and electric lighting, irrigation and more. Particularly useful to those in the field are five case studies which demonstrate design and construction processes for an existing trees to selecting the right species for your street tree master plans, take street tree inventory, choose maintenance program and much more. Landscape architects, urban foresters, municipal administrators and students will learn how to develop effective municipal and engineers, this book features descriptions of proven procedures, includes useful charts, tables, checklists and teaching diagrams, and offers innovative ideas and fresh thoughts of direct application in the design studio, drafting room and field. 331 pages, hardcover.

The Process of Landscape Design
by Seamus W. Flor
LSM-BK-802 $40.00
Five completed projects illustrate the general principles followed by landscape architects in developing designs from concept to implementation. Each case includes a summary of the principles which generated the design; a study of the architect's response to special conditions; a description of the stages of development; and an assessment of performance since completion. The five projects cover: landscape planning, urban regeneration, new town development, university campus and recreational development. 160 pages, hardcover.

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The best thing to do is have the soil analyzed.

Potassium plays a vital role in plant nutrition, and deserves more attention in many fertility programs.

Research continues to demonstrate the importance of maintaining high potassium levels throughout the growing season. Potassium is recognized for enhancing turf tolerance to various environmental and biological stresses, including cold, traffic, disease and drought tolerance.

A nitrogen to potassium ratio of 3:2 has generally been considered desirable. However, higher potassium ratios to nitrogen, such as 1:1 or 1:2 have improved stress tolerance in some investigations, even when soil tests indicate potassium levels are adequate.

Watch for rapid change. Potassium is highly water soluble and subject to rapid leaching both within the leaf tissues and in soils with low cation exchange capacities. Potassium deficiencies can occur just a few days following a fertilization especially on intensely-managed, irrigated turf growing in sandy soils.

Light, frequent potassium applications with slow-release carriers helps to reduce potassium leaching in these situations.

Soil tests revealing The best way to know a soil pH, overall nutrient status and soluble salt content is to have the soil analyzed. Most state universities have soil testing laboratories and provide this service at a reasonable cost. Commercial testing labs are also available. Several soil pH and leaf tissue test kits can be purchased for immediate on-site readings.

There are many choices for the turf manager developing a spring fertility strategy. The challenge is to select one that best suits the turf’s needs in your management program.

—Dr. Roberts is an extension specialist in turf science at the University of New Hampshire.
Dependability is what lawn care and landscape professionals look for in a preemergence herbicide. And dependability is what you get with the time proven Team herbicide. Since 1985, Team has proven itself effective at stopping a broad spectrum of troublesome grassy weeds, especially crabgrass.

With the rock solid performance of Team, you can expect consistent, season long control.

Because nothing, pound for pound, prevents crabgrass better than Team, you know you’ve got a preemergent you can depend on to bring a smile to the face of any customer.

For further information on Team, or any other product in the extensive line of DowElanco products, give us a call at 1-800-352-6776. Always read and follow label directions.
HOT TOPICS

Weeds in hot water with new control technique

MINNEAPOLIS—Vigorous weed populations once resistant to traditional herbicide applications are in hot water because of a new control technology that uses a 900,000-BTU spray system fired by a 9 hp gasoline engine.

Weeds are doused with water heated to 210° F. This temperature destroys the plant’s waxy coating, thus rendering it unable to retain moisture. The plant dehydrates and dies within one to two days.

Aquaheat Technology, Inc. markets the new weed control spray system, which weighs about 550 pounds and spits out 10 gpm of super-heated water. “It’s something that can easily be put into a pickup truck or four-wheel drive vehicle,” says operations manager Chapman Mayo. The product holds several patents and others are pending.

A larger, 4 billion BTU version of the device was originally designed for wide-scale vegetation control in Florida citrus groves, but railroad officials were attracted to the smaller system for its ability to eliminate weeds along track rights-of-way.

Others then took interest when it became apparent that the technology can be suitable for other landscape management applications.

Superintendents responsible for golf courses, parks, housing developments, schools and other institutions, local and state highways, military bases and irrigation districts wanted to know if the concept could be applied to their needs, where the public is concerned about traditional pesticides. “Parks and schools are begging for alternatives to calm people down,” he reports, stressing that the technology provides excellent weed control in addition to its ecological features.

