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# Turf maintenance for athletic fields

**For the healthiest turf, these special considerations must be observed throughout the year.**

by David D. Minner, Ph.D.

■ Constant evaluation of athletic field turf-grass management is essential for grass survival and player safety. The following factors deserve special consideration:

**Irrigation**—Adequate irrigation should be your top priority. It will do more to establish and keep turf under tough conditions than any amount of seed, sod, fertilizer, pesticide or cultivation.

The best irrigation is a permanent and automatic and supplies water evenly.

Use light, frequent watering when forcing growth or renovating high-traffic areas with seed, sod or stolons. Design irrigation to fit the traffic patterns of the field. In a block irrigation system, install additional heads on separate blocks to water high-traffic areas separately. Or, arrange the irrigation blocks to water at least the center of the field separately.

Commercial traveling gun sprinklers can be used successfully to irrigate athletic fields. They are portable, but usually take 8 to 10 hours to irrigate a single field.

**Drainage**—Three basic types of drainage for athletic fields are surface, subsurface and internal rootzone. Combining all three provides the best growing conditions and, more importantly, avoids soggy wet playing conditions.

Surface drainage involves crowning or grading the field to provide a 1 to 1.5 percent slope to remove water rapidly from the surface during heavy rains. All topsoil fields should be crowned. Fields with concave "reverse" crowns should have soil replaced to reestablish proper grade. Sand-based soccer and baseball fields with good internal rootzone drainage can be constructed with 0 to 5 percent grade.

Subsurface drainage uses an interconnected system of perforated drain pipe and clean gravel in trenches. On topsoil fields, these drains typically are placed 2 feet deep

## ATHLETIC FIELD TURF CONSIDERATIONS

- 1) **Irrigation: preferably permanent, automatic and even.**
- 2) **Drainage: preferably surface, subsurface and internal rootzone.**
- 3) **Traffic control: preferably with cooperation of coaches, administrators.**
- 4) **Cultivation: preferably 12-25 holes per square foot.**
- 5) **Overseeding: preferably in high-use areas.**
- 6) **Fertility: preferably nitrogen and potassium at equal rates.**

on 15-foot centers. They reduce prolonged saturated soils and improve root growth; they drain slowly, however. Subsurface drains are also placed in sand fields to remove water from the base of the sand profile. Sand rootzones must handle a high volume of water in a short time.

Internal drainage involves the flow of water after it enters the surface and before it reaches a drain pipe. Rootzone materials with many large pore spaces move water faster. Athletic fields with water infiltration rates greater than five inches per hour (usually high sand content fields) have rapid internal drainage. Topsoil fields with infiltration rates below one inch per hour have slow internal drainage.

**Traffic control**—If you have acceptable turf in non-traffic areas of the field (beyond the end zone, etc.), change the pattern and amount of traffic, rather than the species or management practices.

Administrators should know that proper traffic control costs nothing, and is the most effective way to reduce dangerously worn areas on game and practice fields. Work together with coaches to develop improved grass areas specifically for drills conducted off game and practice fields.

Try to reserve the game fields for games only. Scrimmage on practice fields, but practice drills on off-field areas. Except when the field is too wet, one marching band practice per week under the lights is not unreasonable. Mark out an exact game field with numbered yardage lines on a level, unused turf area as a separate band

practice site. **Cultivation**—Core fields regularly. Low traffic areas may need coring only once or twice per year to prevent thatch and increase water infiltration. Heavily worn and compacted areas will require more frequent cultivation to break up hard ground, allowing for the spread of existing grasses and establishment of seedling grasses. At least 12 holes per square foot are needed during routine maintenance coring; 25 or more holes per square foot for renovation with reseeded.

**Overseeding**—Overseeding may be needed where the turf has been worn beyond recovery.

High-use areas of cool-season grasses may be overseeded during the playing season. Off-season overseeding generally covers the entire field. Overseed warm-season grasses with cool-season grasses to provide actively-growing cover for cool-season play.

Consider sod when cool-season grasses are desired and you don't have enough time to establish cover from seed during the off-season.

**Fertility**—Test soils annually, and adjust for pH, phosphorus and potassium. Gear the nitrogen application schedule to the climate and grasses. More nitrogen may be required on soils amended with sand. You may need to force growth and recovery of turf in high traffic areas with additional nitrogen.

During the annual field renovation, an additional one pound of  $P_2O_5$  per 1,000 sq. ft. should be applied at the time of seeding, even if the soil test indicates adequate soil phosphorus. Make routine applications of phosphorus immediately after core aeration to move it deeper into the rootzone.

Apply potassium at a rate and schedule equal to nitrogen. It improves traffic tolerance, reduces wilt tendency and helps grass blades stand up more quickly.

**Grass options**—In regions where either cool- or warm-season grasses will survive, consider the pros and cons of each as the dominant turf. Choose from the numerous cultivars available to best meet specific field needs.

—The author was named 1992 "Groundskeeper of the Year" by the American Baseball Coaches Association, and is a former secretary of the national Sports Turf Managers Association.



# LAWN & LANDSCAPE INDUSTRY

## Going **RETAIL**

by Christian Zenk

■ The decision to bring our landscape services corporation into the retail market evolved out of economic necessity. After continued erosion of our company's customer base in Westchester County, New York, a change was warranted. Our market share loss was primarily due to a downturn in the local economy, along with increased competition from illicit one-man moonlighting operations.

We noticed this trend approximately five years ago and have watched it evolve and infiltrate every segment of the landscape market, from maintenance to planting.

Our opportunity to give a new face to the landscape division arrived in 1994. It was then we discovered an existing garden center in adjacent Fairfield County, Conn., whose proprietor was retiring after 30 years. The garden center is located in an affluent and growing area, and had been closed for approximately 12 months. The closing occurred in early February 1995. After much sweat, equity and a great deal of assistance from the previous owner, the garden center is fully functioning. The location was perfect, and there is limited competition in the local market. The garden center is the only one in town.

We decided to run the facility as an entirely separate and independent entity from our existing company. A new name was chosen and marketing strategy developed. The relatively close geographic locations complement each other nicely. The potential crossover business would be beneficial in assisting growth.

The garden center now attracts potential customers to a central locale where we can advertise our special and unique landscape



**Richard Zenk, above, secures the Locust Glen signpost. At right, Chris Zenk holds one of the custom-made signs sold in the garden center.**

service to an upscale clientele. It does this effectively as it is the centerpiece of a new 50-house subdivision with high-end homes starting at \$400,000. Conversely, many of our oldest established accounts now can visit our retail endeavor for excellent service and savings. Also, a great economy of resources and scale is realized in that the garden center is a prime supplier of materials to our landscape firm.

On the customer level, we have found that people like to know the physical location that their services originate from, rather than some non-descript post office box and a voice answering machine. Their access to us is open and unlimited as it

