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The Ohio Turfgrass Foundation Conference and Show features lectures, workshops and more than 350 exhibits for lawn care, golf course, landscape and grounds maintenance professionals.

Golf Course



Grounds & Athletic Fields



Lawn Care



- Understanding Poa to Bent Conversion with TGR
- Experiences with *Poa annua*— Its Management and Control from a Plant Pathologist's Viewpoint
- Management of Localized Dry Spots
- The Pros and Cons of Disease Detection Kits
- Putting Green Management
- Insecticides — Recent Developments
- Golf Course Computers — Utilization and Cost
- Personal Financial Planning
- Stress Management
- Wildflower and Native Grass Renovation
- Chemical and Biological Control Strategies for Aquatic Management
- Greens Reconstruction — Making It Right!
- Bentgrass Fairway Management— Are We Headed in the Right Direction?
- Thinking Superintendent — Time and Money-Saving Ideas
- Soil Management — Facts and Fallacies
- The Black Layer — Sifting Through the Maze
- Greens Reconstruction
- Bentgrass Breeding
- Overseeding Turfgrasses
- PGRs for *Poa annua* control

- Ground Covers — Alternatives to Grasses in the Landscape
- Wildflower and Native Grass Renovation
- Aquatic Management Strategies for Small Ponds
- PGRs as a Tool for the Professional Grounds Manager
- Annual and Perennial Selection and Care
- Turf-Type Tall Fescues
- Insecticides — Recent Developments
- Stress Management on the Job
- Selecting the Proper Aeration Equipment
- Pre-emergent and Post-emergent Herbicides — Recent Developments
- Soil Management in the Landscape — Facts and Fallacies
- Low Budget Athletic Fields
- Player Safety/Field Quality
- The Agronomics of Athletic Field Management — A Reevaluation
- Soil Management of Athletic Fields
- Experience with Turfgrass Aeration Equipment
- A Morning with George Toma

- Ecology of Patch Diseases
- The Pros and Cons of Disease Detection Kits
- Patch Disease Research Update
- Why Pre-emergent Herbicides Fail
- Why Post-emergent Broadleaf Herbicides Fail
- Drift and Pattern Displacement of Pesticides
- Core Cultivation Effects on Pre-emergent Herbicide Efficacy — Another Look
- Considerations and Selection of Core Cultivation Equipment
- Soil Improvement and Management — Physical or Chemical?
- Pre-emergent and Post-emergent Herbicides for the Lawn Care Professional
- The Pros and Cons of Turf-Type Tall Fescues
- Reducing Pesticide Usage Through Agronomic Practices
- Experiences with PGRs in the Landscape
- Insecticides — Recent Developments
- Alternatives to Pesticides
- Maximizing Job Satisfaction

Workshops

- Insurance Liability — Insuring the Landscaping and Lawn Care Risk
- Guidelines for Estimating Maintenance and Landscape Work
- Annual and Perennial Flowers
- Understanding and Interpreting Water Quality Related to Irrigation
- Pesticide Safety and Use

Ohio Turfgrass Foundation

Anyone involved in turfgrass or ornamental management is invited to attend the Ohio Turfgrass Foundation Conference and Show. For complete information and a conference program, contact:

Dr. John Street
 c/o Ohio Turfgrass Foundation
 2021 Coffey Road
 Columbus, OH 43210
 (614) 292-2601

Circle No. 132 on Reader Inquiry Card

PROBLEM MANAGEMENT

by Balakrishna Rao, Ph.D.

Controlling spruce gall

Problem: How do you control gall problems on spruce? We have had problems in controlling the galls which form at the base of small branches. We have used Sevin in the past around late July through early August and haven't had good results. What can be used, and when is the best time to control this particular pest? (Pennsylvania)

Solution: Spruce plants get two different types of galls caused by adelgids, most commonly referred to as spruce gall aphids. To manage these problems it is important to identify the adelgids properly to provide chemical control at specific times.

The Cooley spruce gall adelgid produces pineapple-type galls at the tip of branches. To manage this gall problem, treatments should be done after galls open in late July or early August, or before buds start to break in the spring (approximately early April). The Sevin treatments you have been using will do a good job in managing this problem when applied at the proper time.