A study conducted in New Zealand comparing the effects of hot water versus glyphosate showed that weeds treated with hot water were dead within two days, while those treated with glyphosate took 7 to 10 days for yellowing symptoms to appear.

The technology differs considerably from simply directing a steam cleaner toward lawns. “Steam is not as effective. We feel the hot water does a better job of effectively contacting the plant,” says Mayo.

Mayo adds that in the Southwest, the machine is being used on a limited basis for dousing fire ant mounds, and to control aquatic weeds. “If [the weeds] stick above water, we can burn them down to the water level,” Mayo reports.

Tests are focusing on golf courses—using the device (with water heated to a cooler 150° F) to control surface insects. “We’re watering the grass with hot water, basically,” Mayo explains. Bugs near the surface are getting their gooses cooked, while the turf itself is not harmed. “We’re not using a tremendous amount of water, so we’re not soaking the lawn,” he points out.

The New Jersey Department of Environmental Protection tentatively has a positive review of the introduction of the device, according to the agency’s Carmen V. Valentin.

“Hot water technology to control weeds is an effective tool that can be used as part of an integrated pest management approach,” Valentin notes.

“In New Jersey, this technology has the potential for use in sensitive areas such as schools and parks, and areas where the application of herbicides can jeopardize the environment such as barrier islands or the shore areas,” she adds.

The Garden State was introduced to the

ELSEWHERE

Letters from sad, happy readers, page 56
Next generation of bio control?, page 58
Books, videos for green industry, page 60
With Confront* herbicide, lawn care and landscape professionals know they're covered. Because no postemergent herbicide controls broadleaf weeds better.

Confront brings you a new standard of broadleaf control on both warm and cool season turfgrasses.

For over 35 different species of broadleaves, from dandelions and clover to oxalis and ground ivy, Confront is the one herbicide that won't let you down.

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concept when Asplundh's Railroad Division tested the larger unit. Officials were impressed, according to Valentin.

"The treatment, which is the first of its kind for right-of-way weed control in New Jersey, showed immediate results as once vigorous weeds started to droop and wilt minutes after being sprayed with the hot water," she recounts.

"What made the demonstration even more dramatic is that the rail track had not been used in 13 years and was so overgrown with weeds that it was not visible at all before the treatment," according to Valentin.

Mayor holds high hopes the technology will be a financial success: "There's a lot of interest from tons of markets."

—James E. Gayette

Taking issue with editor's environmental perspective

To the editor:

With deference to your editorial piece in the December 1994 issue (p.1, "As We See It"), I am moved to respond as follows:

1) Contrary to your opinion regarding "oppressive government," laws governing the manufacture, sale and use of pesticides were in direct concern for an environment polluted with man-made toxic chemicals.

2) Thanks to EPA, FIFRA and OSHA, this country is on its way to protecting us humans and the rest of God's creatures from being poisoned by our own hands.

3) The real entrepreneurs in this world are those individuals who accept our mistakes and strive to find remedies for our problems.

4) You must certainly believe in Santa Clause [sic.] if you think that the "market will regulate itself." If that were true, we wouldn't need half the laws on the books to protect the public from greedy individuals.

5) I do not want to renew my subscription.

Richard C. Fry
Transylvania County Parks & Recreation

Correcting reference to his company name

To the editor:

I enjoyed your article on Tom Delaney, "Lawn Care Industry Person of the Year." I have worked with Tom concerning lawn care issues and he is very deserving of the award.

I would have liked to frame the list of past recipients since our past owner/president, the late Jim Marria, was a past winner. I can't do this, though, because you have our company wrong. We are Perma-Green Lawn Care Co., one of the 15 largest lawn care companies in the U.S. We are a 10-year-plus member of the PLCAA, but we do not build and sell spray equipment. Perma-Green Supreme is a completely different company.

Jim Marria needs to be remembered as the founder of our company.

Ben Miller
Perma-Green
Boise, Ida.

(We stand corrected.—Ed.)

