CONVENTIONS

PLCAA to Louisville for lawn conference and show in November

The Professional Lawn Care Association of America will hold its first annual convention Nov. 12-14 at the Commonwealth Convention Center Exhibit Hall in downtown Louisville, Ky.

The theme of the convention — which will include both business seminars and trade exhibits — is "Lawn Care Business Management in the 1980's."

At its board meeting last month, the executive board of PLCAA also planned a release to garden editors of major metropolitan area newspapers.

The focus of the PLCAA convention will deal primarily with business seminars rather than technical seminars, said PLCAA president Jerry Faulring, of Hydro Lawn, Gaithersburg, Md.

"The state and regional turf conferences are doing a very good job of addressing the technical problems a lawn care businessman faces in his job," Faulring told LAWN CARE INDUSTRY. "Lawn care businessmen attending the PLCAA convention will come away from it with answers to many of his business problems."

Registration fees will be $30 for members and $45 for nonmembers of PLCAA. One-day passes will be available for $15 to members and $20 to nonmembers. A percentage of exhibit fees will be applied to associate membership in PLCAA for suppliers to the lawn care industry who exhibit at the convention.

Although final plans have not been set, preliminary plans call for the convention to begin on the morning of Wednesday, November 12. The exhibit hall will be open during almost all convention hours to give exhibitors as much time with show attendees as possible. There will be about six hours of seminars on the first day of the show, and also on the second day — Thursday, Nov. 13. There will be three hours of seminars on the third day of the show — Friday, Nov. 14. The convention will end at noon on Nov. 14. Exhibits will be open during seminars, and also special cocktail receptions on the exhibit floor following the first two day's sessions.

For further information on exhibiting at or attending the convention, contact: Glenn Bostrom, executive director, PLCAA, Suite 1717, 435 N. Michigan Ave., Chicago, IL 60611, or call 312-644-0828.

The planned PLCAA release to garden editors, entitled "Selecting a Lawn Care Company," will be mailed this spring before the lawn care season starts in most parts of the country. It will be written as an informational piece for the homeowner, and will stress the fact that all members of PLCAA conform to a strict code of ethics.

INFLATION

Employe wages to increase about ten percent in 1980

An eight to ten percent increase in employe wages is expected in 1980, according to lawn care businessmen recently contacted by LAWN CARE INDUSTRY magazine. The predicted increase is in line with national trends in other industries. The *Wall Street Journal* recently reported that "most companies" will be increasing wages from 8.5 to 9.5 percent in 1980.

"More than three-fourths of U.S. employes will get what the boss decides to give them because they aren't covered by union contracts," *The Journal* reported. "At some smaller companies, or larger ones that aren't prospering, 1980 raises may average seven percent or so."

Lawn care businessmen almost totally attribute the wage hikes to continued increases in the cost of living. "The cost of living is the main reason I'm increasing my employes' wages from eight to ten percent," Carl Clifton, owner of Lawnscape Systems, Pomona, Calif., said. "We just feel it would be unfair to our employes to try and hold it down to anything less than that."

Kurt Kluznik, president of YardMaster, Painesville, Ohio, also attributes the wage increases to inflation. "Everyone will get a seven to ten percent increase in their salaries for 1980," he said. "The newer people we will be hiring are going to start at a higher rate than our other people did last year as a result of inflation."

Marty Erbaugh, president of Lawnmark Associates, Peninsula, Ohio, also predicts an increase of about eight percent, but his workers will be compensated largely on their personal performance.

"We're going to a variable

to page 46

LAWN CARE INDUSTRY
Serving lawn maintenance and chemical lawn care professionals.
FEBRUARY 1980 • VOL. 4, No. 2 • A Harvest Publication

LAWN CARE ADVERTISING

Yellow Pages most used promo, direct mail most expensive

In a recent survey conducted by LAWN CARE INDUSTRY, 58 percent of the magazine's readers (both chemical lawn care and mowing/maintenance companies) said they used Yellow Pages advertising, spending an average of $993 a year on it.

While Yellow Pages advertising was the most often mentioned medium, direct mail was the most expensive mentioned by readers. More than 19 percent said they used direct mail advertising, spending an average of $9,684 on it yearly.

Other mediums, percentages of respondents that said they use it, and dollar expenditures were:

Newspaper, 42 percent, $1,762; personal solicitation, 27 percent, $1,112; phone, 18 percent, $391; radio, 16 percent, $1,288; door hanger, 12 percent, $2,111; and television, six percent, $6,197.

According to LAWN CARE INDUSTRY market research manager Clarence Arnold, the results are based on a 47.4 percent response to 500 questionnaires mailed in July and tabulated in August and September.

"In order to be counted, a respondent had to do two things," Arnold said. "He had to have a non-zero budget, and he had to allocate part of the budget to the given medium. It is possible that a reader may use these media, but not budget for it. He would not be counted. Thus, if a small company used a Yellow Pages ad, for example, but did not budget for it, it would not be included."

Further, a survey LAWN CARE INDUSTRY conducted in 1978 of homeowners in Columbus, Ohio showed that direct mail was the most likely medium to reach the homeowner, according to Arnold.

QUICK STARTS

on interviews with
Y, page 24. This is
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THE SOUTH

Biology and control of mole crickets

Four species of mole crickets occur in Florida. However, only two — the southern mole cricket and the changa — are of economic importance, according to Klaus T. Geyer of the University of Florida Cooperative Extension Service.

Although two different species are responsible for economic damage, their life cycles are quite similar, he said.

Both species of mole crickets deposit their eggs in chambers hollowed out of the soil. These egg chambers are usually from one inch to one foot beneath the soil surface depending on moisture, temperature and soil type. Low temperatures and dry soil result in chambers made deeper in the soil. Most chambers are found in the upper five inches of soil.

Egg production usually begins in the latter part of March. Peak egg-laying is reached in May through mid-June. The length of time it takes an egg to hatch is related to temperature. Eggs deposited in March require about 35 days to hatch. Eggs deposited in May or June require about 20 days to hatch.

Nymphs first begin to hatch from eggs in the latter part of April. Peak hatching normally occurs during the first half of June., although hatching may extend into September.