The other kind of galls are called the Eastern spruce gall adelgids which have a slightly different activity period. This may explain why you are having control problems. To manage these galls, treat the plants after galls open in middle to late September or before buds start to break in the spring.

For both gall problems, several products—mal-

athion, Thiodan, Sevin, Systox or Dursban—can be used in the spring. Make sure to apply the treatments at the proper time when galls open. Timing is probably the most important factor in many pest management approaches. Read and follow label specifications for best results.

Managing maples

Problem: A number of maples in our area are suffering from some problems. The problems are seen on red, silver, Norway and sugar maples. Most trees have a starved look with yellow leaves and some green veins. The problems appear to be related to some sort of nutrient deficiency. In your opinion, what seems to be the problem and what can be done? (New York)

Solution: Based on your field observation of symptom pattern, the problems you are experiencing appear to be related to nutrient deficiency. Maples, in general, suffer from manganese deficiency. When maple trees do not absorb sufficient manganese, the foliage becomes yellow between the veins which remain green. If the problems are severe, the tissues between the veins turn brown, especially on the younger, outermost foliage with some defoliation. Manganese deficiency has been observed on different species of maples, such as red, silver, Norway and sugar.

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Acclaim translocates from the site of contact to the heart of weed growth – cleanly decomposing the entire weed after 21 days. Acclaim has no residual soil effect, and avoids the turf injury problems associated with other postemergence herbicides.

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Solution: Symptoms of manganese deficiency on maple would be similar to iron deficiency on pin oak. Therefore, ideally the plants showing yellow foliage should be tested for nutrient deficiency. Both a soil test and foliar analysis would be necessary to provide corrective measures.

Contact your county extension service for further information concerning deficiency tests. It is important to get the tests done prior to treating. Reports indicate that if maples are treated with iron rather than manganese, the symptoms become more severe because iron can further suppress manganese uptake due to an iron/manganese antagonism. In most cases, manganese deficiency is associated with alkaline soils.

Lowering the soil pH with applications of sulfur may release the manganese in the soil, although results vary and may not be satisfactory. The trunks of manganese-deficient maples can be injected with manganese sulfate or implanted with capsules of the same material. Treatments should be done just prior to the spring flush of growth for best results.

Following Roundup applications

Problem: We are interested in using our lawn care tanks and spray units for spraying Roundup after cleaning. After Roundup application and cleaning,

we would like to use the spray equipment for normal production. Is this possible? If yes, would you comment on the proper way to safely clean the tank? We are concerned with the potential of Roundup residue causing injury. (New York)

Solution: Yes, it is possible that you can use the lawn care spray units for spraying Roundup. I believe you will be using a 1 percent solution of Roundup to manage the weeds. After using Roundup, it is important to drain the system and flush it with water to clear the entire spray system. Generally, cleaning with water alone is sufficient to rinse the residue from 1 percent solution. Make sure to clean the bottom and sides of the tanks to get rid of any residues. After cleaning, the tanks can be reused for regular lawn care spraying. Always read and follow label specifications and manufacturers' guidelines about the safety and material handling and disposal of pesticides.



Balakrishna Rao is Director of Lawn Care Technical Resources for The Davey Tree Co., Kent, Ohio.

Questions should be mailed to Problem Management, Landscape Management, 7500 Old Oak Boulevard, Cleveland, OH 44130. Please allow 2-3 months for an answer to appear in the magazine.



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Apply to fine or tall fescue, perennial ryegrass, and Kentucky bluegrass.

Take Aim on crabgrass, goosegrass, barnyard grass, foxtail species, Panicum species and Johnson grass.

Circle No. 120 on Reader Inquiry Card

Hoechst 
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Control wild garlic with fall applications

What's more irritating to someone paying for weed control than the sight of wild garlic poking up through dormant grass? Perhaps only having to apply and re-apply herbicides during the season to keep the weed under control.

