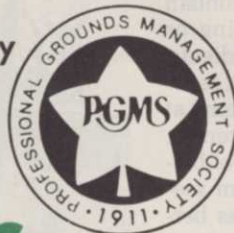


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This year's ALCA/PGMS Landscape and Grounds Management Conference features the latest information on a multitude of topics including: Training for the '90s, Customer Service, Plant Material That Warrants Attention, Maintenance and Cost of Utilizing Wild Flowers, Sports Turf and Strategies to Increase Your Bottom Line. The Keynote speaker, Allan Cimberg, will give a presentation, 'How to Sell in Tough Times to Difficult People.' Mail the coupon below for more details and registration information.

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## Bio-stimulants: new management tools

According to research under way at several major universities, bio-stimulants can greatly improve root growth and stress tolerance. In addition, proper use of these compounds could address environmental problems associated with groundwater contamination, especially from excessive nitrates.

Bio-stimulants are mostly natural products that improve, accelerate and have a positive effect on plant growth. Some of these materials are natural with no added chemicals or hormones, while others contain synthetic plant-altering or growth-altering ingredients.

Dr. Michael Goatley, assistant professor of agronomy at Mississippi State University, is studying the effects of bio-stimulant use on warm season turfgrasses such as bermudagrass, St. Augustine and zoysiagrass. Two significant indications, he says, are that bio-stimulant use enhances root growth and helps turf hold up under stress situations.

"Theoretically, bio-stimulants might be useful for golf course superintendents who manage sand-based greens composed of bermudagrass or bentgrass," Goatley explains. "Because of stronger, more developed root systems, turf would better endure stress caused by, say, a severe drought."

### Apply before dormancy

The most measurable response of warm-season turf grown under suitable moisture and fertility conditions to bio-stimulant application comes when the material is applied in late September or early October as turf begins to prepare for winter dormancy, the researcher says.

"When a bio-stimulant is applied at this time, we see more enhanced root development late in the growing season," Goatley continues. "This could result in better carbohydrate storage and preparation of plants for winter."

The primary bio-stimulant material that Goatley is examining in his research is a mixture of humic acids derived from peat moss, kelp and seaweed extracts, chelating agents, natural soil chemicals, co-enzymes and micronutrients like iron, manganese and boron. This formulation is sold under the trade name of Roots' Root

Growth Enhancer.

The product's manufacturer, Roots, Inc. in New Haven, Connecticut, has also recently developed a biostimulant formulation containing chelated iron specifically for use in turf. The new product is called ironRoots.

Goatley says that use of bio-stimulant combined with iron could also enhance spring green-up as temperatures warm

sod greens and have them putted on in a few weeks' time when bio-stimulants are used."

Use of bio-stimulants might also help solve problems associated with groundwater contamination by nitrates. By combining bio-stimulants with nitrogen, fertilizer rates might be reduced because uptake efficiency would be increased.

"Of course, you'd never substitute a bio-stimulant for an essential plant nutrient such as nitrogen," Schmidt stresses.

Researchers still have much to learn about bio-stimulants, but these materials are already starting to find their way into the commercial mainstream.

To date, bio-stimulant compounds have been used commercially on golf courses, in parks, nurseries and cemeteries, and for sod production. In many cases, they have been used with noticeable results.

"People should not anticipate bio-stimulant use as being a cure-all," Schmidt cautions. "Based on my research thus far, I would say that bio-stimulant use can be a good insurance policy."

Another university scientist who finds bio-stimulant research encouraging is Dr. Raymond Poincelot at Fairfield University in Connecticut. Much of Poincelot's research involves plants such as marigolds, petunias, azaleas, rhododendrons, poinsettias and chrysanthemums.

### Horticultural research

With chrysanthemums, for example, Poincelot has observed improved flowering when the Roots bio-stimulant is applied to the plant. "This species usually flowers only at the top of the plant, but some of my experiments have greatly increased lateral flowering," says the researcher, who is author of four books on horticultural topics and writes extensively for *The New York Times* and other publications.

Poincelot is also examining bio-stimulant use on cacti and citrus-species that are difficult to propagate.

"Based on what we've seen so far, there is a definite, positive effect on rooting of cuttings and germination of seed," he says. "But, this effect varies greatly depending on plant species." **LM**



Dr. Raymond Poincelot of Fairfield University is testing bio-stimulant effects on a wide variety of plant species.

and spring dormancy breaks.

"The biggest advantage of using a bio-stimulant such as Roots with added iron would be an immediate color response that wouldn't be associated with a resulting flush of shoot growth," Goatley explains.

The researcher says that lush turf growth following early, heavy applications of nitrogen often leave turf especially vulnerable to injury from late-season frost.

### Sod applications

Dr. R.E. Schmidt, professor of agronomy and a turf ecology and physiology specialist at Virginia Polytechnic Institute in Blacksburg, is also studying several bio-stimulant compounds on a variety of turf species, including warm and cool-season grasses.

"Production of bentgrass sod for golf greens is on the increase, and we're seeing more demand that producers treat with bio-stimulants before shipping to this market," says Schmidt, whose research focuses primarily on sod production.