*continued on page 20L*



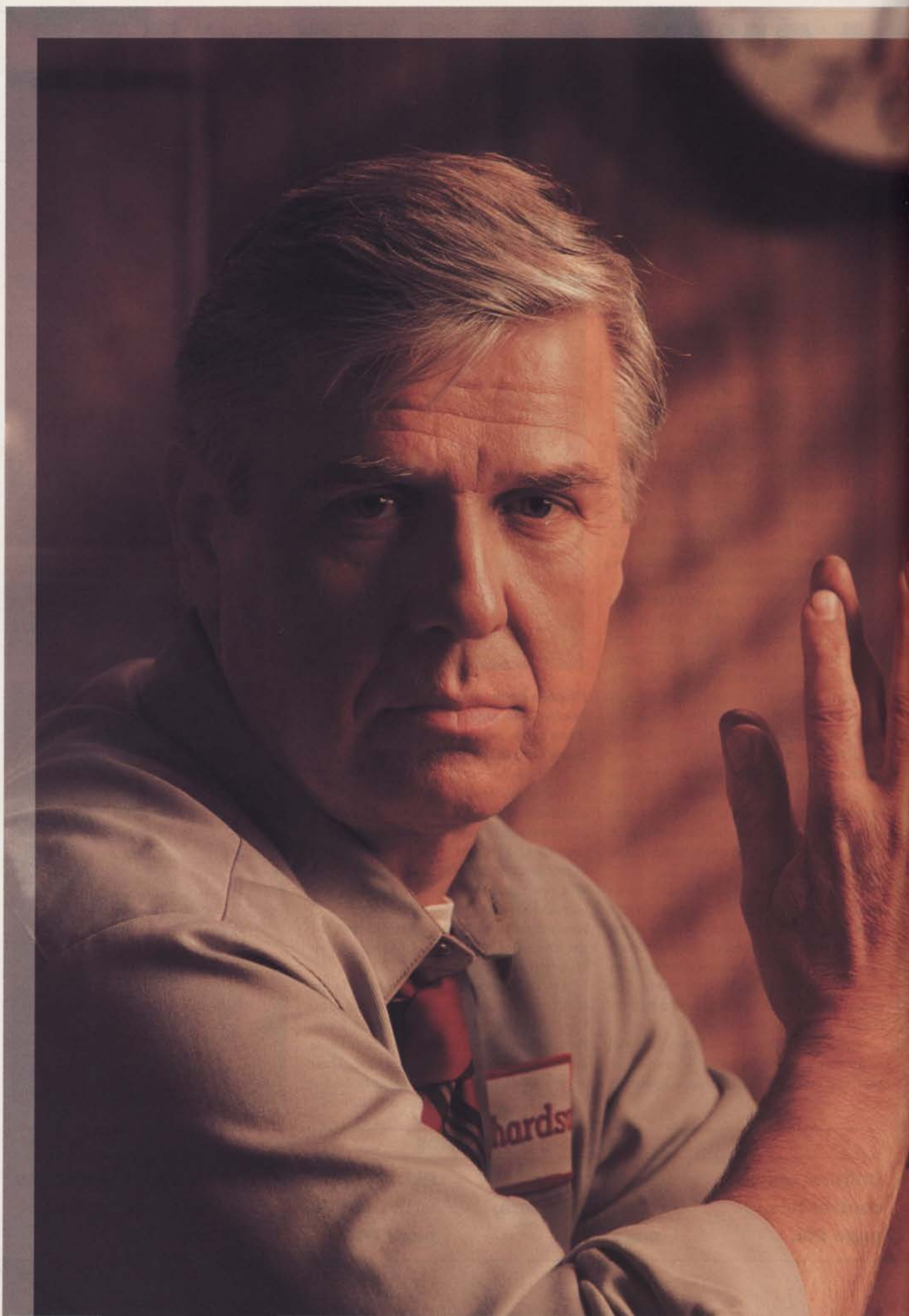
### INSIDE

**Cultural disease control tips, page 20L**

**Find niche to beat low-ballers, page 22L**

**PLCAA to partner with the EPA, page 24L**

**Use photography to sell your pruning, page 30L**







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**RETAIL** from page 17L relates to our people and resources.

In-house, at the employee level, the morale is high and everyone is content due to guaranteed work all year. Inclement weather days are spent inside, stocking shelves with products and working in outdoor greenhouses potting plants. Retail sales seminars offered by our suppliers to our employees are available. Just as important, our employees who maintain excellent horticultural skills can deploy their skills in a different direction.

With the purchase of Locust Glen Garden Center in conjunction with the of Zenk Country Landscapes business, our customer base is growing. Materials are purchased directly from sources such as growers and manufacturers rather than retailers. There will always be the black market in the landscape service sector with the fly-by-night individuals out to grab a few quick dollars after their workday ends. But we have found that the high-end customer who values the extra level of complete devotion to their property will seek

out the true professionals.

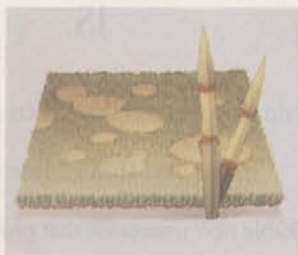
Those of us who dedicate endless hours in the horticultural service sector must constantly think of ways to expand business and stay ahead of the competition. As a result, we will protect the livelihoods we have worked so diligently to establish.

—The author is vice president of Zenk Country Landscapes, Granite Springs, N.Y. and co-owner of Locust Glen Garden Center, New Fairfield, Conn.

## Cultural control of diseases in residential home lawns



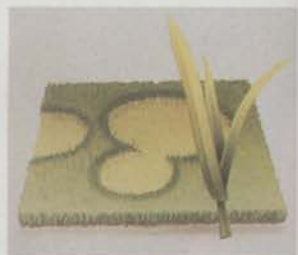
Red thread



Dollar spot



Leaf spot



Brown patch

■ Seed selection, mowing, fertility, irrigation and aeration can all affect the incidence of turf diseases in home lawns, says Dr. Karen Plumley of the plant pathology department at Cook College, Rutgers University.

If homeowners indicate some resistance to their lawn/landscape company using chemical disease controls, there are options, she says.

Here are steps you should take:

**1)** Place a plant (turf) in an area that is friendly to its growth. In other words, select the right turf type for the right lawn. And select disease-resistant cultivars.

**2)** Mow with sharp blades.

**3)** Give the turf a "balanced diet" of fertilizer to increase plant strength.

**4)** Irrigate deeply and infrequently. "Irrigation is one of the practices most misused," Plumley notes.

**5)** Aerify to control thatch. "Thatch build-up leads to shallow rooting and water build-up that further weakens the plant," she says.

Here are some common plant diseases,

their symptoms and their cultural controls, though she recommends supplemental chemical control in most cases:

**Leaf spot/melting out (*Drechsleria* spp.)** most affects Kentucky bluegrass. It appears as yellow lesions with bluish borders on the leaf tissue. Cool, moist weather, excessive nitrogen, thatch and low mowing are conditions that favor leaf spot. To control, you may want to raise your mowing height, avoid over-fertilizing, avoid light frequent irrigation, control thatch through aeration or verticutting, use resistant cultivars and apply recommended fungicides.

**Dollar spot (*Sclerotinia homeocarpa*)** most affects Kentucky bluegrass, bentgrass and ryegrasses. It appears as lesions with bleached white centers and brown borders with white halos. Conditions favoring dollar spot are warm weather, high humidity, dew, low nitrogen, moisture extremes, thatch and low mowing practices. To control, you should maintain proper fertilization levels, avoid drought stress with irrigation, control thatch, use resistant cultivars and apply recommend-

ed fungicides.

**Brown patch (*Rhizoctonia solani*)** appears most frequently on bentgrass, ryegrasses and fescues. You will note circular patches of thinning turf and tan lesions with brown borders. Brown patch shows up in hot, wet weather, periods of high humidity, over-nitrogen-fertilized lawns and heavy thatch. To control, use good water management practices, avoid excess nitrogen, control thatch, mow at the proper height and apply recommended fungicides.

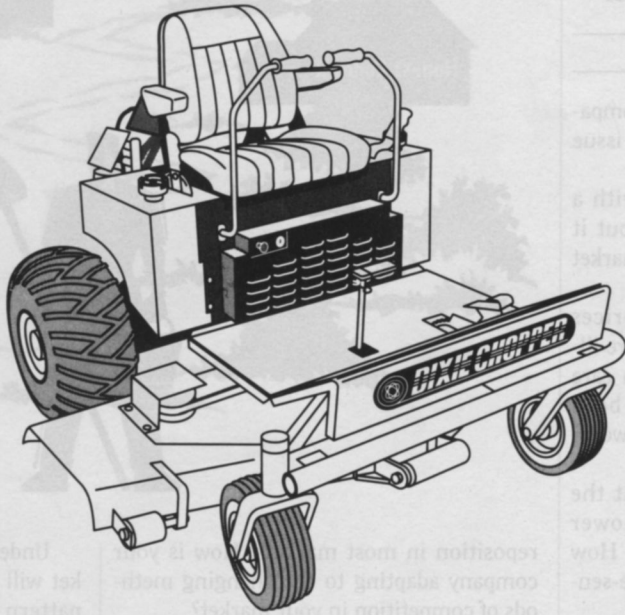
**Red thread (*Laetisaria fuciformis*)** will affect bentgrass, bluegrass, ryegrasses and fescues. Patches with a reddish cast will appear, and you will actually be able to see red threads, reproductive structures of the fungus, in the turf. It will appear under conditions of low nitrogen fertility, free moisture, low temperatures, drought stress and with the use of some plant growth regulators. To control: maintain adequate fertilization, maintain pH, use resistant cultivars, prevent drought stress and apply recommended fungicides.

—Jerry Roche



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# Dealing with low-priced competition

**Experienced LCOs know how to deal with the new threat from large companies which become low-ballers in the market.**

by Ed and Aaron Wandtke

■ How to compete with lawn care companies that offer very low prices is an issue that seems to resurface each spring.

Making a profit when dealing with a low-priced competitor is possible, but it requires increased attention to the market you are serving.

As competition heats up and prices decline, many lawn care companies are ill-prepared to react, even though lawn care customers still seek what they've been seeking for years: a thicker, greener, weed-free lawn from a company that cares.

Can your company deliver what the customer wants, in light of the lower prices offered by the competition? How can it survive in this apparently price-sensitive market?