The young nymph is completely white but quickly darkens to a brown-black color. Nine days after hatching, the nymphs escape from the chamber by digging a small tunnel straight up to the soil surface. During the summer, the nymphs actively tunnel through the upper soil in search of food. They actively feed on roots of plants and organic matter in the soil.

The nymphs grow rapidly during the summer months and begin maturing into adults by mid-September. When cold weather arrives, the nymphs which have not reached the adult stage cease development and overwinter. Some years, as much as 75 percent of the mole cricket population may overwinter as nymphs.

The adult mole cricket averages about one-and-a-quarter inches in length and is well-adapted for burrowing. The adults emerge from their burrows in either fall or spring for their mating flights. In the spring, flights peak twice. One peak of flight activity occurs in early March when the overwintering adults start flying. The second peak of flight activity occurs about mid-April when the overwintering nymphs mature to adults and leave their burrows. The fall flights occur on warm days in November and December.

"Heavy flights normally occur after a shower during warm weather," Geyer wrote in *Florida Turf*. "The adults are also attracted strongly to lights."

Toxic baits appear to be the best control method for mole crickets in lawns. Toxic baits should be applied around June 15 for best results. At this time, the nymphs are actively foraging for food and will readily accept baits.

But even though toxic baits are applied as directed in June, July and August, adequate control may not be achieved. This is based on the behavior of mole crickets.

Mole cricket nymphs will not feed on the soil surface if the weather is cold or the soil is dry. After several days, the sun and heat break down the insecticide part of the bait. Then, even if the bait is consumed, the mole cricket will not die.

Another consideration is that if a bait is applied and rain immediately follows, the mole crickets will readily consume the bait that night. Unfortunately, the insecticide is washed out of the bait by the rain; and the bait simply becomes an excellent food for the mole cricket.

Correct timing of the bait application would be right after rain in June or July. The nymphs will be feeding on the soil surface at this time because the soil is moist. The insecticide will be consumed before the sun and heat break it down and before rain washes it out of the bait. If applications are made with this correct timing, 65 to 75 percent control will be achieved.

Geyer's recommended baits: 0.5% Dursban, 2.0% Baygon and 2.0% malathion.

LEGISLATION

California implements service container law

New regulations requiring service container labels to include the identity of the person responsible for the container, the identity of the pesticide by-product or common name and concentration, and the signal word which describes the toxicity of the pesticide were recently adopted by the California Department of Food and Agriculture.

Service containers are defined as containers other than the original labeled containers that are used to hold, store, or transport pesticides or pesticide dilutions. The new regulations also require that a copy of the registered label be present at each mixing and application site where service containers are used.

In the case of spills or ther contamination, the labels will permit prompt identification of the pesticide involved so that appropriate action can be taken to protect public health.

Persons interested in obtaining copies of the new regulations may do so by contacting the California Department of Food and Agriculture, Pam Ringhoff, Room A-170, 1220 N. Street, Sacramento, CA 95814, 916-322-5032.

For the turf you care for: season-long protection against crabgrass, Poa annua and other annual grasses and weeds with America's leading preemergence turf herbicide.

Dacthal is number one in its field. Not only because it is so effective, but because it controls more than 20 unwanted weeds and grasses. Applied properly, it lays down a barrier that stops early and late germinating annual weeds without affecting healthy, growing turf grasses. Tough weeds like crabgrass and Poa annua can't stand up to Dacthal.

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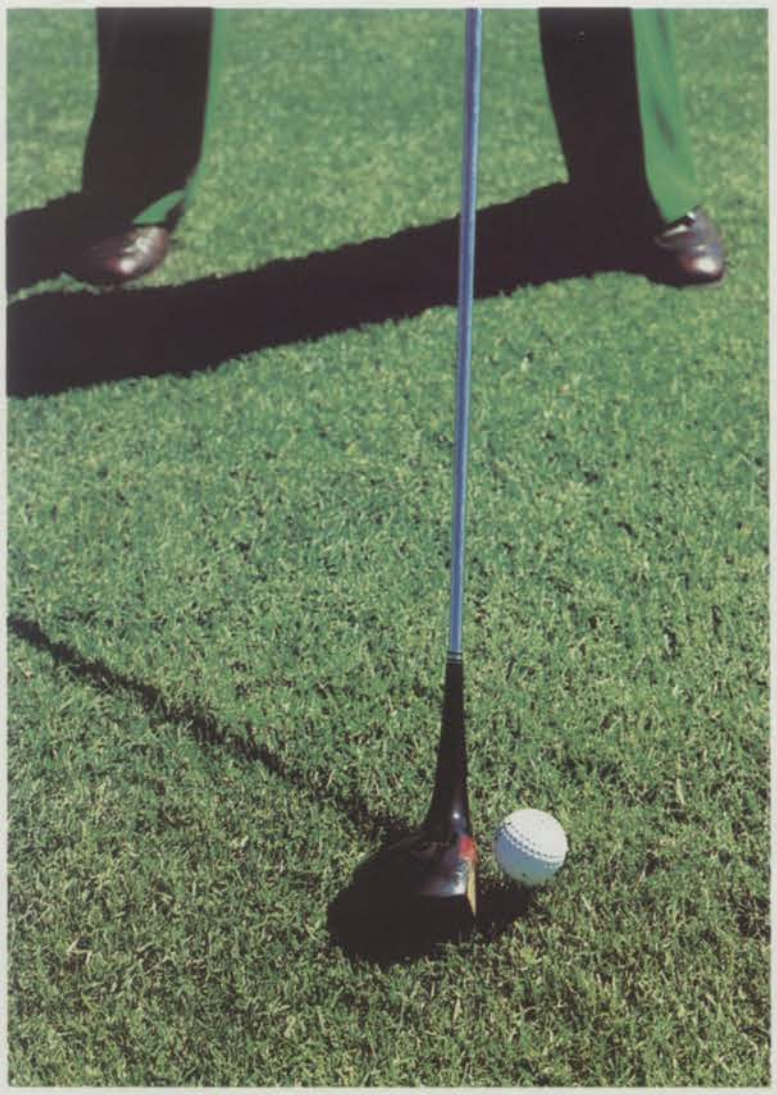
Dacthal



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This is our answer!