The wild garlic that poses a problem to homeowners and professional turf managers can create a profit for professional turf managers. When offered as an add-on service to customers, wild garlic control can boost fall revenues.

The program is simple. As lawns are treated during the spring and summer, scout for wild garlic.

When fall approaches, point out the weed to customers. Explain that—because wild garlic isn't a problem in every yard—treatment is offered on an as-needed basis.

Remind customers of the irritating, unsightly green sprouts that stick up through the uniformly brown lawn all winter. Then let them know that wild garlic can now be controlled with a



G. Euel Coats, Ph.D., and former graduate student Doug Anderson check plots they treated to define the purple nutsedge and wild garlic activity of Image herbicide.

new, environmentally sound product. Image herbicide, from American Cyanamid, has been proven effective

against wild garlic on warm-season turfgrasses in a single application. Bob Deems, a Ph.D. who is in



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charge of turf research at American Cyanamid, explains what customers should expect from an application:

1. One treatment provides essentially year-long control.

2. Image works very slowly. Expect to have wild garlic showing for some time, even weeks, after treatment.

3. If mowed two weeks after treatment, wild garlic won't grow any taller, so it won't be as unsightly as untreated weeds.

November applications of Image have provided 80 percent or better control of wild garlic, according to G. Euel Coats, Ph.D., scientist and professor with the Mississippi Agriculture and Forestry Experiment Station at Mississippi State University.

Coats has tested the product on golf courses and university plots. He reports consistent control of wild garlic and notes reduced populations in the year following a single application.

"Image should be applied after the warm-season turfgrass is dormant, and while wild garlic is actively growing. Pre-emergence applications are not effective," Coats says. "Above-ground shoots stop growing above the turf two to three weeks following application. How-

ever, in some tests, control wasn't apparent for six or seven weeks.

"Wild garlic control with Image herbicide is definitely better than with 2,4-D or combination products we've been using," Coats notes.

Ray Dickens, Ph.D., professor of turf management at Auburn University, has also researched wild garlic control.



These plots, treated with Image herbicide in November 1985, show control 16 months after treatment.

"We've tested Image on four of the major southern turfgrasses, Bermudagrass, zoysiagrass, St. Augustinegrass and centipedegrass. All four tolerated it very well," Dickens says.

"In most cases, if you can control wild garlic before it forms reproductive stems, or bulblets, you can reduce populations in subsequent years," explains Dickens. "Image is a viable alternative to the phenoxyes in a lot of situations."

Image, registered for use on fine turf earlier this year, is part of a new chemical family. Easily absorbed by most plants, Image moves throughout the plant, including the roots.

It inhibits production of a vital plant enzyme necessary for growth. Weeds stop growing within hours of application, then use up food reserves and die.

Warm-season turf species are able to metabolize the product before it causes damage. Image is registered for use on Bermudagrass, zoysiagrass, centipedegrass and St. Augustinegrass. The active ingredient, imazaquin, is essentially non-toxic to mammals, fish, birds, insects and soil organisms. **LM**

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PRODUCTS

Flood bubbler nozzle installs on pop-ups

Toro's new PC Flood Bubbler nozzle can be installed on a pop-up sprinkler. It takes advantage of pop-up features



like safe ground-level installation and smooth retraction when not in use.

The nozzle allows even flow of water from 30 psi to 75 psi, with no effect on performance from lateral

line friction loss. The PC Flood Bubbler is available in ¼, ½ and 1 gallon-per-minute flow sizes.

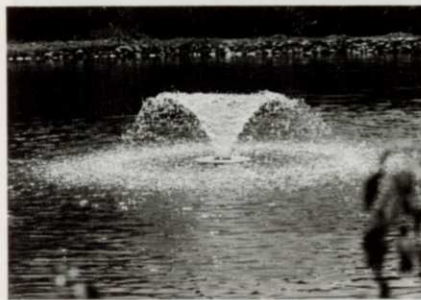
Circle No. 195 on Reader Inquiry Card

Water aerator line gets product entry

Barebo has added the 175 Sunburst model to its product line of floating mechanical aerators.

This latest Otterbine comes equipped with 50 ft. of underwater power cable and a standard 115-volt plug.