For many years, it was thought that the number of potential lawn care customers in any particular market was fixed. But industry pricing is causing this to change. In addition, the largest do-it-yourself (DIY) retailer, O.M. Scotts, is steadily increasing its prices. So the price spread between DIY and professional service is slowly merging, and new homeowners are considering affordable professional lawn care.

As the owner of your business, you need to know why customers choose your company. Have you surveyed them? What demographic or geographic profile have you developed on them?

**Your 'position'**—A variety of niches (or positions) are available in each market, so you need to identify yours.

In the early 1980s, Barefoot Grass defined its niche as the high-priced company. ChemLawn was looked upon as the high-end of the mid-priced companies. One-person operations were understood to offer the lowest prices. However, regulations, certification, IPM, insurance, and other changes are causing companies to



reposition in most markets. How is your company adapting to the changing methods of competition in your market?

The pricing tactics of competitors are the basis of frequent complaints among LCOs. Unique in the 1990s is a new twist on the low-price issue: how to not only deal with the *smallest* companies offering the lowest prices, but how also to deal with the *largest* companies offering the lowest prices.

Just because some people seek the lowest price doesn't mean that everybody does. For instance, some car-owners buy the lowest-priced car and run it until it drops. Yet more higher-priced automobiles are being sold today than ever before.

One LCO in Kansas City agrees with this wife that lower prices are affecting their business in a positive manner. Because of an increasing number of phone inquiries, they were forced to hire a new office employee. More repeat customers are also calling the office regularly to ask questions and chat. Price is discussed with new prospects calling the office, but once the program is explained and their lawn personally inspected by a professional, price is no longer an issue.

Understanding your niche in the market will enable you to identify the buying pattern customers use when evaluating lawn care options. They are often willing to explain why they chose your lawn care company, if you ask. Knowing this important information will provide valuable insight for determining future prospects.

**Make it so**—Defining the market niche can be easy. Although a company may provide services relating to grass maintenance, landscape design, fertilization, sprinkler systems or general maintenance, a niche exists somewhere in this mix.

Do a percentage breakdown by both time and profitability for each service. If you're spending more time on certain functions and not getting much profit from them, reevaluate your market niche.

Once you establish your market niche, you should aggressively market to all prospects in that niche. Beware of leads outside of the identified niche, and approach those prospects accordingly because they may require valuable time away from customers in your niche. Attempting to satisfy prospects not in your niche may be both expensive and frustrating.

*continued on page 24L*



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**COMPETITION** from page 22L

**New for the 1990's: how to deal with the largest companies offering the lowest prices.**

If you discover your market niche is too small or another company is aggressively marketing to it, be prepared to change. You may want to specialize in more than one niche, to allow the company to shift its efforts according to customer demand. (Price-conscious customers may not be concerned with the quality; likewise, quality-conscious customers may not be concerned with price.)

**Selling against price**—Most LCOs are not prepared to deal with price shoppers, but it can be done by telling them the other factors to consider when evaluating a company: things like quality of service, professionalism, timeliness, cleanliness,

and ability to answer questions.

Train employees how to communicate these positive attributes of your company to prospects. Preparing them to handle the pricing issue will help ease the communication between both the employees and the prospects.

Regardless of the tactics engineered by your competition, an understanding of your niche and where exactly your company fits in relation to the competition will help define your potential market share.

Keep in mind that the lower prices initiated by yourself and the competition are not likely to have significant impact on your market share this year.

And remember: the lowest priced company in a market usually has the highest customer turnover.

—The authors are principles in Wandtke & Associates, a green industry consulting firm headquartered in Columbus, Ohio. For more information, phone (614) 891-3111.

## PLCAA's dynamite idea: partnering with the EPA

by Ron Hall,  
Senior editor

■ Lawn care professionals may soon be showing customers another side of their environmental concern through a unique PLCAA/EPA partnership.

The program is the EPA's Pesticide Environmental Stewardship Program. It promotes the wise and responsible use of pesticide products. The Professional Lawn Care Association of America is the first green industry group to partner with the U.S. Environmental Protection Agency in the program. To date, most program participants have come from ag grower groups and right-of-way maintainers.

"We're developing our environmental stewardship strategy now. When it's approved, PLCAA members can publicize their participation," says Thomas Delaney, PLCAA government affairs director. In other words, PLCAA members who participate in the program and meet its criteria will be able to tell their customers that

they are a part of the EPA program.

PLCAA earned the right to offer the program to members because of its ongoing efforts to educate the public to the benefits of healthy lawns, promote sensible lawn care practices and to reduce the risks of pesticide use, said Delaney.

"I applaud the steps your organization has already taken toward reducing the risks from the use of pesticides," wrote EPA's Daniel M. Barolo, director of the Office of Pesticide Programs, in a recent letter to PLCAA. "To further advance our common environmental goals, the next steps require collaborative public-private partnerships."

**More about environment**—PLCAA could yet help promote an Audubon Society program if it can get some financial help in printing the literature.

The Audubon Society of New York State's "Backyard Sanctuary" program is similar in purpose, if not in success, to its golf course sanctuary program. That pro-

*continued on page 26L*

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**PLCAA** from page 24L

gram promotes wildlife habitat enhancement on golf courses. More than 1,000 course superintendents are participating in it. The Backyard Sanctuary program has attracted far fewer cooperators, said Audubon's President Ron Dodson, mostly because homeowners don't know about it.

Dodson spoke at the PLCAA Conference this past fall. He said Audubon would cooperate with PLCAA in supplying PLCAA members with Backyard Sanctuary material. He described the collaboration as a win-win-win situation. PLCAA provides its member companies with more consumer-friendly information, lawn care pros gain stature for helping enhance the environment, and ASNYS's sanctuary program reaches homeowners.

"I think it makes perfect sense for lots of different reasons for us to partner on this," Dodson told *LANDSCAPE MANAGEMENT* magazine.

**Certification gains steam**—About 600 people are registered in the University of Georgia-PLCAA turf certification program. There are now at least 45 Certified Turfgrass

Professionals (CTPs), those that have successfully completed the course. Dr. Helen Mills, department head, U. of Ga.'s Community Learning Resources, said the correspondence course had attracted participants from as far away as Singapore and Israel. It covers such topics as mowing, soils, irrigation, pesticides, customer relations and more.

"We're exceptionally pleased with the response," said Mills. The program is in its second year.

"The UGA-PLCAA course is a must for someone entering the business and a great refresher for experienced LCOs," said Lou Wierichs, Jr., Pro-X Systems, Fox Cities and Green Bay, Wis. Wierichs was the first CTP.

**Legislative Day**—More than 80 lawn care professionals from 27 states attended PLCAA's sixth Legislative Day on the Hill this past Feb. 27-28. They met with former Republican Congressman Fred Grandy from Iowa before meeting with their own lawmakers. Grandy, still well-known for his role on the TV series *Love Boat*, told the LCOs to keep in close touch with their legislators.

"Americans are not sure what they're

looking for in the next generation of leadership, but they are reasonably certain that they haven't found it yet," Grandy said. "Don't be convinced that the hurricane is over."

**A Texas theme**—New Frontiers in Lawn Care is the theme of 1995 PLCAA conference in Fort Worth this autumn. This is PLCAA's 16 conference. It runs in conjunction with the Green Industry Expo Nov. 12-16.

"For this year's conference in the Lone Star state, we've developed a frontier theme and agenda reflecting rapid changes and expanding growth in our industry," said Conference Chairman Bill Hoopes, Barefoot Grass Lawn Service, Worthington, Ohio.

Subjects covered in this year's conference include: IPM, employee considerations, the fate of pesticides, biological weed controls, environmental stewardship, understanding epidemiology and others.

Contact: PLCAA, 1000 Johnson Ferry Road, NE, Suite C-135, Marietta, Ga. 30068. Phone (800) 458-3466. Fax (404) 578-6071.

## Predicting your financial future

by Dan Sautner

■ Throughout the life of your lawn or landscape company, you are continually asked to predict the future. Your banker wants to know how you will repay loans. You hire new employees when you expect more business. You purchase a new truck because you expect to need it in the future.

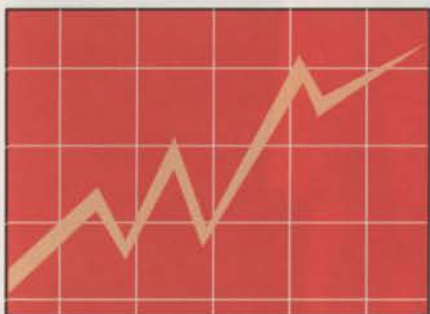
We often predict the future by relying on our intuition or gut feeling about the business. We consider the past, make adjustments for the new environment the future always brings, and then take a stand on where sales will be.