"Some golf courses are now able to

# On Some Lawns, Grubs Just Aren't a Problem.



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The full complement of such were used in our application, a lot of the seed would get tied up in the paper mesh and never have a chance to germinate.

Blending in

Barb Steinmeyer of Habitat Land-escape, Inc., Aurora, Colo., has a large clientele from a residential neighborhood with extensive areas of native vegetation such as scrub oak and ponderosa pine. Her customers wanted to try wildflower because traditional plantings would look out of place. "Customers like the masses of different colors," states Steinmeyer, "and they like the fact that they blend in with the rest of the natural environment."

Steinmeyer needs during the seed and third years with an annual

mental developer will generally use wildflowers in buffer areas or inter-mediate zones found between the formal landscaped area and a property line or stand of woods," says Carlos D'Adamo of Fischer.

"Restoration plans have also been used for wildflower locations," she adds. "It's been an aesthetic alternative to the traditional grasses - tion usually found in these areas."

Two-step hydroseeding

According to D'Adamo, wildflower seed should be hydroseeded differently than grass seed.

"The planting method used in hydroseeding is a two-step process," she says. "First, the seed is mixed with a minimal amount of fiber mulch, just enough for marking purposes. After it has had time to dry, a

without any fertilizer, herbicide, fungicide and equipment use. "Our costs in 1987 for maintaining that was \$50 per acre per year, versus \$21 per acre for wildflowers. The only maintenance performed on our meadows is mowing once per year," says Rash.

Steps to establishment

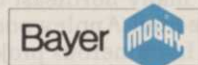
To achieve good wildflower establishment, Rash first uses Roundup to clear the area of vegetation. Seed plants are mowed low and raked off. A take-or-power detacher is then used to scarify the soil down to a depth of about 1/4 inch. The seed is mixed with a bulking agent such as sand, Turface or kitty litter. One part seed in three parts bulking agent is a satisfactory ratio.

The seed/bulking agent mix is sown in large areas.

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## Wildflower benefits always in bloom

by Diane Wilson, ecologist, Applewood Seed Company

Mike Kropp, grounds maintenance superintendent for the City of Rock Hill, S.C., once decided to plant wildflowers in narrow medians too small to mow safely. The tactic worked.

The wildflowers, which he obtained from Applewood Seed Co., provided bright color during the spring and summer and resulted in a substantial cost savings for the city.

Kropp views flowers as a safe and economical adjunct to turf. "For every dollar spent (on wildflowers), we save an estimated \$3."

Wildflowers are great additions to out-of-play areas, knolls between greens, doglegs on fairways, in the roughs and near tees.

Mike Kosak, superintendent at Forest Highlands in Flagstaff, Ariz., developed a seed mix of wild grasses combined with five percent of Applewood's mountain mix.

"The response was overwhelming," says Kosak. "People notice the wildflowers even more than they notice the greens."

Mark Raab, ground supervisor of Maryland's Howard County Bureau of Parks, claims that in addition to a substantial increase in wildlife, maintenance costs have been reduced "substantially" since he's planted wildflower meadows. Cost cutting results in less fertilizer, herbicide, labor and equipment use. "Our costs in 1987 for maintaining turf was \$690 per acre per year, versus \$31 per acre for wildflowers. The only maintenance performed on our meadows is mowing once per year," says Raab.

### Steps to establishment

To achieve good wildflower establishment, Raab first uses Roundup to clear the area of vegetation. Dead plants are mowed low and raked off. A rake or power dethatcher is then used to scarify the soil down to a depth of about ¼-inch. The seed is mixed with a bulking agent such as sand, Turface or kitty litter. One part seed to three parts bulking agent is a satisfactory ratio.

The seed/bulking agent mix is sown with a hand-held rotary spreader. Seed is lightly raked into the soil, or a power dethatcher may be used in large areas.

Fiachra, a large landscaping firm with many northeast offices, has hydroseeded Applewood's wildflower seed in numerous projects.

"Commercial customers and resi-



Wildflowers provide scenic refreshment between play at the Port Ludlow Golf Course, Port Ludlow, WA.

dential developers will generally use wildflowers in buffer areas or intermediate zones found between the formal landscaped area and a property line or stand of woods," says Carole D'Adamo of Fiachra.

"Retention basins have also been used for wildflower locations," she adds. "It's been an aesthetic alternative to the traditional grass vegetation usually found in these areas."

### Two-step hydroseeding

According to D'Adamo, wildflower seed should be hydroseeded differently than grass seed.

"The planting method used in hydroseeding is a two-step process," she says. "First, the seed is sprayed on with a minimal amount of fiber mulch, just enough for marking purposes. After it has had time to dry, a second application is sprayed on with mulch, tackifier and 0-36-0 plus sulfur fertilizer. The total amount of mulch used is 1200 lbs./acre with only about 300 lbs. used in the first application. Due to the small and somewhat fragile characteristics of wildflower seed, it is important to get seed to soil contact.