Dr. William Meyer, Research Director, states: "At Turf-Seed, Inc., we set out to develop a turf-type perennial ryegrass with rapid establishment, good heat tolerance and the ability to maintain high quality throughout the hot summer months. We also wanted an attractive, dark green color and improved mowing performance. After years of cross breeding and testing, Turf-Seed developed Citation. I believe it comes very close to the specifications we were looking for in a fine-leafed ryegrass."

This unretouched photo from California demonstrates an advantage of including 20% Citation with an improved blend of bluegrasses. On the left is 100% Kentucky bluegrass damaged by Fusarium blight. On the right the Citation-bluegrass mixture shows little or no damage.

Citation had the highest average turf performance rating in a five-year test at Rutgers University. This excellent record has been confirmed by years of proven performance in applied use by turf professionals throughout the United States. Top-quality Citation seed is now available for your use.

"PROGRESS FROM THE GROUND UP"

Citation
Turf-Type Perennial Ryegrass

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Landover, MD 20785

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Turf-Seed, Inc.
Hubbard, OR 97032

J & L Adikes, Inc.
Jamaica, NY 11423

MEMOS

Selective advertising vs. mass media: Which type of advertising is best for the lawn care industry, selective-type advertising, or the mass media approach? Most companies in the past of any size have gone with direct mail and door hangers, the feeling being that the "rifle shot" approach it affords was much better than the "shotgun" approach newspaper or television offers.

That may be all well and true, but word has it that at least four major companies will be using television advertising this coming lawn care season in the super-competitive market.

ChemLawn's home fertilization program. Within the last year, ChemLawn Corp., Columbus, Ohio has been working with a home fertilization program in selected areas. The company provides the fertilizer and chemicals, the equipment to apply it, and the background of when to apply it.

Is this cutting into their standard lawn care program? Word has it that in a recent survey in a Midwestern town, most of the people surveyed preferred the standard ChemLawn program over the one-third cheaper home fertilization program.

Housing sales down. Sales of new one-family homes in November plunged 13.5 percent from October to a seasonally adjusted 604,000 annual rate, the lowest monthly pace in over three years, the Commerce Department estimated recently.

Fertilizer shipments. According to preliminary U.S. census reports, the value of shipments of products classified as primary to the nitrogenous fertilizers industry was $2.18 billion in 1977. This figure is an increase of 200 percent from 1972, much of it due to price increases, of course. It represents total shipments, not just that for the turfgrass industry. Past reports have pegged non-ag uses of fertilizer at about 3.5 percent of totals.

The value of shipments of products classified as primary to the phosphatic fertilizers industry was $2.58 billion in 1977, an increase of 145 percent from 1972.

The value of shipments of pesticides was $2.69 billion in 1977, an increase of 125 percent from 1972. The value of shipments of products classified as primary to the lawn and garden equipment industry was $1.74 billion, an increase of 52 percent from 1972.

Norman F. Sharp, director of membership services for the Outdoor Power Equipment Institute, notes that figures for the commercial turf and grounds mowing equipment will be available soon, and that OPEI will begin tracking those figures for the industry.

Ford Tractor breaks record. Ford Tractor Operations set North American and worldwide modern production records in 1979, according to Mervyn H. Manning, vice president and general manager.

The new worldwide record is 127,022 units, topping the former record of 125,096 set in 1977. The North American record is 42,264 units, built at Ford's Romeo (Mich.) Tractor and Equipment Plant. It tops the 42,238 built at the former Highland Park (Mich.) plant in 1972.

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Editor/Associate Publisher: **ROBERT EARLEY**
Technical Editor: **RON MORRIS**
Assistant Editor: **DAN MORELAND**
Graphic Director: **RAYMOND GIBSON**
Publishing Director: **RICHARD J. W. FOSTER**
Research Services: **CLARENCE ARNOLD**
Advertising Production: **CHRIS SIMKO**
Editorial Secretary: **JEANNIE SUTTON**

MARKETING/SALES
Circulation & List Rental: **SHARON JONES** (216) 651-5500
Marketing & Merchandising Services: **FRAN FRANZAK** (216) 651-5500
New York Office: **BRIAN HARRIS** (212) 421-1350
757 Third Avenue, New York, N.Y. 10017
Midwest Office: **JOE GUARISE, JEFF DREAZEN** (312) 236-9425
333 N. Michigan Ave., Chicago, Illinois 60601
Southern Office: **DICK GORE** (404) 233-1817
3091 Maple Dr., Atlanta, Ga. 30305
Northwest Office: **BOB MIEROW** (206) 363-2864
1333 N.W. Norcross, Seattle, WA 98177
Classified: **DOROTHY LOWE** (216) 651-5500
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NEWSMAKERS

Richard Weidl is owner of **R.E.W. Land Development,** Mesa, Arizona.

Timothy Talmage is owner of **Trent Lawn & Shrub Service,** New Bern, N.C.

Sensation Corp., has named a number of new dsitributors for its line of lawn mowers:

JAYCO Distributing, Camby, Ore., will handle distribution in Oregon and Washington. James J. Murphy is company president.

Green Thumb Lawn Equipment Co., Columbus, Ohio, will handle distribution in that area. Tim Teegarden is company president.

C. Bunde Co., Toledo, Ohio, will handle distribution for that area.

Wiggert Brothers, LaCrosse, Wis., will handle distribution for southern Wisconsin.

Cherokee Sales, Arkansas City, Kans., will handle distribution for Kansas and Oklahoma. William (Pat) Patten is company president.

Fallbrook Tractor, Fallbrook, Calif., recently held an open house celebration for friends and neighbors to welcome the dealership's acquisition by former employes, Bob Armstrong, Ron Hoffman and Fid Jarnot. The outdoor power equipment dealer sells and services **Jacobsen** lawn care equipment, **Kubota** tractors, **Homelite** chain saws and other related agricultural and turf care accessories. The former owner is Paul Stiles, who plans to retire.

Dr. David Martin, regional agronomist for **ChemLawn Corp.,** based in Detroit, was recently named Man-of-the-Year by the Ohio Turfgrass Foundation. He had been the OTF's secretary while a turf professor at **Ohio State University.** The OTF also gave professional excellence awards to Dr. Phil Larsen of Ohio State and Ray Schrage.

