uncomfortable, but they're good insurance.

#### PESTICIDE HANDLING PRECAUTIONS

Make safety part of your regular routine. Train your employees to follow safe practices. Don't let new hires handle pesticides until you are sure they understand and will follow correct procedures.

The following are some special precautions you should consider making part of the routine procedure.

- What you wear to handle pesticides should be used for this purpose only.
- If your clothing becomes contaminated, change immediately. Don't wait until you've finished the job.
- Always wear neoprene gloves when you handle and rinse contaminated clothing.
- Wash clothing and protective equipment daily. Always wear clean clothes each day.
  - Empty all pockets of any pesticide granules outside.
- Keep contaminated clothing in containers separate from all other laundry and always wash contaminated clothing separately.
- Test gloves for leaks by filling them with water and gently squeezing. If you find leaks, get a new pair of gloves.

#### TAKING CARE OF SPILLS

Despite the best precautions, accidents do happen. Make sure your employees understand how to handle a pesticide emergency. Post lists of emergency procedures in easy-tofind locations. Keep a copy of procedure in all trucks.

The first thing to do in a pesticide emergency is don't panic. Call the local fire department and state pesticide authorities immediately. Seek first aid for anyone injured.

(Continued on Page 22)

HOLE NOTES 11

# Highlights of Recent Changes to the USGA'S Green Construction Recommendations

### By ROBERT VAVREK USGA, Green Section

The USGA's recommended method for putting green construction has been revised three times during the last 30 years. Each revision was an effort to integrate the current level of scientific knowledge with the sound practical experience of the Green Section staff. The underlying intent of the USGA has always been to provide a method for greens construction with the highest potential for success under a wide range of environmental conditions.

During 1991, Dr. Norm Hummell, associate professor at Cornell University, spent his year on sabbatical leave working with the USGA to update and standardize the laboratory procedures used by various labs that test the construction materials used to build putting greens. After an extensive review of the scientific literature pertaining to the use of high-sand content root zone mixtures for turf, a number of revisions to the USGA specs were recommended.

An advisory committee of soil scientists and Green Section staff was assembled to review the recommendations. After review, the proposed revisions were submitted to an international group of approximately 30 soil scientists, lab personnel, architects and industry personnel for comment and further suggestions. The USGA has utilized a broad base of scientific knowledge and practical experience to achieve several goals regarding the current revisions:

- 1) To increase confidence in the specs by standardizing lab procedures:
- 2) To reduce the cost of building greens to USGA specs by removing unnecessary steps during construction and to provide more flexibility in choosing construction materials;
- 3) To utilize the most current level of scientific knowledge to develop a comprehensive set of recommendations;
- 4) To identify areas in our knowledge of greens construction methods that are poorly understood and will require further research efforts in the future.

The following is a summary of the major changes:

**SUBGRADE:** The subgrade can be shaped to facilitate drainage and need not conform exactly to the proposed surface contours. However, the contours of the gravel layer must closely conform to the finished grade.

A geotextile fabric may be used between the gravel layer and an unstable subgrade soil, i.e., muck, expanding clay, etc.

**DRAINAGE:** Drainage trenches shall be a minimum of 8 inches (20 cm) deep.

Drain lines shall be installed no more than 15 feet (5 m) apart.

The main line shall be extended for a short distance from the back/high side of the green to facilitate the installation of a clean-out port.

A perimeter (smile) drain shall be installed along the low edge of the green/surrounding-soil interface and shall extend to the first set of laterals.

**GRAVEL:** Angular particles are preferred for stability—to facilitate shaping; pea gravel is, of course, acceptable.

Gravel of questionable weathering/mechanical stability must pass the LA Abrasion test and/or the sulfate soundness test—ASTM tests C-131 and C-88, respectively.

The need for an intermediate sand layer can only be determined by a soil laboratory and depends upon the relationship between the particle size distributions of the gravel and the root zone mix.