Something you can use as a tool to make your future predictions are cash flow projections. They are estimations of where cash will come from and where it will go.

These projections take a number of forms and have a number of uses:

□ Projections that can be broken down into three-month periods and cover up to five years are often used in major capital acquisitions (such as a new building).

□ Projections by the month for periods of two or three years are most commonly used when raising debt at a bank. The pri-



mary focus of these types of projections is when and how much excess cash will be generated. The lender will then use these to help him or her determine your ability to repay a loan.

□ The simplest forms of projections are those related to a single project, event or season. Time frames are contracted and often the information is restricted to only those elements affected. An example might be the decision to purchase a display booth at a trade show. Here the event and costs have a limited, easily-definable life.

Let's use this last type as an example to develop a cash flow projection.

First, determine what costs will be needed to undertake the project. List these on a page, left-hand side, about a third of the

way down the page. Label the column "Uses," and then make another set of columns ("Weeks") to cover the time frame. In this instance, since the trade show begins in eight weeks, use eight columns—one for each week—plus one for "Total."

Using the list of expenses, first work out the total money you'll need and record it in the "Total" column. You'll allocate it by "Weeks" later. If the total is realistic and obtainable, you can go to the next step.

On the top third of the page, on the far left, list the "Sources" of cash for this project. It may include immediate sales at the trade show or costs avoided while at the show. Then place the total in the "Total" column. Now add a final line in the sources, called "Contributions." Use this line to balance the sources of cash to the uses of cash. In a perfect world, sources will be higher than uses and no amount will be required here. In many cases, however, you will have to put cash into the venture, after determining, of course, if this type of contribution is possible.

Now, you break the total sources of

*continued on page 30L*





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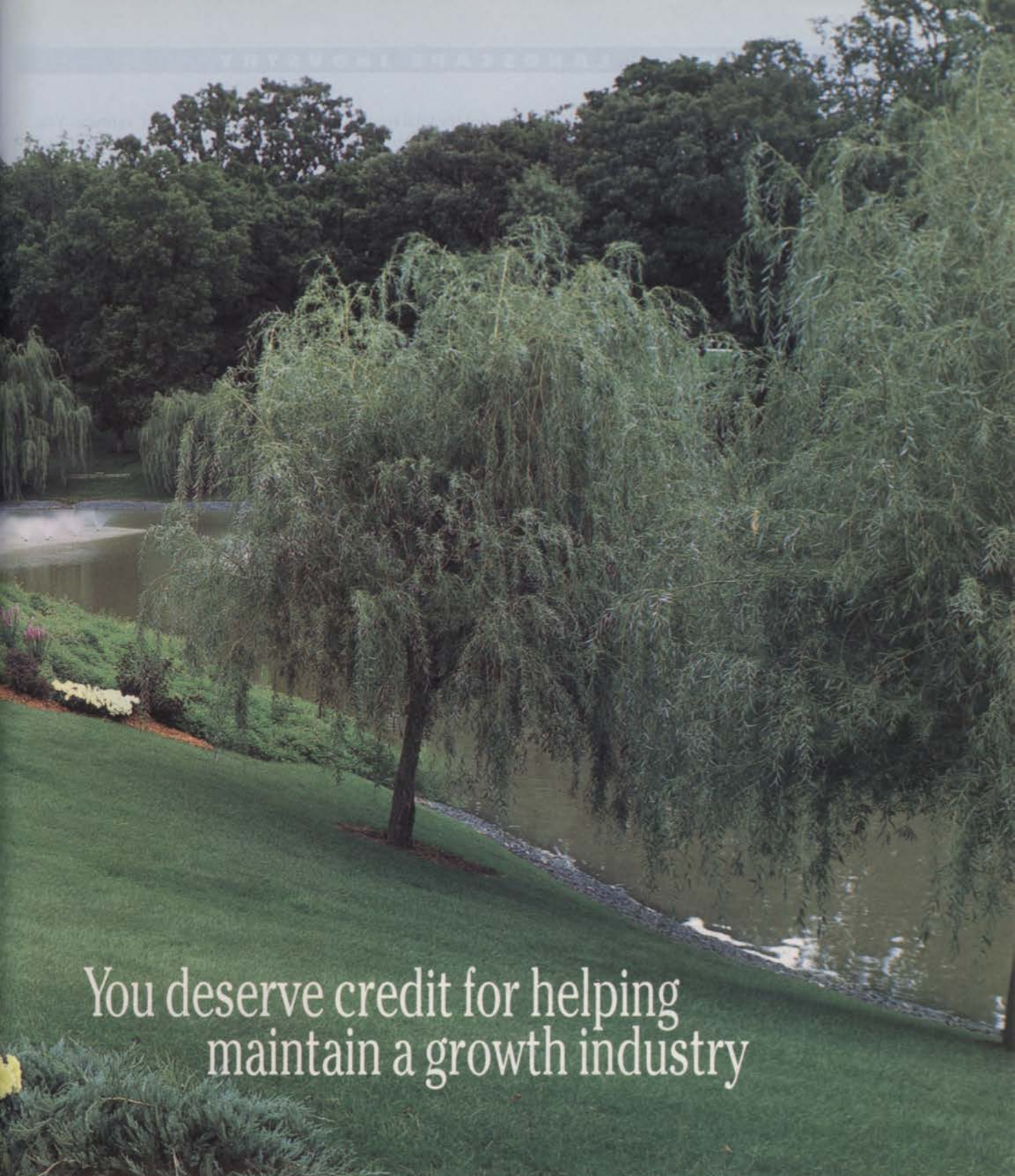




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**FINANCIAL** from page 26L

cash and uses of funds up among the eight weekly columns. Remember to figure when the cash will actually move, as opposed to when you incur the liability. Once these have been distributed, determine the totals for each weekly column.

You will now be able to schedule your contributions so each week is balanced in its source of cash use. In all likelihood, you'll find your contributions reach a high water mark early in the project. This

amount may even exceed the total requirement. The accumulated contribution is the most cash you will need to undertake the project.

Now you can juggle the numbers if necessary. Remember that many projects, in and of themselves, are not positive cash-flow generators. The reason they're undertaken is that they assist the company in its total operation and are an investment.

Cash flow projections can be valuable because they highlight the financial

aspects of a new idea or venture. You, then, must balance the investment with intangible benefits.

Once the project is under way, track the actual against the projection to help you budget and/or understand the effect of cost overruns.

For larger projects, of course, you'll want to get the help of your accountant.

—The author is chairman of Padgett Business Services, with more than 250 offices in North America.

## Show and sell

By James E. Guyette,  
Contributing editor

■ Photographs of past and present pruning projects can help you sell the service to new clients, says the author of a newly published book on tree care.

This is especially true when large amounts of plant material need to be trimmed, according to Kris Medic, city landscape manager and arborist in Columbus, Ind. "That's a pretty scary thing to a property owner, to see that much coming off," she observes.

"Show them some before and after photos of pruning you have done. It makes a big difference for people to see what the results are because 'renovation pruning' is a big leap of faith."

Communicating with the customer remains crucial, and of course the landscape manager needs to have confidence. "Make sure they know what to expect," says Medic, who is author of the newly published *Rodale's Successful Organic Gardening Pruning* (1995, Rodale Press; \$24.95 hard cover; \$14.95 paperback).

According to Medic, organic pruning techniques tend to be no different than standard pruning techniques; the book's title reflects a series of Rodale publications targeted at organics.

The 160-page book is crammed with reader-friendly instructions of proper pruning and beautifully illustrated with 250 color photos and 50 drawings. Its thoroughness compliments nicely with the works produced by Alex Shigo in regard to tree care.

Medic's book belongs on the dashboard of any professional landscape manager



**Restoration of Mill Race Park included planting 686 new trees in the 2½- to 3-inch caliper range.**

who offers pruning services.

"Many of the pruning techniques allow you to reduce your liability for disease and insect problems," Medic explains. "Good pruning is good business, and you can't go wrong when you do appropriate pruning. It will help you improve your bottom line."

In addition to containing advice of great use to landscape managers and arborists serving residential and commercial accounts, Medic's project can benefit those involved with government and institutional work.

The book provides practical selection techniques to use when choosing plant

*continued on page 32L*

## Safety is still first



■ Author Kris Medic says tree pruning safety must be clearly communicated to workers.

"It's important to have a safety program," she says, "and make sure the employees know that safety is a primary concern."