Excel Industries, Inc., Hesston, Kans., has announced several recent promotions and additions in its central office:

Paul Wiens has been named turf sales manager; John

Wiens

Harrison

Harrison is now marketing manager; David Welfelt is now advertising and promotion manager; John Austin is service coordinator. New staff positions include Randy Hagen, who is now sales order supervisor; and Vance Truskett, who is service parts manager.

The Toro Co.'s Irrigation Group has appointed Robert Emmerich and John MacLaughlin to newly created positions of regional sales managers. Emmerich is now eastern regional sales manager. MacLaughlin is western regional sales manager.

Edward Cora is vice president of **Lawnmark Associates,** Peninsula, Ohio. Marty Erbaugh is company president.

Ron and Ann Olson are owners of **Top-Soil,** a certified testing service based in Frankfort, Ill. The company is presently serving the agricultural community, but will be branching into servicing the lawn care industry.

Fred Eden was elected president of the **New Jersey Turfgrass Association** at its recent annual meeting. Paul DeShantz was named vice president; Dr. Ralph Engel was named secretary; Bill Richey was named treasurer; Dr. Henry Indyk was named convention chairman; and John Wittpenn is immediate past president. Members of the board of directors are: Dennis DeSantis, Al Lombardi, Samuel Horst, Edgar Krause, Cliff Belden, John Zajac, John Van Brundt, Joe DeSantis and Samuel Leon.

Dr. Thomas R. Turner has joined the **University of Maryland** in its Department of Agronomy as assistant professor of turfgrass science. He will be turfgrass extension specialist.

Eden

Turner

Barry C. Erwin is owner of **Superior Spraying Service,** Monroe, La. The company handles only chemical application, both liquid and granular. The company services both lawns and woody ornamentals.

Tom Speirs is president of **Lawn-a-Mat of Reston & Manassas, Inc.,** Vienna, Va. Phil Orchard-Hays is operations manager. The company handles both liquid and granular chemical application and also provides seeding. It is an ex-franchise.

Paul Bizon is manager and Pat Nibler is field coordinator for **Prograss Liquidcare Lawn Service,** Hubbard, Ore. Tom DeArmond is company president of the liquid chemical lawn care company.

Ned Kelly is owner of **Kelly Lawn Care Corp.,** Indianapolis, Ind. The company handles chemical lawn care and mowing/maintenance.

Charles Reeves is a new franchisee of **Chem-Care Lawn Service of Alabama, Inc.,** Birmingham. Reeves' franchise is based in Tuscaloosa, Ala. Ronnie Zwiebel is Chem-Care president.

Now a Controlled Release Nitrogen In Solution.

Formolene™

™Trademark, Ashland Oil, Inc.

Fertilizer

Turf-tested, true-solution nitrogen fertilizers developed especially for lawn and turf professionals. No burning, quick greenup, nitrogen released in one season. No agitation, no clogging, no bag handling. No aggravation.

FORMOLENE controlled release nitrogen fertilizer is a clear water solution of short-chain urea formaldehyde polymers. Soil pH activates FORMOLENE fertilizer into water insoluble nitrogen that's slowly broken down by microbial action to release usable nitrogen for healthy turf and lasting color throughout the season. But there's also sufficient readily available nitrogen for the rapid color response your customers like to see. And all the nitrogen in your formulation is available within the growing season.

In Spring, FORMOLENE fertilizer quickly greens up turf, but without that burst of growth which leads to disease and excessive mowing schedules.

During hot, dry Summer, FORMOLENE fertilizer won't burn, yet maintains steady growth with adequate watering while holding color for several months.

For Fall lawn care spray programs, you can strengthen root formations and obtain Winter carryover of nitrogen for moderate growth the following Spring.

FORMOLENE fertilizer blends easily with other N, P and K nutrients and with most turf herbicides, insecticides and fungicides. It feeds both foliar and through the root system. FORMOLENE fertilizer resists leaching and volatilization and can be used at rates as high as 2 lb per 1,000 sq. ft. per application without burning. Yet rates of less than 1 lb per 1,000 sq. ft. per application can yield excellent results. One gallon of FORMOLENE fertilizer contains about 3 lb of N.

FORMOLENE fertilizer can be stored in mild steel or plastic tanks and is available from Ashland in 20-ton tank truck loads. Smaller quantities and complete custom fertilizer blends are available from authorized dealers. Our dealers can assist you with blending and mixing information to achieve the exact analysis you require for turf conditions in your area.

In short, FORMOLENE fertilizers and blends are the ideal way to get nitrogen to your customers' lawns. We'll be glad to tell you more. To take the aggravation out of your 1980 lawn care program, write Ashland Chemical Company, Chemical Systems Division, Box 2219, Columbus, Ohio 43216. Or call one of our FORMOLENE fertilizer experts at (614) 889-3490.

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Betasan is easy on established grass.
Betasan is a pre-emergence herbicide . . . you stop crabgrass before it starts.
Betasan is economical and reliable to use.
Betasan is available from these fine private label distributors:

Firm	Brand Name	Sales Area
Best Products Div. of Zoecon Corp. Lathrop, California	Best™ 4-E and 12.5-G	West Coast Southwest
PBI Gordon Corp. Kansas City, Kansas	Betamec-4™	National
Lakeshore Equipment and Supply Co., Inc. Elyria, Ohio	Lescosan 4-E, 12.5-G and 7-G	East of Rockies
Agway, Inc. Syracuse, New York	Betasan 7-G	Northeast
Pratt-Gabriel Div. Miller Chemical and Fertilizer Co. Paterson, New Jersey	Pratt™ 4-E, 12.5-G, 3.6-G and 7-G	Northeast
Mallinckrodt, Inc. St. Louis, Missouri	Pre-San™ 4-E, 12.5-G and 7-G	National
Pro-Lawn Products, Inc. Syracuse, New York	Betasan 7-G	Northeast
Rockland Chemical Co. West Caldwell, New Jersey	Rockland™ 4-E, 12.5-G and 7-G	Northeast

Betasan, the one choice for you. Always follow label directions carefully. Stauffer Chemical Company, Agricultural Chemical Division, Westport, Connecticut 06880.