Where an intermediate sand layer *is* required, no more than 10% of the gravel can be retained on a ½-inch sieve, at least 65% must pass through a ¾-inch and be retained on a ¼-inch sieve, and no more than 10% can pass through a 2-mm sieve.

PARTICLE SIZE DISTRIBUTION OF A USGA ROOT ZONE MIX

FINE GRAVEL	VERY COARSE SAND	COARSE	MEDIUM	FINE SAND	VERY FINE SAND	SILT	CLAY
3.4 mm to 2.0 mm	2.0 mm to 1.0 mm	1.0 mm to 0.5 mm	0.50 mm to 0.25 mm	0.25 mm to 0.15 mm	o.15 mm to 0.05 mm	0.05 mm to 0.002 mm	LESS THAN 0.002 mm
MAX 3%		AT LEAST 60%		MAX 20%	MAX 5%	MAX 5%	MAX 3%
10% MAXIMUM GREATER THAN 1.0 mm		PARTICLES MUST BE WITHIN THIS RANGE			10% MAXIMUM LESS THAN 0.15 mm		

**INTERMEDIATE SAND LAYER:** The acceptable particle size has been expanded from 90% of the particles between 2 mm and 1 mm, to 90% between 4 mm and 1 mm.

**ROOT ZONE MIXTURE:** The acceptable particle size distribution of the USGA root zone mix is summarized in the accompanying table.

Allowance has been made for more fine sand (0.25 mm - 0.15 mm) but less very fine sand (0.15 mm - 0.05 mm).

The peat source must be a minimum of 85% organic matter by weight. Other organic composts should be aged for at least one year and must be proven to be non-phytotoxic

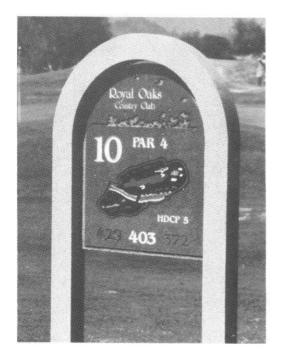
(Continued on Page 21)

### AN ATTRACTIVE SIGN WITH LONG-LASTING BEAUTY

# **CYLEX**

### Granite





Check us out at the new Inverwood Golf Course

### As natural as the earth itself

- -Available in any shape
- -Most any colors
- -All weatherresists chipping, cracking and peeling from wind, rain, sun, snow and extreme cold
- -Raised or recessed lettering, logo and graphics create a multi-dimensional sign
- -Detail is excellent for depicting content and shape of fairways, etc.
- -Minimizes sign pollution with a natural and beautiful sense of permanence.
- -Proven to be less expensive than wood signs over an extended period of years.

Please call or write for a free brochure



P.O. Box 607, Chanhassen, MN 55317 (612) 937-8192 Fax 937-5031

## Ten Guidelines for Thoughtful Tree Planting

To the novice golfer or average club official, planting a tree on a golf course seems fairly straightforward. After all, it only takes a short trip to the nursery and 10 minutes to dig a hole.

Well, not exactly. An improperly placed tree of the wrong species can seriously interfere with the original intent of the course architect, or even worse, completely destroy a putting green.

The following are 10 guidelines that one should ponder before attempting to plant a tree. Hopeful, these guidelines will help ensure that a new tree becomes an asset to the entire club, rather than a thorn in the superintendent's side.

Before reviewing these guidelines, please realize that each may not always apply strictly in all situations. For example, a large tree planted 25 yards away from a putting green on the south side will cause greater problems than a tree planted the same distance on the north side, due to heavy shading.

Guideline No. 1: Make sure to select a planting location so that the mature canopy of the tree will not protrude on the line-of-flight between a tee and a fairway. Trees with protruding limbs dramatically reduce the usable size of a tee.

For example, a tree planted too close to the front right-hand side of a tee will promote concentrated use on the left-hand side of the tee. The result of such concentrated divoting on one side of the tee usually promotes discussion about the superintendent's abilities. The solution to large, overhanging limbs is usually sympathetic pruning that leaves the tree permanently disfigured. Actually, complete removal of a tree could be the best solution.