Supervisors can set examples by adhering closely to safety standards. Using the correct equipment and wearing the right clothing is essential.

Something as seemingly simple as donning a pair of gloves can be critical. "I've seen—and had it happen to myself—a lot of sliced gloves," Medic recalls. "A sliced glove saves a trip to the emergency room."

Medic notes that many landscape managers tend to disdain proper handgear, and then injury strikes.

"I've seen it happen dozens of times over the years," she says, in reference to cut hands. "Some people are too proud to wear gloves," Medic observes. "It's not rocket science, but it does make a difference."

—J.G.





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**TREES** from page 30L

materials for any area.

"They should be hand-picked for that site no matter what the project is," Medic insists. "No matter if it's a modern building designed by a world class architect or a lift station that serves a sewer plant."

Too many times plants are picked for the wrong location and for all the wrong reasons. Advance planning for plant selection should be a standard part of any project "so it's not going to burden the taxpayers with ridiculous horticultural choices," says Medic, an industry veteran who has a long list of awards and published works.

While some mistakes may take the form of being costly (such as planting fast-growing materials under powerlines that then require constant care) other blunders such as falling branches—are more serious.

Appearance, of course, remains a vital consideration. Medic says it's especially critical in the Indiana community she serves, which she describes as "a living museum of modern architecture."

Landscape managers in other towns can benefit by applying some well-thought



Mill Race Park in Columbus, Ind. is a 98-acre park with many mature trees.

creativity to their assignments, and believes they tend to limit themselves when they should be using their horticultural skills to the utmost.

"People think that if it's low-budget and low-maintenance they have to end up with low expectations," she says. Not true. Do some research (such as reviewing the

selection techniques in the book) and apply some serious thinking to the issue. "When we add to that challenge we come up with wonderful design solutions," she observes.

—To order Rodale's guide to pruning, call (610) 967-5171.

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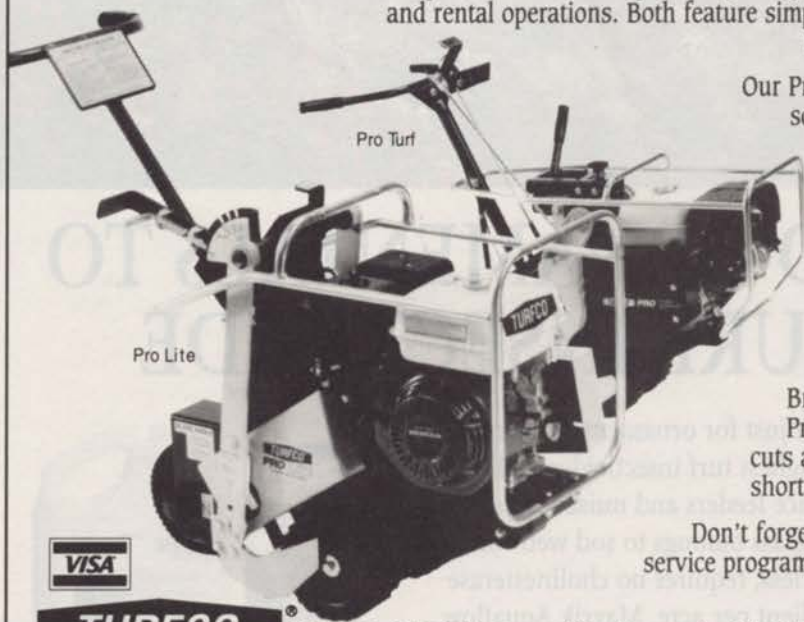
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# Herbicides, algaecides and colorants can combat aquatic weed overgrowth

**Cattails, waterlilies and other aquatic plant life are always welcome in small quantities. But too many can be a control challenge.**

by Terry McIver

■ If there's a body of water on any of the landscapes you manage, sooner or later you'll encounter aquatic weeds or algae.

Whether or not aquatic plants are a problem depends largely on the amount of growth present in the pond or lake. Several hundred native plants grow in low numbers and serve as food sources and protection for fish and wildlife. Such plants should ideally cover up to 40 percent of a pond or lake.

If allowed to grow wild with no control at all, aquatic plants can lower the quality of drinking water, clog natural waterways and man-made systems, reduce game fish populations, and throw cold water on water sports.

And nothing looks worse on a golf course than an algae-choked pond.

**Control methods—** Drastic weed problems require drastic measures.

In weed-choked waterways in Florida, for example, controlled burns are often used to reduce massive weed acreage (see sidebar).

For much smaller weed problems, there



**A worker applies Rodeo to brush growing in a roadside canal.**

*Photo courtesy of Monsanto*

are two kinds of aquatic herbicides: systemics and contacts. Systemics enter the plant and disrupt growth or metabolic functions. Contact herbicides create chem-

*continued on page 34*

## Great balls of fire!

■ Aquatic weeds thrive in Florida. Control measures include harvesting, chemical control and—when you want to remove acres of weeds quickly—controlled burning.

Joe Hinkle, environmental specialist with the Florida Department of Environmental Protection, Lake City, Fla., often oversees burns of these marshy areas. In one recent project, 350 acres of sawgrass, maidencane and hardwood were burned out of Orange Lake.

"Existing airboat trails and a natural creek on the lake's east side were used as firebreaks," explains Hinkle. "Some firing was conducted from an airboat to enhance firebreaks in thick areas of vegetation and to act as a visual guide for the aerial ignition of the rest of the burn area."

"Aerial ignition was conducted using the Delayed Aerial Ignition Device, or ping-pong ball system."

It might sound like fun, but it's serious business. Small, plastic spheres containing potassium permanganate are injected with ethylene glycol and jettisoned from the copter. By the time the balls touch down,



combustion has begun inside, which then ignites the weeds. According to Hinkle, the aerial drops cut the time needed for the burn and reduces the amount of smoke.

They've got all kinds of toys for battling aquatic weeds in Florida. Another is what Hinkle calls a "cookie cutter," an airboat equipped with blades which clear a path through the water. Harvesters are another popular control device.

"Floating islands in Lochloosa Lake continually move around in the lake," says

Hinkle. "These large mounds of weeds block public boat ramps and impede access to the public." In a trial project, the weeds were pushed to the public boat ramp, removed, and deposited to an upland site. The majority of these islands consisted of two exotic species of wild taro, alligatorweed and a native pennywort.

—T.M. (Photo by Terry Sullivan)



## AQUATIC ALGAECIDES AND HERBICIDES

LM REPORTS from page 33

ical imbalances, disrupt energy flow or cause physical damage to the plant surface.

Another chemical approach is to use dyes or colorants, which interrupt photosynthesis by acting as aquatic sunblocks.

You might choose to add an adjuvant to the herbicide mix, depending on the circumstances. These products are designed to improve the sinking, confinement and contact properties of aquatic herbicides. Ed Miller, owner and president of Southern Weed Control, Deerfield Beach, Fla., has had good luck with Terra's Subcide adjuvant. "I use it for drift control when using Rodeo on submerged grasses, with copper algaecides and Diquat," he notes.

"You want to keep the chemical where you put it, for as long as possible; that's my philosophy," says Miller, who has also been having success recently with the Aquashade dye, after "giving it time."

Biological control agents include two weevils (*Neochetina*), a fungus (*Cercospora*) and the water-hyacinth mite

## Four types of aquatic weeds:

**Emergent:** These plants grow above the water in shallow areas. Many are not true aquatic plants, and could survive out of the water. Examples: cattails, arrowhead; spikerush; waterlily, bulrush.

**Submerged:** Rooted at the bottom and are completely underwater. Submerged weeds are usually "flaccid" and lack rigid cellular tissue. Flowers, if present, may extend above the water surface. Examples: pondweeds (sago/small/curly-leaf/American); widgeon grass; southern naiad; coontail; hydrilla.

**Floating:** Plants with leaves that float on the surface and are rooted on the bottom, as well as free-floating plants. These require water to live. Examples: duckweed; water hyacinth; common salvinia; water lettuce; yellow and white water lilies.

**Algae:** Algae has no true leaves, stems or root systems. The most common type found in golf course ponds is filamentous algae, also referred to affectionately as "pond scum." Other examples: planktonic algae, which resembles pea soup, and pithophora, which grows in clumps and resembles steel wool. —T.M.