Says watch out for invasive perennials

To the editor:

This note is in reference to an article that appeared in your magazine in August 1994 on perennial plants. The information appeared on page 35 and apparently was taken from a book called Garden Design Ideas.

Under a listing for summer perennial favorites tolerating wet soil, purple losses-trife (Lythrum salicaria) is mentioned. Although there is a notation that plant is invasive, there is no mention of the fact that it has "escaped" the yard to become a problem in the wild.

Some plant varieties are currently being sold that are supposed to be sterile, but trials with these plants have shown that, in fact, very few of them are sterile. Thus, it is best not to promote or sell this invasive, non-native perennial.

It would be educational for your readers if your magazine could present an article about this plant and other plants that have "escaped" the yard to become a problem in the wild.

Catherine A. Bergens
Indiana Dept. Natural Resources
Indianapolis, Ind.

in Landscapes Conference, Lolowna Lodge Hotel, British Columbia, Canada. Phone: Georgena Good, (604) 980-9735.

15-16: Reinders Turf Conference, Waukesha (Wis.) Expo Center. Phone: Ed Devinger, (414) 786-3301.

17: Turf Management Seminar, El Cajon Community Center. Phone: (619) 670-1980 x262.

24-26: Student Career Days, sponsored by Associated Landscape Contractors of America, North Metro Technical Institute, Acworth, Ga. Phone: (404) 975-4030.
If you want to know how long Gallery works to prevent broadleaf weeds, ask someone with time on their hands.

After applying Gallery® preemergence herbicide, you’ve got about 6 to 8 months of good solid waiting before you’ll spot the emergence of any of over 95 different broadleaf weeds. Even the tough ones like spurge, dandelion and plantain.

In fact, Gallery is the only preemergent on the market today that’s designed to prevent so many broadleaf weeds, yet is safe over the top of all turfgrasses, and over 400 different species of ornamentals.

So now that you have a little extra time on your hands, maybe you can get around to digging up even more business.

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Always read and follow label directions.
Cornell prof sees 'hybrid fungus' as next generation of bio-control

A new biological fungicide is expected to receive EPA registration this month, according to Dr. Eric Nelson of Cornell University.

The new strain—Trichoderma harzianum—is a product of protoplast fusion, a process analogous to plant breeding. In the process, different genetic material is combined to form what Nelson—speaking at the New York State Turfgrass Association Turf and Grounds Exposition—described as a "hybrid fungus."

The new product will control Dollar spot, brown patch and pythium blight. Nelson described the product as, "A highly effective biological agent," which can be applied with conventional equipment.

A new company called TGT—whose founders include Cornell researchers—will manufacture the product.

Initial product distribution will be limited to west of the Mississippi. The Wilbur Ellis Co., of Fresno, Calif., will distribute the product.

Nelson said the product is not without drawbacks: it's sensitive to Banner, Rubigan and the triazole fungicides, and is most effective when soil temperatures are above 55-60° Fahrenheit.

Additionally, Nelson said researchers do not know how the product will react to herbicides or insecticides.

The product is expected to be formulated as a wettable powder, a granule and an emulsifiable concentrate.

Nelson said the product has a shelf life of 1-2 years.

In tests conducted on dollar spot from August to October, the product was most effective when applied as a granular in conjunction with a foliar spray.

"There is a delay in the progress of the disease, then it peters out," says Nelson.

Nelson said that unlike the performance of some chemical fungicides, the new biological product can reduce the populations of pathogens in the soil.

Nelson says the product "worked well" in spray applications to plots infected with Pythium and Rhizoctonia.

"One of the keys will be various additives—such as surfactants—that give the product better coverage," says Nelson.

In the area of compost research, Nelson says it has been more difficult to predict how a compost mix will react against diseases in turfgrass.

"There's no good way of knowing that," says Nelson, who says it's difficult to screen compost mixes for their disease suppression properties.

"We're trying to relate microbial properties (of compost) with disease suppression properties," says Nelson. "Compost use will improve as we can manipulate the composts more."