Guideline No. 2: To allow for vital air movement and exposure to sunlight, resist the temptation to plant dense groves of trees around greens, tees and fairways. Poor air circulation, especially in areas where greens are located, produces soaring temperature and humidity during the sum-

mer that, in turn, promotes harmful disease development. Furthermore, poor air circulation and dense shade during the winter, produces cooler soil temperatures and humidity during the summer that, in turn, promotes harmful disease development. Furthermore, poor air circulation and dense shade during the winter, produces cooler soil temperatures that severely retards the growth rate, leaving greens helpless against foot traffic. In situations where poor air circulation and restricted sunlight penetration cause an unacceptable turf loss, tree removal is absolutely necessary.

Guideline No. 3: Never try to completely fill in rough areas between adjacent fairways with trees for the sake of safety. No matter how many trees you plant to protect neighboring players, the odds are the first handicapper will find a way through. Once they do, look out!

The player automatically feels qualified to join the PGA tour and aims directly in to the oncoming players, hoping to hit a high fade back over the trees. If your intent is to protect golfers in adjacent fairways near the landing area so that if someone does stray, they have the opportunity to return to their fairway uninhibited.

Guideline No. 4: Never plant large trees closer than 75 feet from a green or tee because they will become serious competitors for available water and nutrients. Most individuals are under the mistaken impression that tree roots cannot extend outward from the trunk further than the drip line of the tree. In reality, tree roots can extend outward from the trunk approximately one to one-and-a-half times the total height of the tree.

For example, if a tree is 100 feet tall, its roots can extend as far as 100-150 feet. Once tree roots have invaded underneath a green or tee, they sap water and nutrients away due to their overwhelming size. In situations where tree roots are a problem, sever them with a trencher and install a permanent barrier.

Guideline No. 5: Without question,

flowering trees add unmistakable beauty to any course. However, due to their tender bark and dwarf stature, they are extremely sensitive to mower damage. This extreme sensitivity makes most flowering trees a poor candidate for use on golf courses, unless they can be carefully protected. Augusta National is a good example. The beautiful flowering dogwoods and azaleas have been planted underneath large pine trees where there is never an occasion to operate heavy mowing equipment.

Guideline No. 6: Try to avoid screening out scenic vistas. Scenic vistas include the clubhouse, ocean or mountain views, lakes or other open areas of the course. Once a scenic vista has been lost, it is usually forgotten and consequently may be lost forever.

Guideline No. 7: It is often best to avoid using a standardized tree planting as a yardage indicator. Problems arise in the future when one of the plantings is lost or damaged.

For example, if palm trees are used on each hole to indicate a distance of 150 yards, it will be impossible to replace a dying palm with one of matching size. In addition, a tree planted to the edge of the fairway can severely penalize a golfer.

Guideline No. 8: When selecting a tree, choose species that match the existing vegetation and have favorable characteristics. Cottonwoods and large fruit trees are not good candidates for golf courses because they are either strong surface rooters or require continuous maintenance.

In addition, try to limit the number of different species as much as possible. A continuous vegetation scheme is often the trademark of many of America's highest-ranked courses. For example, Oak Hill CC in Rochester, NY., has a continuous theme of oak trees from the first tee through the 18th green. Courses that tend to plant a potpourri of tree species are usually unflatteringly referred to as tree zoos or specimen parks.

(Continued on Page 19)

14 HOLE NOTES

# MGA Selects Tournament Director

The Minnesota Golf Association has selected James Richard Lahl to join its staff as the new tournament director.

Lahl, who is an assistant golf professional at Hazeltine National Golf Club in Chaska, Minn., will assume his new position on March 1, 1993.

A Chaska native, Lahl caddied at Hazeltine in the early '80s and worked as an assistant professional from 1988 to the present. He attended the University of Minnesota as an Evans Scholar where he graduated from the Curt Carlson School of Management with a degree in finance in March of 1989. Lahl currently lives in Eden Prairie, Minn., with his wife Lisa.