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Circle 116 on free information card

MARKETING IDEA FILE

Seek out poorly maintained properties

Lawn maintenance professionals should not feel guilty about contacting owners and managers of poorly maintained properties which are already being serviced by a competitor, according to Jack Mattingly, of Jack Mattingly Associates, Inc., Charlotte, N.C.

Mattingly, speaking at an ALCA Maintenance Symposium in Milwaukee, Wis., said his company has had "excellent results" in developing clients by driving around a community and evaluating poorly maintained properties.

"First we get clearance from security if necessary," he said. "Then we walk around the place and make out a field report." The report spells out the maintenance needs of the property in very precise terms. "We then take the report back to the office and make a telephone call to the client to find out who we should address the report to."

Mattingly then sends the prospective client a marketing package consisting of a cover letter, brochure, and several business cards. A response card stating, "Return this card to avoid another one of those unwanted phone calls" is also included.

Further, the response card contains a listing of services offered by the company including plant care renovation, pruning, turf care only. The prospective client checks those services he would like to purchase or is interested in.

Spaces are also provided which state that the company is not interested in purchasing a maintenance service at this time or that they are currently under contract to another company. "That let's us know that we need to check and see when their current contract is going to expire," Mattingly said.

He added that the response card is very effective in making contact with owners and managers who may have a lot on their minds. "He can read it (response card) very fast, check the services he would like, and give it to his secretary."

However, Mattingly readily admits that he has angered some of his competitors by utilizing this marketing strategy. But he is quick to add that if his competition can't do an acceptable job they "really don't have any business being in business."

PRECAUTIONS

Guidelines for working with pesticides safely

Pesticides and other chemicals are used extensively in the lawn care industry. Some are safe, but many are dangerous if not handled or applied properly. Therefore, according to extension specialist Glenn H. Hetzel, a variety of pesticide handling guidelines should be followed including:

- Everyone involved in applying organophosphorus pesticides should exercise extra care and should get a cholinesterase blood test before the work season to establish their baseline. Then, if poisoning symptoms occur, further blood tests will show changes in cholinesterase, which could indicate poisoning from organophosphorus materials.
- All pesticides should be stored separately from other supplies, materials, tools, or normal work areas. The storage area should be cool, dry, and locked whenever unattended. If possible, the storage area should be a separate building of fireproof construction and should be vented to the outside. Further, signs should be posted to indicate that dangerous materials are stored there.
- Pesticide training should include the symptoms of pesticide poisoning. Proper protective equipment and clothing should be provided and required for anyone handling pesticides. Those mixing and applying pesticides need more protection than those who move the material into or out of storage. Always follow the instructions on the label and note the toxicity level when making decisions on what precautions are needed for a specific pesticide.
- When mixing pesticides, the use of splash-proof goggles, gloves, and apron are mandatory. When mixing organophosphates and other highly toxic pesticides, a full face shield, clothing to cover arms, and the proper respirator are necessary. Since pesticides are absorbed through the skin, as well as inhaled, every precaution should be taken.

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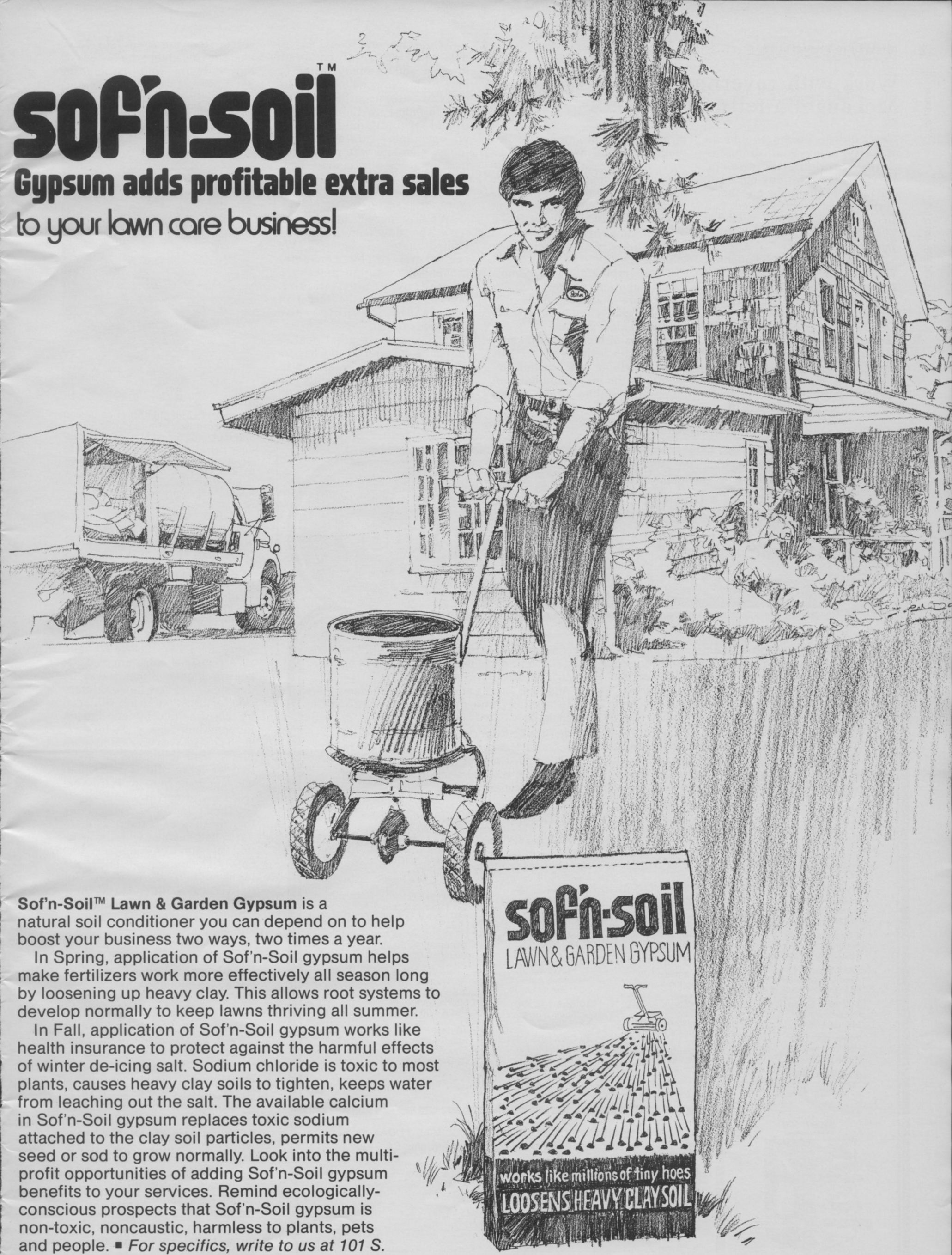
sof'n-soil™

Gypsum adds profitable extra sales

to your lawn care business!