DowElanco responds to 'Eye to Eye' criticism

INDIANAPOLIS—DowElanco took quick issue with points made in the Jan. 12th installment of the CBS television show "Eye to Eye with Connie Chung."

"Nothing depicted on 'Eye to Eye with Connie Chung' should undermine the public confidence in DowElanco and its products," the company stated in a press release the next day.

The show highlighted several people with health problems that they contend stem from the use of Dursban.

DowElanco makes clarifications in the cases of Jack Kahn, the residents of Building 8 (an office building in Albany, N.Y.), and Tri-County North School District in Ohio.

About Kahn, who claimed he was put out of a pest control job and out of the workforce because of health problems stemming from his experiences applying Dursban:

"Mr. Kahn's medical records document that he was diagnosed—as early as...1984—as having neurological and immune disorders very similar to those which he now attributes to our product. His first exposure to Dursban was in 1989."

About Building 8, whose residents claim adverse health effects from Dursban:

"According to the state Department of Health report, the highest levels of Dursban measured in Building 8 were 10,000 times lower than those needed to cause any effect in humans."

And about the Ohio school children who complained of nausea and other negative reactions from the spraying of Dursban in their school, DowElanco says this:

"DowElanco has not been named as a party in this suit. A health hazard evaluation by the National Institute of Occupational Safety and Health found that the complaints were likely related to carbon dioxide buildup...in combination with the presence of volatile organic compounds derived from liquid toner used in photocopiery."

DowElanco concluded:

"We are cooperating fully with the U.S. EPA. We are confident that the Agency's review will reaffirm the wide margin of safety of Dursban products. DowElanco hopes to see the issues raised in the 'Eye to Eye' segment resolved by the EPA review."

—Jerry Roche

CHEMICAL VS. BIOLOGICAL PRODUCTS

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<td>Toxicology testing</td>
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<td>Patentability</td>
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Source: Dr. Eric Nelson

CHEMICAL PRODUCE DEVELOPMENT

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—Jerry Roche
Now you can squeeze every ounce of performance from skid-steer loader attachments that use high-flow auxiliary hydraulics – tillers, trenchers, earth augers and more!

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Choose from two Bobcat models – the 753H, with 1400 lb. rated capacity, and its bigger brother, the 1700 lb. rated 853H – both with high flow auxiliary hydraulics installed right from the Melroe factory. They are specifically designed as high-flow machines for maximum performance and durability. In the high-flow operating mode the 753H produces up to 21 gpm of auxiliary flow and the 853H produces 24 gpm.

Bobcat Trenchers. Two trencher attachments are now available for a variety of landscape applications. The LT204 (pictured), is designed for standard flow hydraulics and features 2’ to 3’ trench depth, with 4’ to 12’ width. The new LT405 is designed for high-flow use and features 3’ to 5’ trench depth, 5’ to 12’ width. Both offer hydraulic sideshift, optional trench cleaner.

Bobcat Auger. Dig 6’-36’ holes with speed and plumb-line accuracy. Utilizing Bobcat auxiliary hydraulics, the heavy-duty auger bites in with high torque power. Because of its unique knuckle-joint design, the auger will dig vertical holes even on uneven terrain.

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TORIELLO’S TEXT... The “Journal of Turfgrass Management” is now available from the Haworth Press. Written by Dr. William Torello of the University of Massachusetts, the quarterly publication costs $36-$60, depending on your classification, for four issues. To order, call (800) 342-9678 or fax (607) 722-6362.

WRONGFUL TERMINATION... A new book from Nolo Press reveals the strategies you can use for legally hiring and firing in the lawsuit-happy '90s. The 362-page paperback, called “Rightful Termination,” costs $29.95. To order, call (800) 992-6656.

CHEMICAL REFERENCES... Updated versions to two popular chemical references are now available to the green industry. “Turf & Ornamental Chemicals Reference” from C&P Press includes the EPA’s official version of the Worker Protection Standard how-to-comply guide, along with 321 product labels and MSDSs. To order either the hardbound book ($69) or 3½-inch diskettes, phone (800) 544-7377. From Meister Publishing comes the new “Farm Chemicals Handbook ‘95,” featuring 17,000 pesticides and fertilizers, plus pesticide and fertilizer dictionaries. Price is $79. To order, phone (800) 572-7740.