The 26-year-old Lahl fills the vacancy left by the former Assistant Executive Director Ross Galarneault, who took over as executive director of the MGA for the retiring Warren Rebholz on January 1, 1993. Galarneault has reorganized the MGA staff and created the tournament director position. The search for a candidate began in late October and drew 72 applications from around the country and from as far as Canada and England.

Galarneault expressed his confidence in the new appointment by saying, "It's reassuring to have someone of Jim's high character, good personality and excellent ability joining the MGA team."

# SEED AND SERVICE

# We've got it covered.

Twin City Seeds. Poised and ready with a full line of proprietary turfgrasses, custom blends <u>and</u> experienced service along with it. And, our prices will fit your budget. Call or fax John Glattly today. We know the area. We know you'll like our style.

Twin City Seed Company 7263 Washington Ave. So. Edina, MN 55439 Phone: (612) 944-7105 Fax: (612) 944-7239





# HAS THE BEST OF BOTH WORLDS!!!

We are a custom contractor selling aeration services using the

### **VERTI-DRAIN®**

- Deep Aerification with semi-conventional tines
- Maximum depth of 12"
- Allows you to change the soil profile of your greens

— OR —

### TORO HYDROJECT®

- Quality Aerification using ultra high pressure water
- Allows you to aerate any time of the growing season

The two

### **Leading Aerifying Tools**

being used by the

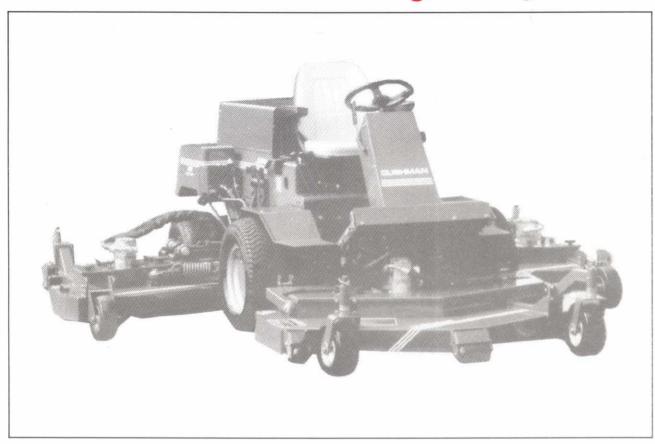
Leading Aerifying Company

WHEN YOU NEED DEEP AERIFICATION
THINK FIVE STAR!

1-800-873-1455

Keith Faber

# Cushman Model 6150 Wing Rotary Mower



- 51 H.P. Kubota diesel engine.
- Choice of 9' 7" or 10' 8" cutting width!
- Folds to 61" for transport or storage!
- Unmatched traction through full-time, hydraulic 4 WD!
- Competitively priced Excellent Lease Terms!
  - Customer Satisfaction Since 1949

Contact us today...
for a free demonstration.





# Announcing...

# Cushman® Groom Master





#### MANEUVERABLE

- · 8.8:1 ratio and enclosed steering gear box
- · Hydrostatic drive
- · Tight turning radius

#### ■ PRODUCTIVE

- · 12.5 hp, Kubota diesel or 16 hp, Vanguard V-Twin gas
- · 40-inch blade width
- · 73.5-inch rake width
- · 64-inch cultivator width

#### **■ TRANSPORTABLE**

- Up to 10.5 mph forward transport speed by selecting from 3-wheel to 2-wheel drive
- · 8-inch ground clearance

#### ■ EASY TO OPERATE

- · Single pedal hydrostatic control
- · Easily accessible controls and vinylclad adjustable seat

#### SERVICEABLE

- · Tilt-up rear engine shroud
- World-wide dealer parts and service network
- · Belt-drive disengagement feature

### ■ VERSATILE

- Rear rake for smoothing, mid-mount cultivator to lift and loosen, and front blade to push sand/soil
- · Adjustable halogen headlight



CUSHMAN RANSOMES RYAN

Driven to be the best.