"If the full complement of mulch were used in one application, a lot of the seed would get tied up in the paper mulch and never have a chance to germinate."

### Blending in

Barb Steinmeyer of Habitat Landscapes, Inc., Aurora, Colo., has a large clientele from a residential neighborhood with extensive areas of native vegetation such as scrub oak and ponderosa pine. Her customers wanted to try wildflowers because traditional plantings would look out of place. "Customers like the masses of different colors," states Steinmeyer, "and they like the fact that they blend in with the rest of the natural environment."

Steinmeyer reseeds during the second and third years with an annual/perennial mixture at one-half the original planting rate.

Reseeding the second and third year helps to control weeds, cover bare spots, and provide additional color from the annuals. Perennial wildflowers usually attain their full growth and begin to bloom in 2-3 years. **LM**

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# PRODUCTS

## Bio-groundkeeper works to reduce thatch

KLM Bio Systems of Bloomington, Minn., has added convenient measuring devices to its 32-oz. starter size bottles of liquid thatch reducer.

"There is quite naturally a lot of interest in totally organic lawn care and turf products these days," says Paul Marrs, company president.

"We've included what we call the 'accurate measurer' on our smaller bottles in answer to the demand for

more controlled testing on smaller plots."

Bio-Groundkeeper for Thatch Reduction contains a concentrate of microbial extracts and bio-catalysts that aid and accelerate natural decomposition of thatch. KLM reports that the totally organic liquid thatch reducer has proven to be highly successful in studies at Michigan State University's department of botany and plant pathology. Researchers found the product caused a "significant decrease in

thatch in less than 90 days."

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## Rock formations add beauty to landscapes

As the rock and waterscape industry develops into the '90s, new designs, technologies and construction methods are coming to be realized.

Macaire, located in Los Angeles, is one of the leaders in rockscaping. Landscape specialist Ken Macaire de-



signs rockscapes for residential and commercial clients in Southern California.

Features of Macaire designs include individually designed features and innovative looks, leach lines to create many levels of water flow, sculptured rockwork and plants designed directly into the rockwork.

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June 1, 1990

## AN OPEN LETTER TO ROADSIDE VEGETATION MANAGERS FOR DOT: TURNPIKES, COUNTIES, AND CITIES

If your vocation is roadside vegetation - landscaping or maintenance then we believe the National Roadside Vegetation Management Association should be of interest to you.

We meet once a year and our next conference is scheduled for Sept 25-27 at the Albuquerque, NM Hilton. NRVMA was formed in 1984 to exchange ideas, opinions and experiences, to discuss vegetation management activities regarding safety, functional and operational characteristics, economy, roadside beautification and aesthetics, and ecological soundness; and to promote more and better coordinated efforts among those interested and engaged in roadside vegetation management. Every effort has been made to hold costs down, to fit roadside per diems.

There are 4 types of memberships - Roadside Managers, Associate, Supporting and Sustaining. The two primary memberships are Roadside Managers at a cost of \$35 per year and Associate which costs \$45 per year.

### THE INGREDIENTS OF A CONFERENCE

#### ■ Educational lectures and talks on the topics most relevant to roadside management;

Landscaping & Beautification	Endangered Species and Ground Waters
The Use of Wildflowers	Storm Water Management & Erosion Control and Their Effect on Programs
Herbicides and their use	Roadside Parks
Managing Roadsides in the Nineties	Applicator Training
Roadside Environmental Impact Statements	
Roadside Management Equipment	

#### ■ Equipment show/product exhibits. Forty-eight major suppliers exhibited their products at the last conference.

#### ■ "Kickoff" Luncheon sponsored by DuPont; Awards Luncheon by Monsanto.

#### ■ Regional Sessions

The country is divided into 3 geographical areas (N, S, W) and a 2 1/2 hour time period is scheduled so that roadside managers with common problems can exchange ideas/information on the hows and whys of their programs.

#### ■ Roadside Excellence in Roadside Management

NRVMA cooperation with Monsanto sponsors a 4 category program to determine the most successful roadside managers in the U.S. The contest is categorized: State Highways and Turnpikes, Counties, Cities, and Roadside Support. Winners are announced during a special luncheon and then they are allowed 25 minutes of time on the program to review their winning programs. This is followed by national publicity in the major roadside magazines and local publicity. The objective is to upgrade the roadside management practices and generate support for the industry

#### ■ Industry Night - Social evening sponsored by suppliers

We are confident NRVMA has plenty to offer vegetation managers and we look forward to "seeing you in Albuquerque".



1990 Officers are: Sharon Gabel, Secretary, Monsanto; Edward C. Dixon, President, Alabama Highway Dept; Benny Roybal, Vice President, New Mexico DOT; and Richard Hendler, DOW/Elanco, Treasurer

For additional information, cut out and mail to:

T.J. Hernandez  
309 Center Hill Road  
Wilmington, DE 19807

Sincerely Yours,  
Turney J. Hernandez  
Executive Secretary

I am interested in Membership:

- Roadside (City, County, DOT) \$35  
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