SUPPLIER	PRODUCT	SPECIFICATIONS
ABI, Inc. Circle No. 311	Gel Pac	Algae control product the company describes as "environmentally friendly." Use one packet per week for every 10 acre-feet of pond water. Results seen within three weeks.
Applied Biochemists Circle No. 312	Various	Marketers of a line of algae and aquatic weed control products, including Aquashade aquatic dye; Cutrine-Plus liquid algaecide with chelated copper; Weedtrine-D for emerged, submerged and floating plants; and Aquashade OA, a dilute formulation for garden ponds and fountains. The company has struck a marketing agreement with Rhone-Poulenc to market Aqua-Kleen granular aquatic herbicide.
Bonide Products Circle No. 314	herbicides	Bonide copper sulfate pentahydrate; diquat.
Clean-Flo Circle No. 315	C-Flo 6	Formulation of beneficial microorganisms; bacterial enzymes; nutrients and synergists. Microorganisms feed on nitrogen and phosphorus, making it unavailable for algae.
Enviro-Reps International Circle No. 316	Bio-Restoration	Preventive and corrective bio-formulas for pollution control; consists of bacteria-enzymes.
Great Lakes Biochemical Circle No. 317	algaecides	Algimycin PLL-C chelated copper, available in liquid or slow-release tablet; Algimycin GLB-XII wetttable powder.
Lakemaster Circle No. 318	Lakemaster	Complete unit, including air compressor and regulator; kills algae by reducing the amount of phosphorus in the water. Backup system kills residuals with copper low-dose electrodes and algaecide injections if needed.
Lesco Circle No. 319	HydroBlock	Filters wave lengths of sunlight to control weeds and algae in natural and manmade contained lakes and ponds, including ornamental, recreational fish rearing and fish farms.
Monsanto Circle No. 320	Rodeo	Controls a wide range of emergent-type plants growing in and around aquatic sites. Begins to show results two to seven days after treatment.
Parkway Research Circle No. 321	Algae Rid	New liquid aquatic algaecide, effective on a broad range of aquatic algae. Compatible with the company colorants, Blue Lagoon and Blue Lagoon WSB. Also markets Di-Quatic for ponds, lakes and drainage ditches where there is little or no outflow of water; also Consan Triple Action 20 algaecide.
SePro Circle No. 322	Sonar	Vegetation management in lakes, ponds and rivers.
Systematic Irrigation Controls Circle No. 323	algaecides	Ultra-Violet compound, an inorganic nucleic acid.
Terra International Circle No. 324	Subcide	Adjuvant designed to help herbicide cling to aquatic weed surfaces for longer lasting weed control. The company's Riverside line includes 2,4-D Amine 4 to control a large variety of broadleaf weeds in lakes.
Zeneca Circle No. 325	Reward	Diquat dibromide for use on both turf and aquatic areas, along the edges and non-flooded areas of ponds, lakes, drainage ditches and canals. Controls submersed, floating and marginal weeds; controls algae when used in conjunction with an approved algaecide.
Whitmire Research Laboratories Circle No. 326	PT 2000 Green Shield	Biodegradable compound to control algal, fungal, bacterial and viral plant pathogens in pools, fountains and water displays. Also has non-aquatic applications.



(*Orthogalumna*).

**Fertilizers**—Inorganic fertilizers can control underwater vegetation in the southeastern U.S. The theory is that the fertilizer will produce a "bloom" of microscopic algae which will shade out rooted submersed vegetation.

Excellent results have been obtained with this method in relatively infertile impoundments in southern Illinois, by the addition of a triple superphosphate. The fertilizer is applied before the growing season, and additional applications are made to maintain a "bloom" of algae so numerous that your hand can't be seen when submerged to elbow depth. This method is not recommended for all bodies of water, as it could make the problem worse, and will make the water unfit for human consumption.

**Inspect first**—The most important first steps in a management program are to learn the most common species of nuisance plants and regularly inspect the entire body of water. Your next move is based on what you find.

Stage of plant growth, water temperature and weather conditions are the three main factors to consider before you apply products.

Initial treatments to control aquatic weeds work best when applied before weeds are fully grown. This is about May 1st in southern areas and June 1st in northern areas.

One exception to this is Rodeo, which is best applied to aquatic plants "at or beyond early-to-full-bloom stage of growth." The application of Sonar is an other exception. Apply "prior to initiation of weed growth or when weeds begin actively growing."

For best results, most chemicals should be applied early in the day under sunny conditions. Water temperatures above 60°F are recommended. Check all product labels for further information regarding water temperature and weather factors, and for further application suggestions.

—Sources: "How to Identify and Control Water Weeds and Algae," edited by James C. Schmidt. The book is well-organized, with information on various types of aquatic weeds, treatment options and diagrams. Cost is \$6.95; call Applied Biochemists at (800) 558-5106.

Illinois Department of Conservation's Department of Fisheries: "Aquatic Plants, Their Identification and Management."

## POND AND LAKE COLORANTS

SUPPLIER	BRAND NAMES	DESCRIPTIONS
Applied Biochemists Circle No. 327	Aquashadow Lake & Pond Colorant	Blended formulation of water soluble dyes packaged in convenient water soluble packets. Beautifies murky, cloudy or off-colored water with a pleasing natural aqua-blue tint. Complete, even dispersion occurs within hours.
Becker Underwood Circle No. 328	Lake Colorant WSP	Concentrated blend of dry-flowable colorants in easy-to-use water soluble packets (each treats one acre-foot of water) which eliminate need for measuring or any applicator contact. No mess. No stained hands or clothing ruined. No plastic jugs for disposal.
Clean-Flo Laboratories Circle No. 329	Sky Blue Lake Dye, Sky Blue Green Lake Dye	Organic dyes that enhance natural beauty of your pond or lake. Can be used to hide submerged plants from view and to speed up removal of nutrients when used with Clean-Flo Multiple Inversion. Compatible with chelated copper algicides and most other chemicals used in aquatic environment.
Lesco Circle No. 330	Lake and Pond Colorant	Concentrated blend of dry colorants in pre-measured water-soluble packets. Clean, convenient to use. Transforms pale or off-color water into a natural-appearing deep blue. Treated water is non-staining and may be used for recreation and turf irrigation.
Parkway Research Circle No. 331	Aqua Clear Products	3 choices: liquid concentrate, super concentrate or water soluble bags. Adds natural beauty to ponds, lakes, fountains and lagoons by coloring them beautiful blue shade. Will not stain birds or fish. Once dispersed, will not disrupt fishing, swimming, irrigation.
Precision Laboratories Circle No. 332	True Blue Lake & Pond Dye	Available in one-gallon containers or water-soluble packets (SoluPak) for easy tossing. Highly concentrated. Odorless and biodegradable. Non-toxic to fish, birds and animals. Long-lasting natural, dark aqua blue coloring to ponds, water hazards, lakes and fountains.
Terra International Circle No. 333	Terramark Lake Colorant	Concentrated blend of dry flowable colorants in pre-measured water soluble packets. One packet colors one acre foot of water. Transforms pale, dirty, or off-color water into a natural-appearing blue. Fish, waterfowl and animals not harmed. May be applied to areas used for irrigation.
United Horticultural Supply Circle No. 334	Turfgo Aquablue	Available in one gallon liquid containers or water soluble packets which are clean and easy to use. No container disposal problems. Harmless to fish and wildlife. Swimming and other recreational sports approved following use.

Chart compiled by Ron Hall





# Reel grinding for turf health, beauty

by Don Lindenfelser

Reel mowers are precision machines that need daily maintenance to retain the turf-grass's well-groomed appearance. The scissor-like shearing action of a reel mower is only possible if the reel and bedknife are sharp and the proper reel-to-bedknife clearance is maintained.

Cutting action begins as the bedknife positions the grass to be cut at the cutting edge. The reel then pulls the grass toward the bedknife where it is sheared by the cutting edges as they pass one another.

For the grass to be cut at the proper height, it must contact a bedknife with the proper angle at the cutting edge, so you should grind a 5 percent relief angle on the front face of the bedknife. Without a relief angle, the blade of grass will contact the lower edge of the bedknife and bend over at too much of an angle prior to being cut. When mowing greens, where very small cuts are being taken, an improperly aligned bedknife may not capture the grass at all, and no grass will be cut.

Close examination of the reel-to-bedknife relationship reveals two square edges passing one another with approximately .002 of an inch clearance. This clearance is necessary because:

□ If the reel contacts the bedknife, the square (sharp) edge of the reel and bedknife will roll over, becoming dull.

□ Contact between the reel and bedknife generates heat which can distort the shape of the bedknife, and cause the bedknife to draw closer to the reel, resulting in the cutting surfaces rolling over more, and more heat being generated in the bedknife.

□ Drag produced by an improperly

adjusted cutting unit may result in an unacceptable clip ratio, undue strain on drive mechanisms and premature wear of the cutting unit.