**CUSHMAN MOTOR CO., INC.** 

CUSHMAN TURF-CARE

### Ramsey County Parks And Rec Dept. Receives NGF Achievement Award

Ramsey County Parks and Recreation Dept. is among the 108 golf facilities and municipalities that will be receiving the National Golf Foundations's Public Golf Achievement Award for 1992.

Golf's growth in popularity over the past years has created new challenges and opportunities for public facility operators while meeting increased demand, developing new golfers and maintaining the enjoyment of the game for all. The programs submitted this year were said to be "particularly excellent," reflecting the fact that these challenges are being met by facilities all across the nation.

This year's submissions also demonstrate the great pride owners and operators are taking in their course operations, and the NGF says it is proud to recognize these accomplishments.



### Less work, more play.

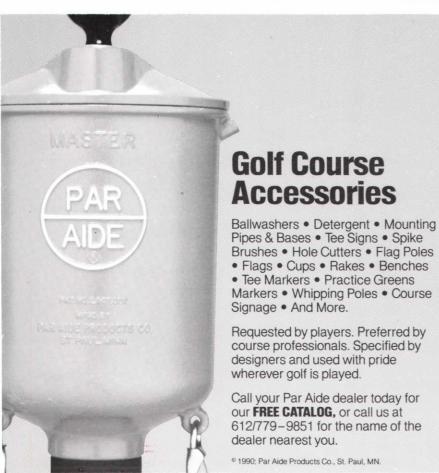


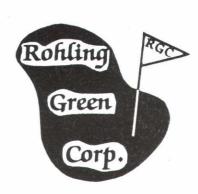
Gandy Sweep Master brushes in turf-building materials faster, so tees, fairways and greens get back in play sooner. Its aggressive double-diamond design hugs contours with less chatter. Also makes a clean sweep of athletic fields, sand areas, and paths. Available with hydraulic, three-point, or manual hitch/lift options. Sweep Master is simply a better way to brush.



T'S GANDY

528 Gandrud Road, Owatonna, MN 55060





Specializing in
Re-Design & Construction
of Golf Courses

Consultants Project Management

Contact: Gerald "Gary" Rohling

817 Gates Avenue Elk River, MN 55330

(612) 441-5127 Fax (612) 441-3851

### Tree Planting Guidelines—

(Continued from Page 14)

Guideline No. 9: Try to naturalize the appearance of large tree planting by randomizing the distance between each tree. A good way to develop a randomized tree planting would be to hit several dozen golf balls into a rough area from a distance of 200 yards. Then place a small flag where each ball has landed and selectively remove one flag at a time until there are an appropriate number left.

Guideline No. 10: To prevent unnecessary neglect of newly planted trees, never plant more than the maintenance staff can adequately maintain. During the first year of establishment, small trees require exattention tra and frequent hand-watering during the summer. If you must purchase trees in large numbers due to cost, it might be best to establish a tree nursery near the maintenance facility where they can be easily cared for. Then over the next several years, slowly spread them over the course.

Summary: Remember that a good tree-planting program on any course starts with a long-range plan. What makes a golf course different from a park or from your front yard is the presence of sensitive putting greens and the integrity of the fame.

The agronomic impact of misplaced trees is commonly seen in the form of shade, root competition and poor air circulation. Thoughtful tree planting should not only improve the appearance and playability of your course, but more importantly, remove the thorn from your superintendent's side.

-Paul Vermuelen, USGA



### Kerry Glader Joins Staff Of Precision Turf

Precision Turf and Chemical, Inc., Plymouth, Minn., has announced the expansion of its customer support team with the addition of Kerry Glader.

A 20-year-plus veteran of the golf course industry, Glader has had considerable experience as a golf course superintendent at various private country clubs. In addition, he served on the Board of Directors of the Minnesota Golf Course Superintendents' Association for 11 years, two of them as president.