FIRST AID... The Bureau of Business Practice has a new “Medical Emergencies First Aid Pocket Guide” that covers assessing emergency situations, setting priorities, keeping victims alive until help arrives, and administering first aid. Guides can be customized with your company imprint. For more information, phone (800) 916-9000.

COMPLIANCE POSTERS... State and federal laws require that employers post specific employee labor law notices. G-Neil Companies now has posters that will put you in compliance. You can order the federal posters, the state posters or a complete labor law compliance kit in English, Spanish (some states) or both. All prices under $100. For more information, phone (800) 999-9111.

FIELD ESPAÑOL... The Landscape Horticulture Center for Personnel Development is selling “Conversational Field Spanish” to the green industry. With the manual, you will learn pronunciation and vocabulary, learn the names of tools and materials, and become familiar with everyday phrases for planting, irrigation and maintenance. Cost is $29.95 including shipping and sales tax. Send to LHC, 3124 Gray Fox Land, Paso Robles, CA 93446 or phone (805) 238-7921.

ENVIRONMENTAL RELATIONS... The Monsanto Company is offering a free kit to help LCOs and landscapers convey facts about pesticide use from an environmental perspective. “Weeds Are No Longer Your Only Concern” is a kit that contains product-specific and non-commercial information for you to distribute to the public. To request a kit, phone (800) 332-3111.

WATER FEATURES... A new book from Garden Way Publishing features complete descriptions of more than 300 grasses, flowering plants, shrubs, trees, aquatic and floating plants that can be used in waterscaping features. “Waterscaping: Plants and Ideas for Natural and Created Water Gardens” costs $27.95 for the hardcover and $18.95 for the paperback (Canada slightly higher). To order, call (800) 441-5700.

TREE STUFF... Two new publications are applicable to tree care. The “Handbook of Landscape Tree Cultivars,” lists 1700 cultivars. In looseleaf notebook form, it costs $29.95 plus $3.50 shipping and handling. To order, phone (800) 928-5887. Also, the ACRT Institute of Arboriculture and Urban Forestry has published a 234-page safety and training manual for utilities and line clearance contractors. It contains 14 chapters and 257 illustrations that enables you to meet all OSHA and ANSI requirements. The “Line Clearance Tree Trimmer Certification Manual” costs $115. To place your order, phone (800) 622-2562.

FOR GREEN GREENS... Noted turfgrass manager Tom Mascaro has written a 397-page text entitled “Diagnose Turfgrass Management For Golf Greens.” The book contains more than 100 color photographs and a complete workbook with all necessary monitoring charts and instructions. To order, call Turfgrass Products Publications at (800) 258-7477.

VIDEO TRAINING... “Creating the Knowledgeable Operator” is one of a series of video-based training workshops covering the basics of ride-on golf course maintenance equipment. The 30-minute video includes step-by-step instructions, an instructor guide, training handbooks and assessment worksheets. For more information and a free preview tape, call (800) 938-4330.

FIELD MAINTENANCE... Renowned groundskeeper Floyd Perry now has a book titled the “Pictorial Guide to Quality Groundskeeping” for rec facility managers and maintenance supervisors. Perry calls it the most comprehensive grounds maintenance text available. Cost is $32.60 plus $3 shipping and handling (Fla. residents $1.95 sales tax). To order, call (800) 809-3952.

FOR LANDSCAPERS... “Landscape Construction Procedures, Techniques and Design” by horticulture professor Floyd Giles includes more than 450 pictures. The third edition, which retails for $28.80, includes new sections on gazebos, irrigation, fences, decks, boat docks and other topics. Send your order to Stipes Publishing, 10-12 Chester St., Champaign, IL 61820.

COST DATA... The new “1995 Means Site Work & Landscape Cost Data” offers new prices that landscapers should use in compiling bids on projects. Included are more than 17,000 product lines and systems for site work and landscaping with the current prices for material, labor and equipment—nationally and regionally. Price is $86.95 for the 500-page illustrated book. To order, call (800) 334-3509.