The 175 Sunburst was designed for use in small water settings. It needs a minimum operating depth of just 13 in. A spray pattern of five feet in diameter may be obtained. Ideal for small

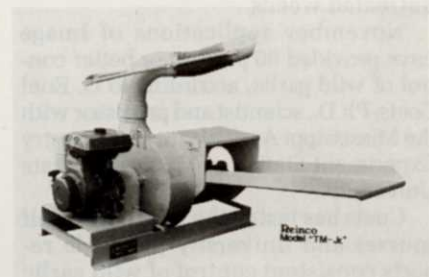


ponds with landscape architecture applications, the 175 Sunburst provides aesthetic water quality management.

Circle No. 196 on Reader Inquiry Card

Power mulcher can throw 1½ tons of mulch per hour

The TM-Jr. portable power mulcher from Reinco, Inc. is powered by a Ka-



wasaki 8.5 hp air-cooled gas engine, and can blow hay or straw mulch at a rate of 1½ tons per hour to distances of 35 feet. With an optional flexible hose, that range can be increased to 100 feet.

The introductory price of the TM-Jr. is \$4000.

Circle No. 197 on Reader Inquiry Card

The Advanced System for

Billy Goat's TR Truck Loader System is a complete lawn maintenance system that makes fall leaf cleanup easy. Call us today and find out how your lawn service crew can use these four pieces of equipment to clean up in record time.



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Use the backpack blower to remove debris from shrubs and hard-to-reach areas.



The suction sweeper is used for sweeping up leaves in outlying areas, away from the truck.

Absorbent sock system contains hazardous spills

The Haz Mat Pig from the New Pig Corporation, is an absorbent sock which sucks up and contains hazardous material spills. The system is designed to replace old methods of using loose clay to contain spills.

According to the company, a bucket of six pigs will absorb five gallons of acids, caustics or flammable solvents within five minutes. The saturated pigs can be returned to their resealable polyethylene bucket for temporary storage.

Circle No. 198 on Reader Inquiry Card

Four-wheel drive moves mower on steep terrain

The F2000 front mount mower from Kubota is designed for commercial use with a 20 hp diesel engine, four-wheel drive and rear wheel power steering. The four-wheel drive coupled with a front differential lock gives stability and traction on steep terrain.

A 60-inch mower is standard, with a 72-inch optional. The mower is



lifted hydraulically, with cutting heights from 1.5 to 4.0 inches. Independent front brakes allow for zero turning radius at mowing point by applying one brake.

Safety features include a safety start switch, a roll-over protective structure and a seat safety device which automatically shuts off the engine if the driver leaves the seat with the engine running.

Circle No. 199 on Reader Inquiry Card

Portable computer sensor monitors turf water needs

The ST27 from Standard Oil Engineered Materials Company allows a

golf course superintendent to base watering decisions on turf's actual water needs, reducing costs and preventing over- or under-watering.

The infrared thermometer measures turf temperature, sensors measure air temperature, humidity and solar radiation. A shoulder-pack computer calculates water needs based on these factors.

The monitor can maintain records for 135 areas on a golf course, sufficient information for 27 golf holes. Data can be transferred to a personal computer easily for permanent filing.



Circle No. 200 on Reader Inquiry Card

Lawn Maintenance

The TR Truck Loader System



Use the heavy duty wheeled blower to move large quantities of leaves toward the truck.



The intake hose vacuums leaves piled up around the truck and sends them through the four-bladed steel impeller in the truck loader. By crushing leaves and debris into small particles, the impeller greatly reduces bulk. This allows the truck to hold more debris and prevents operators from having to unload the truck as often.