"Many of you know Kerry from different working experiences, and we are sure that you will find him helpful and knowledgeable," said Dave Krupp, president of Precision Turf. "We are confident that this expansion will help us better service our customers."



DISTRIBUTORS OF:

RAIN BIRD

Hunter

CREALINE

AND OTHER QUALITY TURF IRRIGATION PRODUCTS.

- CONTROLLERS
- HEADS
- VALVES



RAIN BIRD GOLF

- PIPE/FITTINGS
- PUMPS/METERS
- WIRE/VALVE BOXES

### LOCATIONS:

15400 28th Avenue North Suite 2 Plymouth. MN 55447 (612) 559-0057 415 Sundial Drive St. Cloud, MN 56387 (612) 259-6448 1971 Seneca Road Bay "H" Eagan. MN 55122 (612) 687-0282

### Corporate 'Partnerships' Aid S&R Program for GCSAA

Cooperative partnership programs have grown in popularity and effectiveness as a way for superintendents to support the Golf Course Superintendents Association of America (GCSAA) Scholarship & Research (S&R) program.

Several golf/turf industry companies have announced corporate programs designed to generate contributions to benefit GCSAA S&R:

 Superintendents can gain public recognition for their efforts to protect and enhance the environment through a national awards program sponsored by Ciba-Geigy Turf & Ornamental Products and RainBird Golf Sales Division. The Environmental Steward Awards will seek to identify and promote superintendents who use innovative techniques or outstanding practices to manage their golf courses in an environmentally responsible manner. Each company will donate more than \$5,000 in honor of the award-winning superintendents.

- During 1993, the Ciba-Geigy Corporation will match the amount of Golden Tee Club donations made through its "End-User" program with a contribution to the Chet Mendenhall Fund. The Mendenhall Fund endows a scholarship for the most outstanding student in the annual GCSAA Scholarship competition.
- C&P Press, a publishing firm, agreed earlier this year to a major GCSAA S&R donation program that is based on sales of a chemical resource book for golf course superintendent. C&P Press will make a contribution to GCSAA S&R for each copy of the *Turf & Ornamentals Chemicals Reference* purchased by superintendents.
- The five-year-old John Deere Team Championship has generated nearly \$50,000 in contributions to the GCSAA S&R foundation. The company annually presents a contribution (\$18,500 this year) on behalf of every GCSAA-member superintendent who competes in the nationwide golf event.
- Recently, LABB Systems/Software, the company that developed TRIMS Grounds Management Software, announced that it will contribute \$100 to GCSAA S&R in the name of any superintendent who purchased the TRIMS package. Earlier this year, LABB Systems/Software also committed a \$5,000 donation to join the Platinum Tee Club, the premier support group for GCSAA S&R foundation.
- A rebate program by Lebanon Turf Products will bring at least \$20,000 in donations to GCSAA S&R. Lebanon agreed to donate 50 cents for each bag of its new Country Club 18-3-18 fairway fertilizer sold between April 6, 1992, and Dec. 31, 1993. Lebanon has committed a minimum of \$20,000 in donations to the 18-month program. In October, company officials presented the GCSAA S&R foundation a check for more than \$9,000

(Continued on Page 21)



# They're known by the greens they keep.

Lush, beautiful greens and tee boxes are well-known to superintendents who use Ringer Greens Products. With five finely-granulated formulations available, you can match our fertilizer to your needs throughout the seasons. Each formulation releases the precise amount of nitrogen needed to eliminate burning and green-up greens evenly. The remaining nitrogen is reserved for slower release

to encourage consistent growth. Try Ringer Greens Products. Your greens will be in good company.



Contact your local distributor or Ringer's Golf & Commercial Turf Division at 9959 Valley View Road, Minneapolis, MN 55344, (612) 941-4180. Ringer offers a complete line of fertilizers for greens, fairways and general turf applications.