Sof'n-Soil™ Lawn & Garden Gypsum is a natural soil conditioner you can depend on to help boost your business two ways, two times a year.

In Spring, application of Sof'n-Soil gypsum helps make fertilizers work more effectively all season long by loosening up heavy clay. This allows root systems to develop normally to keep lawns thriving all summer.

In Fall, application of Sof'n-Soil gypsum works like health insurance to protect against the harmful effects of winter de-icing salt. Sodium chloride is toxic to most plants, causes heavy clay soils to tighten, keeps water from leaching out the salt. The available calcium in Sof'n-Soil gypsum replaces toxic sodium attached to the clay soil particles, permits new seed or sod to grow normally. Look into the multi-profit opportunities of adding Sof'n-Soil gypsum benefits to your services. Remind ecologically-conscious prospects that Sof'n-Soil gypsum is non-toxic, noncaustic, harmless to plants, pets and people. ■ *For specifics, write to us at 101 S. Wacker Dr., Chicago, Ill. 60606, Dept. LCI-280.*

Circle 109 on free information card

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PRIMARY SUPPLIER OF SECONDARY PLANT NUTRIENTS

Work with government, Toro's McLaughlin tells OPEI execs

The outdoor power equipment industry today is a strong industry, providing an essential service. By almost any measure, the industry should be one that is respected and appreciated. But that is not the case today and it is even less likely to be so in the near future.

So said David T. McLaughlin, chairman of the Toro Co., Minneapolis, in his recent outgoing speech as president of the Outdoor Power Equipment Institute.

"Despite our efforts to improve voluntarily the safety of our product line, to reduce noise levels of our equipment, to strengthen our service, and to give the customer greater value for his purchase, despite these praiseworthy programs, we are being depicted as neanderthals in the consumer area," McLaughlin told outdoor power equipment execs. Many of his remarks involving government intervention could have been made by any supplier to the lawn care industry, equipment or chemical.

"We employ directly almost 24,000 men and women who are paid more than $345 million in salaries/wages and we are financially viable," he said. "We are customers of industries that supply us with goods and services that contribute $445 million annually to the gross national product and employ some 30,000 persons.

"While we are today an industry that is generally corporate in form and in many instances part of larger conglomerate activity, we are, nevertheless, first and foremost an industry comprised of individuals, people who genuinely care about their fellow man and who have pride in their accomplishments."

In addition to being depicted as "neanderthals", McLaughlin went on to say:

"We are engaged in a lawsuit with the government of the United States of America. We are criticized by consumer groups. We are at times victimized by product liability lawyers. We are the target of regulatory agencies too numerous to list.

"I have given a great deal of thought as to why all this has occurred. It is not short-term in its development and certainly we are not alone in this dilemma. In varying degrees, most industries suffer from the same fate. I am also convinced that the actions of our industry and association have been more responsive and constructive than they have been perceived to be since we have come into greater visibility under the government's magnifying glass.

David T. McLaughlin is chairman of the Toro Co., Minneapolis, Minn., and outgoing president of the Outdoor Power Equipment Institute. His speech last year to OPEI executives as he stepped down detailed the many steps the mower industry has taken to comply with government regulations.

"It was June, 1960, 19 years ago, when our industry first implemented the voluntary standard process. It was recognized as an evolutionary effort. The first standards were not totally effective, but they were a beginning, in 1964, 1968, 1972 and 1974 revisions were enacted. Of even greater significance was the decision in 1970, when voluntary self-certification was replaced by certification by an outside independent agency. To be sure, each change was greeted by complaints from individual members that we were going further than we needed, but in retrospect were sound moves..

"Then, in 1973, recognizing that the day of mandatory standards had dawned with the creation of the Consumer Product Safety Commission (CPSC), the industry took a significant intiative and petitioned the new commission to enact a mandatory lawn mower standard based on our voluntary program.

"When our offer to develop the standard was rejected and the job of the author was given to the critic, we pledged our cooperation in the process and urged the evolution of stronger standards as technology permitted.

"We have constructively and consistently argued for the adoption of performance standards and financed outside consultants to introduce cost/benefit measurements to the standards process.

"When the CPSC staff was unwilling or unable to develop a performance standard, we undertook to fund a project to demonstrate the feasibility of designing such a standard and I believe we have been successful.

"In many respects, we have plowed new ground in standards technology and in the process have spent over a quarter of a million dollars in this area lone. This is only one example of responsible industry action. Our record is replete with other ex-

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amples of positive industry initiatives relating to noise, safety education, service training and many other areas.

"Have the results from these well-intended investments been such that one might ask if this approach of constructive cooperation and initiative continues to make sense?

"In concluding my term in office, I would like to respond to that question in a way I hope will contribute to the future well-being of this industry.

"First, I believe we must recognize that we live today in a regulated economy. While the excesses of regulation are evident and painful, this situation did not evolve in a vacuum.

"In large measure, it came about because industry failed to respond to the legitimate needs of many consumers and government stepped in as their surrogate. The fact that it has been done without sufficient understanding of the principles of the free enterprise system and with a zeal resulting in a loss of productivity is alarming and inexcusable. But the fact remains that the conditions that brought this about were due to industry's failing to recognize the needs and political strength of the consumer.

"Through our actions and of others, the pendulum is swinging back but we must recognize that if it swings too far, we can expect new rounds of intervention and regulation that could be even more damaging in the future. To assure this does not occur, I suggest we test each decision we make against a standard of openess; of willingness to pursue new approaches to benefit the consuming public and of firmness in our challange to bureacratic programs that have no advantage for the consumer. And we must always be prepared to question ourselves and to be questioned to make certain our programs are not designed to help the industry or a segment of the industry to the detriment of the consumer.