**Reel and bedknife grinding**—Reel and bedknife grinding are used to:

□ restore the cylindrical shape of a reel that has become cone-shaped due to improper adjustment of the reel-to-bedknife clearance or due to worn reel bearings;

□ restore the edge when the grass is not being cut across the entire length of the bedknife due to nicked blades;

John Deere recommends relief grinding the reels before spin-grinding to:

□ Reduce the blade contact area, resulting in less friction, thus requiring less horsepower to drive the reel;

□ Ensure longer wear life;

□ Cut time required to backlap;

□ Reduce pulling and tearing of the grass as the unit becomes dull from use;

□ Provide an area for backlapping compound to be trapped to backlap reels more effectively;

□ Remove metal from the trailing edge

of the blade forming an angle (the relief angle) to reduce the contact area of the cutting edge; and

□ Allow the operator to true a reel (make it round), when backlapping, if a blade is .001 inch to .002 inch too high.

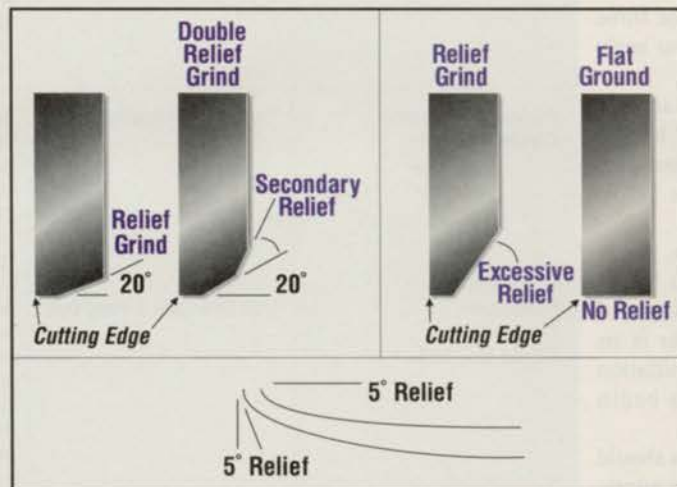
**Backlapping**—Backlapping is used to sharpen the cutting edges when grinding is not necessary. Backlapping, as compared to grinding, removes a very small amount of metal and requires less time.

The backlapping procedure is accomplished by spinning the reel backwards while applying special abrasive compounds to the reel. Usually, coarse compounds are used initially, followed by a finer abrasive for final honing.

John Deere recommends backlapping after spingrinding to remove burrs and rough edges left from the spingrinding procedure. Backlapping produces a honed edge that will cut the grass evenly and leave the tops of the grass with clean, straight edges.

The cutting unit should be inspected, backlapped, adjusted and checked daily for a uniform cut along the complete length of the bedknife. The adjustment should

*continued on page 38*



□ restore the edge when the lack of frequent backlapping allowed the edge to be rounded beyond the capability of the backlapping procedure to restore the edge; and

□ restore the edge when the reel-to-bedknife clearance has been improperly adjusted allowing the reel to contact the bedknife.

**Relief grinding**—Relief grinding restores the factory relief angle to prolong cutting unit life and promote fast between-grind sharpening (lapping). To grind a cutting unit without relief is doing half the job, and maintenance costs will increase due to the constant metal-to-metal contact of the "flat" ground reel blade.





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2/95 SHAM

LW



## SHARPENING from page 20

allow the reel to turn freely without dragging against the bedknife. Metal-to-metal contact will generate heat, causing the reel to expand, intensify the dragging and produce more heat. This vicious cycle will quickly "shut-down" the mower.

**Reel and bedknife sharpening—**Sharpening is necessary when the grass is not being cut cleanly due to dull bedknife and/or reel blade edges, or when turf streaking is apparent, caused by the bedknife and reel not cutting the full width of the blade due to nicks, bends or uneven wear.

Lap when the relief angle remains and edges are rounded only slightly. Grind when no, or very little, relief angle remains on the reel blade and/or the bedknife relief angle is minimal or non-existent.

**Precision grinders—**Many grinders on the market today provide an acceptable quality reel and bedknife grind, but this is not equivalent to a "factory" precision grind. At the John Deere, Horicon, Wis., factory, the reels and bedknives are ground on very precise industrial grinders that are mounted to an independent concrete bed over 12 feet deep to eliminate vibration. Though a grinder of this quality is too expensive for most golf course budgets, superintendents are demanding as close to a "factory grind" as possible to provide the highest quality turf for their players.

Therefore, it's important the reel and bedknife grinders be set up properly!

The grinders should be kept as clean as possible to prevent premature wear and maintain their precision design. A separate grinding room in the equipment maintenance building helps to protect the reel and bedknife grinder. Level the grinder on a flat concrete floor and bolt it down securely.

The capability of the reel grinder to perform relief and spin grinding operations is paramount to provide the highest quality cut and longest possible interval between grinding periods. Look for a precision grinder that has coolant to prevent overheating the metal, which could cause brittleness. The coolant also reduces the grinding dust. Among other key features to consider are plexiglass shields, machine "shutdown" capabilities, and cutting unit lift attachments.

To provide the best possible quality of turf, it's imperative that reel and bedknife maintenance operations be performed routinely with well maintained precision equipment and highly skilled operators. With tolerances of .001 to .002 of an inch between the reel and the bedknife, precision is a must.

*—Don Lindenfelser is based in John Deere's Horicon, Wis., facility and serves as field service coordinator for the Golf and Turf Division.*

## Reel grinding tips

1) "Dress" the grinding stone (per the manufacturer's recommendation) and replace it regularly to ensure precision grinding.

2) Make sure the grinding stone is entering from the back side of the reel blades to obtain the proper grind.

3) Inspect and/or replace the reel bearings and seals before grinding.

4) Perform the relief grinding operation first and then spin grind. Follow the manufacturer's specifications when performing these grinds. John Deere recommends 20 degrees relief on the reel blades and 5 degrees relief on the bedknives' top face and front edge.

5) Avoid rapid, quick grinding as this procedure may not provide a sharp edge (square corner).

6) If the metal becomes discolored as you are grinding, too much material is being removed at one time.

7) After grinding, wash the cutting unit reel thoroughly to remove the grinding dust. It's essential the grinding dust be removed in the reel bearing journal areas to prevent premature reel bearing wear.

*—D.L.*

## Sharpening rotary mower blades

■ Rotary mowers cut grass as the blade's cutting tip, moving at a high velocity, impacts the grass blades. For a quality cut, the cutting edge of the mower blade must be sharp.

Commercial cutters should install new or resharpened blades at least once a day. This is required for a professional quality cut.

A blade's cutting edge varies in length but is usually several inches long. The first inch does most of the cutting. Assume you are mowing with a walk-behind mower with a blade at 3250 rpm. At this speed, the blade rotates at 54.17 revolutions per second. Also assume that the mower is going forward at 2 mph or 3 feet per second. With two cutting edges on the blade, the 54 rps equates to 108 cutting swaths per second. At 3 fps, each swath removed a  $\frac{3}{4}$ -inch strip of grass;

therefore the interior portion of the cutting edge contributes little to the cutting process. Since the first inch does most of the cutting, it is important to get a good edge on this area.

With some of the popular mulching blades, the extended cutting edge recuts the clippings during suspension. It is also felt that the increased ground speed of riding mowers makes it beneficial to increase the length of the cutting edge.

Once the mower blade has been removed for sharpening:

□ Check the blade to assure that it is not bent and that it has the correct "attitude" in relation to the mower housing and the ground surface. (To check this, place the blade on a perfectly flat surface.) The blade should be straight, with the cutting tips lower than the heel (center portion) of the blade.

□ Sharpen the blade by grinding the top surface only, maintaining the original cutting edge angle. Make sure all nicks are removed and that the cutting tips are smooth and sharp.

□ Make sure the blade is balanced. Use a commercial balancer or place the blade on a pin clamped in a vise. If one end of the blade swings downward, material must be ground gradually from the heavy end until the suspended blade will remain in a fixed position.

□ Properly reposition the blade on the mower. Tighten the retaining nut securely.

*—Contributed by Don Lindenfelser of John Deere, Horicon, Wis. and Devon McGee, product engineer at Encore Manufacturing Co., Beatrice, Neb.*



# Perking up foot-weary turfgrass

**Using wear-tolerant species and the correct cultural practices goes a long way, says Cornhusker expert.**

by Ron Hall

■ Want to put spring and color back into your heavily-trafficked turfgrass? Dr. Robert C. Shearman gave some excellent suggestions at the GCSAA Conference this past February.