Circle No. 104 on Reader Inquiry Card

BOOKSTORE



345 - COST DATA FOR LANDSCAPE CONSTRUCTION 1987
Kathleen W. Kerr, Editor
 An updated unit cost data reference for designers and cost estimators. Developed to fill the tremendous need for detailed landscape construction cost data. Laid out in easy-to-use CSI format. Annual **\$32.00**

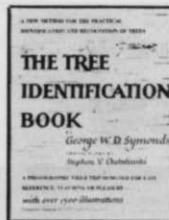
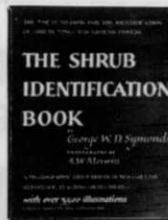
350 - HANDBOOK OF LANDSCAPE ARCHITECTURAL CONSTRUCTION
edited by Jot Carpenter
 A practical how-to reference on landscape construction. Published by the Landscape Architecture Foundation, the book carries the expertise of more than 25 landscape professionals. **\$45.00**

300 - LANDSCAPE DESIGN: A PRACTICAL APPROACH
by Leroy Hannebaum
 Geared for the commercial designer/salesperson, this is a one-stop guide to the landscape design process. Covers the entire highly competitive field including design analysis techniques, pointers on land forms, specialized business landscaping methods, environmental design guidelines, specifications, estimations, bids. **\$33.95**

370 - LANDSCAPE OPERATIONS: MANAGEMENT, METHODS & MATERIALS
by Leroy Hannebaum
 An in-depth examination that combines technical training in landscape science with methods of accounting, business management, marketing and sales. Discusses effective methods for performing lawn installations, landscape planting and maintenance. Step-by-step accounting calculations are explained in simple terms. **\$31.95**

365 - LANDSCAPE PLANTS IN DESIGN
by Edward C. Martin
 An annotated photographic guide to the design qualities of ornamental plants and their aesthetic and functional use in landscape designing. Over 600 trees, shrubs, vines, ground covers and turfgrasses are described in nontechnical language. Over 1900 photographs. Provides a basis for selecting the best plant materials for any particular use in landscape design. Contains detailed indexes that provide quick reference to particular design qualities and growing conditions. **\$55.00**

375 - RESIDENTIAL LANDSCAPES
by Gregory M. Pierceall
 An excellent reference for individuals involved in the design and development of plantings and constructed features for residential sites. Illustrations and actual residential case study examples are used to communicate graphic, planning and design concepts which are the focus of this text. **\$36.95**



665 - ARBORICULTURE: THE CARE OF TREES, SHRUBS AND VINES IN THE LANDSCAPE
by Richard W. Harris
 Provides comprehensive coverage of complete planting, site analysis, preparation and special planting methods, fully detailed coverage of fertilization, irrigation and pruning guidelines on preventative maintenance, repair and chemical control, how-tos of diagnosing plant problems, practical data on non-infectious disorders, diseases, insects and related pests and pest management. **\$47.95**

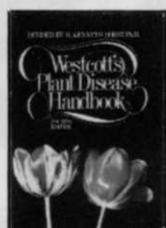
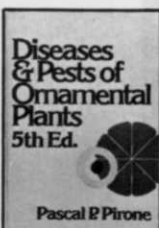
720 - SHRUB IDENTIFICATION
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 Pictorial key to identify shrubs. Contains more than 3,500 illustrations to check specimens. Popular and botanical names are given for each shrub and handy index tabs for quick reference. **\$12.95 paperback**

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405 - WOODY ORNAMENTALS
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 Illustrates plant identification characteristics. Organized in two basic sections: plant identification and plant disorders, this text utilizes 430 color photos, 430 line drawings and 45 black and white photos to simplify identification. **\$32.50**



410 - DISEASES & PESTS OF ORNAMENTAL PLANTS
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 This standard reference discusses diagnosis and treatment of diseases and organisms affecting nearly 500 varieties of ornamental plants grown outdoors, under glass or in the home. Easy to understand explanations of when and how to use the most effective fungicides, insecticides and other control methods. **\$34.95**

690 - INSECTS THAT FEED ON TREES AND SHRUBS
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 Essential information for identifying more than 650 insect pests and the injuries they cause. More than 200 color illustrations. **\$49.50**

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by Kenneth Horst
 This fourth edition offers professionals the latest diagnostic and disease control information. Plant entries designed to simplify diagnosis, plus background on the classification of plant pathogens. This handbook gives a specific description of each disease, susceptible plants, reported locations of the disease, reported locations and control measures for each disease and their side effects. **\$41.95**

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