"These are the criteria we have tried to employ, not always successfully, but I submit that as long as the industry continues to be willing to step up to every issue with our customers' welfare foremost in mind and to interface on a personal and corporate basis with public officials, we will in time achieve the credibility we deserve.

"The role of our association in this process is self-evident. If anyone doubts the value of this association they have only to consider the degree and extent of our combined influence and the cost of funding it. No one company in the industry has the inclination or the resource base to accomplish what OPEI has done. This does not mean we should subordinate our individual identity to that of OPEI. We must supplement the association programs with direct involvement of our own. It is vitally important that each of us be involved in the process both individually and through the association. Next to irresponsible government regulation, our most pressing problem is member apathy.

"Besides recognizing that our actions as individual companies and as a trade association need to be accepted as responsible by our publics, a second requirement is to step up our leadership role. We need to lead and not to lag behind government or regulatory developments. The present system in which consumers, the government and industry end up in an adversary relationship is simply not viable over the long term.

"Unless business takes the lead to forge a new coalition with responsible consumer groups and invite the government to audit the process, there will be no way to break the stalemate.

"I believe we are moving in the right direction. Our industry's leadership is beginning to be visible through the regulatory haze. Here are a few examples:

- Our willingness to develop a performance standard for blade contact when the regulatory staff said it was not possible.
- Our decision to develop responsive and effective performance standards for riders and for thrown objects before the government imposes unrealistic standards.
- Our willingness to implement a voluntary noise labeling program. These are classic examples of industry leadership.

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"We need to lead and not to lag behind government or regulatory developments. The present system in which consumers, the government and industry end up in an adversary relationship is simply not viable over the long term."

"This is a necessary industry. If we continue to exercise enlightened leadership, the initiatives of the future will emerge from a coalition of industry and consumers rather than from an overzealous government."

MONEYWISE

How to decrease employe accident rates

Lawn care operators can significantly decrease the traffic accident rates of their employes by enrolling them in the National Safety Council's (NSC) defensive driving course, according to NSC spokesman Fred Fray.

"Overall, 32.8 percent of those individuals who are graduates of our defensive driving training course have fewer accidents than those that have not had the benefit of a defensive driving course," he said.

Fray said the eight-hour course is designed to teach individuals how to avoid possible accident situations and how to prevent accidents from occuring. He is quick to add that it is not a driver's training course like those taught in high schools.

More than 10 million people throughout the United States have graduated from the program since it was first established in the early 1960's. A wide variety of public agencies and private corporations currently utilize NSC's training programs in an attempt to prevent, and ultimately reduce the occurence of traffic accidents.

Lawn care operators and their employes can take the course by:

- Contacting the National Safety Council in Chicago. They will provide you with a list of qualified instructors at "cooperative agencies" (i.e. state agencies, qualified training schools, etc.) in your local community.
- One of your own employes can teach the course if he or she has undergone instructor training at NSC headquarters in Chicago or through a certified instructor training program in your local community.

The cost of the program is about $900 the first year and about $300 for each succeeding year. This includes a one-time charge of $562 for the instructor's kit and a yearly $310 leasing fee for eight educational films which accompany the program. The instructor's kit includes a manual, felt boards, flip chart, and magnetized blackboard for recreating accident situations. Student workbook manuals are also available for 1 each.

For further information contact the National Safety Council, 444 N. Michigan Avenue, Chicago, IL 60611.

MCLAUGHLIN *from page 13*

"The fact that we are doing these things using sound cost/benefit guidelines are involving consumers in the process is evidence of our willingness to fulfill our rightful role. We cannot turn back from these efforts for they are in both the short and long term interests of the consumer and the industry.

Lastly, we need to improve our public image, not with cosmetics or mirrors, but with substance. This is an area where every member of the industry can contribute directly. We need to become better-informed on the one hand and better communicators on the other:

- With the press
- With our state representatives
- With our congressmen
- With our other constituencies.

"These important relationships require cultivation and personal involvement. Unless each of us is prepared to devote our energies here, we have no basis for complaint when our story does not get across.

"To those who would prefer to take to the trenches or circle the wagons, I should emphasize that I am not advocating compromising our rights or encouraging more regulatory interference. I am advocating recognition of realities, a willingness to take leadership roles in the government process and lastly, I am urging your active participation in communicating our position to the media and to government representatives. By taking responsible positions, we have earned the right to participate fully in the government process and to influence its direction.

"This is a necessary industry. If we continue to exercise enlightened leadership, the initiatives of the future will emerge from a coalition of industry and consumers rather than from an overzealous government. We will then be an even stronger industry, stronger because we will be making a more positive contribution to the society we serve.

Control of bahiagrass and lespedeza in centipedegrass

by B.J. Johnson, associate professor, University of Georgia

Centipedegrass is well adapted in the coastal plain area from Virginia to Texas and is utilized for home lawns and other areas where minimum care and low maintenance are desired. The greatest usefulness of this grass is on soils that are too low in fertility to support good turf or other species.

When centipedegrass is established in areas where bahiagrass and common lespedeza were previously grown this turf species often survive as weeds and a poor quality centipedegrass turf develops. Since both bahiagrass and lespedeza are well adapted to the same low maintenance conditions as centipedegrass, they are difficult to eliminate without the use of herbicides.

Experiments were conducted at the Georgia Station, Experiment, Ga. for two or more years to determine rates and frequency of herbicide treatments needed for Wilmington bahiagrass and common lespedeza control. Bahiagrass and centipedegrass were planted in separate but adjacent areas while lespedeza and centipedegrass were mixed and planted in the same area. Test location was in the Piedmont region and this is slightly north of the most favorable bahiagrass growing region.

Atrazine applied in two or three treatments at 2.0 lb/A per application resulted in excellent bahiagrass control. However, it was necessary to repeat the treatments a second year for consistent control . . . Pronamide applied alone did not reduce the stand of bahiagrass. Combination treatments of pronamide with atrazine did not reduce the stand when compared with respective atrazine treatments alone.