Shearman, executive director of the National Turfgrass Evaluations for the University of Nebraska, explained that heavy foot, spike or vehicular traffic crushes, shears and/or tears turfgrass plant tissue. This damage is immediate and apparent. To some extent, he explained, plants can heal themselves, depending on their recuperative potential and the conditions under which they grow.

Traffic, however, often creates a less obvious but more chronic condition—soil compaction. "The turfgrass is then in a lesser position to tolerate other kinds of stresses," he said.

Shearman pointed to research done by Dr. Robert Carrow of the University of



**Dr. Shearman: Aerification plays a crucial role in turf recuperation.**

Georgia, (and others), proving that turfgrass growing in compacted soils produces fewer roots and a shallower root mass. Compacted soils limit the amount of moisture and nutrients a turfgrass plant can draw on, explained Shearman. Both percolation and infiltration rates are decreased. Under these conditions aerification plays "a critical role" in maintaining acceptable turfgrass, he insisted.

Other factors to consider when managing trafficked turf include:

■ **Turfgrass species.** Some species, indeed some varieties within a species, tolerate wear better than others. Warm-season turfs like bermudagrass and zoysiagrass generally tolerate wear better than more-upright-growing cool-season turfs. But dormant bermuda and zoysiagrass both have slow recuperative potential. Improved perennial ryegrasses tolerate

wear and recover from injury rapidly. Check with local university researchers; consult with industry representatives for specific selections.

■ **Mowing height.** Mow at the higher end of the acceptable range.

■ **Irrigation.** Compacted soils will require lighter and more frequent irrigation, or at least until the structure of the soil is improved by aerification and the addition of soil amendments. An application of gypsum can be helpful on soils with high saline/sodium levels.

■ **Fertilization.** Heavily-trafficked turf may require as much as 30 to 40 percent more nitrogen, but managers must be careful not to overfeed the turfgrass. "If you're meeting the nutritional needs of the plant you're increasing the verdure, the density of the turf stand, the load-bearing capacity of that turfgrass," said Shearman. "If you exceed the amount that it needs, you have a tendency to get succulent, watery tissues that are susceptible to traffic injury and stress."

■ **Potassium.** Generally, increasing the rate of potassium that is applied to turfgrass during the growing season—matching even the amount of nitrogen used—increases turfgrass wear tolerance.

"It (turf traffic) is not something you can deal with with a business-as-usual attitude," said Shearman. "You really need to look at things a little differently. You have to adjust your management practices."

## Supers can help 'manage' traffic



**Coldiron: traffic=\$\$\$**

■ Jerry Coldiron, CGCS, says that superintendents knowing the financial operation of their golf courses will have more input in management decisions affecting traffic on their courses

One example is the spacing of tee times: tighter tee times put more golfers on the course and generate more revenues.

"The amount of play directly influences the quality of our product (the course). So why shouldn't we deal with this?" asks Coldiron, superintendent at Boone Links (27 holes) and Lassing Point (18 holes) courses in Florence, Ky. Superintendents, in fact, should be in the best position to determine the optimum number of rounds for their courses, says Coldiron.

Equally important, superintendents should be aware of the number of rounds

needed to generate enough revenues to meet course expenses, reduce debt and finance capital improvements.

"We superintendents need to see and understand the big picture, to focus in on the dollar portion of our operations," he insists.

Today's superintendents must be able to support their positions with accurate and complete data, including financial data. This makes them valuable members of the management teams at their courses.

After all, emphasizes Coldiron: "The success and failure of all golf courses revolve around the course conditions."

And this is no less true at the public courses where golfers still expect excellent playing conditions but at very reasonable prices. —R.H.



# Success with Wildflowers

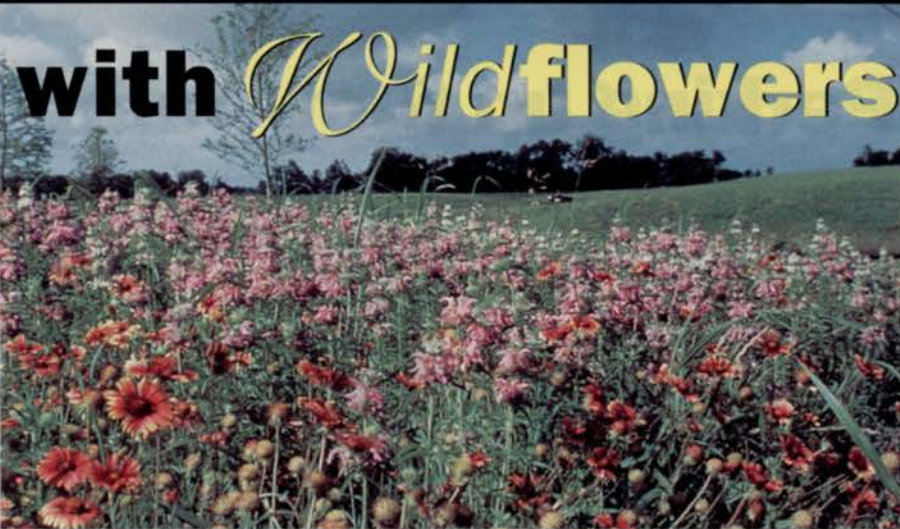
**Growing wildflowers can be the most exciting kind of landscape enhancement imaginable.**

■ Whether you plant wildflowers in huge swaths along roadsides or in tiny pocket gardens in your customers' backyards, the vibrant colors and rich textures of these hardy plants are sure to please the eye.

Like any kind of landscaping, wildflowers require work and planning, but following these few basic rules will assure your success:

**1) Determine your goals.** Before you buy seed, first know what you want from your wildflower plantings. What is your purpose? Do you want three-season color? Textured plants for a winterscape? Only species native to your area? Are you planting to attract birds and butterflies?

**2) Choose the appropriate site.** Although it may be tempting to plant wildflowers in a difficult site where nothing else grows, first stop to consider why this is the case. Wildflowers are hardy, but they're not magical. Most wildflowers need full sun and moderately fertile soils that drain well but not too quickly. While it's possible to plant wildflowers in poor soil on a steep



**All wildflower mixtures should include annuals which act as a nurse crop for slower-growing perennials which do not bloom until the second or third year.**

slope in the shade, this presents a special challenge.

**3) Choose the right seeds.** Your wildflowers will only be as good as the seeds you sow. If you invest the time and energy to plant wildflowers correctly, don't ruin the project by using questionable seeds. Buy from a reputable dealer who can supply you with information about individual species and different kinds of mixtures. Most mixtures include a combination of annuals and perennials. In general, mixtures for warm climates may include more annuals because they tend to reseed year after year. Cold-climate mixtures should contain fewer annuals because they will not readily reseed. Annuals should be included in almost every mixture, however, since they act as a nurse crop for the slower growing perennials which do not bloom until the second or third year.

**4) Prepare the site properly.** It's highly recommended that you remove existing vegetation before you plant wildflower seeds. Till, if you can, to create a loose seedbed. If you can't till, at least scarify the top surface of the soil. You must eliminate weed seeds in the upper layer of soil by allowing them to germinate and begin to grow. The weeds should then be removed by chemical or mechanical means. Don't till again, or you may turn up new weed seeds and you'll have to repeat the process.

**5) Plant the seed.** Good seed-to-soil contact is essential for a high germination rate. For even distribution, mix seeds with

sand, vermiculite or cornmeal. Scatter the seeds and rake them in lightly, being careful not to cover too deep.

Determining the best time to plant is important to the success of the project. Optimum planting times vary with climate and rainfall. Fall plantings offer the advantage of early germination and growth. In mild climates, plant before expected periods of rainfall. In cold climates, plant late enough so the seeds will not germinate until spring. A spring or early summer planting is also fine in most areas. Supplemental watering may be necessary for the first several weeks.

**6) Water sufficiently.** Many wildflowers are considered to be drought-tolerant, but all plants—wildflowers included—need sufficient moisture to germinate and thrive. Tell customers to keep the site evenly moist during the first four to six weeks, then gradually reduce waterings. If your area receives at least 30 inches of rainfall a year, supplemental waterings probably will be unnecessary after this initial period. If you receive less than 30 inches a year, tell customers to supply one-half inch of moisture each week.

**7) Maintain the area.** Wildflower plantings need to be mowed once, usually in late fall. The cut material may be raked or left in place to serve as a protective mulch. Overseed any bare spots, as needed, with one-half the normal seeding rate. If you weed regularly, irrigate during periods of drought and mow once a year, wildflowers will reward your clients with season after season of beauty and fragrance.

—Questions, comments and requests for a list of seed suppliers may be addressed to the Wildflower Group, A.S.T.A., 601 13th St. NW, Suite 570 South, Washington, DC 20005-1593.