LESPEDEZA CONTROL

Lespedeza was controlled by a single atrazine treatment (2.0 lb/A) whether applied in April, May, or June. Treatments applied prior to April did not satisfactorily control lespedeza. Since lespedeza germinates during April in this area, postemergence activity of atrazine on lespedeza was greater than preemergence atrazine activity on lespedeza.

Metribuzin (0.5 lb/A) controlled 90 percent of the lespedeza when applied as a single application in May. The control was increased to 96 percent with a second application of metribuzin (0.5 lba) in June.

Excellent bahiagrass control was obtained with a single methazole application (1.0 lb/A) in May.

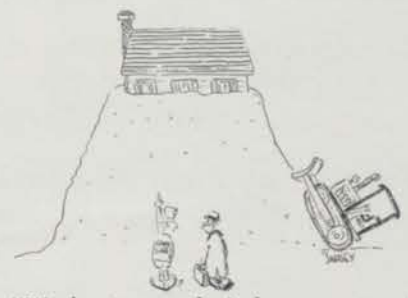
None of these herbicide concentrations (atrazine, metribuzin, or methazole) injured centipedegrass when applied to the same plots for two or more years.

BAHIAGRASS CONTROL

Atrazine applied in two or three treatments at 2.0 lb/A per application resulted in excellent bahiagrass control. However, it was necessary to repeat the treatments a second year for consistent control. Bahiagrass was controlled 98 to 100 percent from two treatments applied in July and August. Similar treatments applied in January and April or April and May resulted in poor control, while April and July resulted in intermediate control. These results indicate that dates of treatment are important for maximum bahiagrass control. There was no advantage from three atrazine treatments applied during spring and summer in a single year when compared with control from July and August treatments.

Pronamide applied alone did not reduce the stand of bahiagrass. Combination treatments of pronamide with atrazine did not reduce the stand when compared with respective atrazine treatments alone.

Thus, multiple atrazine treatments at 2.0 lb/A per application during the summer (July and August) were necessary for complete bahiagrass control and repeat treatments during the second year were necessary for consistent control. It should be noted that bahiagrass in this study received optimum fertilizer and water and different results might be obtained when herbicides are applied under stress conditions.



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Turf seed requirements for non-optimum lawn areas

by Doyle W. Jacklin
Agronomist/marketing manager
Jacklin Seed Company
Post Falls, Idaho

The concept of stress has gained considerable attention in recent years. It is a relatively simple matter to grow good turfgrass under ideal cultural conditions. However, when various limitations are imposed, "the men are separated from the boys."

It is then that the special products, including seeds of species and cultivars chosen for at least reasonable adaptation to the circumstances, stand out, as does the lawn care businessman's skill to utilize them wisely.

Stress is imposed upon growing plants from many factors operating singly or together. Climate, of course, is a tremendous if not the primary influence. And man has a habit of developing wayward locations that are often not at all suitable for turf or other vegetation. Soils range from boggy to droughty, from acid to alkaline, from deep to shallow, and they may be infertile or with unbalanced fertility.

Natural vegetation is often worn away, weeds introduced, topsoil eroded, subsoil bared by the bulldozer. Wherever heavy equipment compacts the ground, traffic, slope and shade accentuate the impact.

Thus it becomes quite important to supply vegetational potentiality for all of these varying situations. Obviously, it is impossible to offer one type of cover that will be suited to all areas.

Of course, choice of seeds, appropriate seeding rates, and aids such as mulches, cannot by themselves offset very adverse conditions. That would be expecting the impossible. So, for different planting sites, reducing the cause of stress as much as possible is still the first order of business. Often, long term survival depends upon establishing a reasonable pH, balanced fortility, proper drainage, organic recycling, etc. Common sense calls for assisting the seeding with site diagnosis, and making such corrections as are possible before a seeding is made. The art and talent inherent in the plan can then have a greater chance for fulfillment.

Here are some of the ideas our company has found effective for certain stressful situations. Naturally, they should be utilized in a common sense fashion. Where fertility is limiting, application of plant food to a low-rate seeding would make better sense than doubling the seeding rate. If germination is a problem, a mulch, not more fertilizer and seed, may be the answer. Nevertheless, the products available today go a long way towards taking care of vegetating stressful habitat so long a bugaboo.

Lawn-like habitat. Let's begin by mentioning the fine array of select cultivars for lawns that are now on the market. Almost all of them are low-growing and very attractive — items like Fylking, Glade and Birka among the Kentucky bluegrasses.

Almost all modern cultivars have been screened for disease tolerance; some, such as Adelphi, having been laboratory crossed from pedigreed bloodlines. Many are reasonably well adapted to low maintenance — Birka and Nugget bluegrass for example. Glade, Ram I, and now the newly introduced variety Eclipse, are well-suited to shade, because of their improved resistance to mildew disease.

Some, such as Fylking, are are fine-textured and pleasantly unaggressive; we call Fylking one of our "backbone cultivars." These and other cultivars can be blended to provide an evenmore widely adapted seeding, profiting from the strength of various components.

In fact, we do not recommend using any of the improved varieties as a "straight" — only in blends. And for quick establishment or handy renovation, a fine assortment of "turf-type" perennial ryegrasses such as Citation, Manhattan and the soon-to-be-introduced Elka and Jackpot cultivars are available.

Citation is well-suited to mixtures, showing less aggressiveness which is desirable in blends or mixtures, and has improved summer brown patch resistance. The unusually fine-leaved variety Elka (leaf texture similar to a fine fescue) and the more winter-hardy variety Jackpot will provide even greater area adaptability.

We recommend the usual precautions for lawn-like plantings — a reasonably well-prepared soil bed so that seed can find a niche in mineral soils, mulching of a new seeding wherever possible, watering in drier climates (at least until the seed is sprouted and the stand becomes established), fertilization in keeping with soil needs to give the grass good color, density and advantage over weeds. Today's seed is very high in quality, essentially free of objectionable weeds and competing crop. With bluegrasses, two to three pounds of 1,000 square feet seems ample for full coverage, but four to five pounds of perennial ryegrass is recommended.

N,P,K

Fertilizer basics: Turfgrass needs, recommendations and rates

by C.R. Staib, Boots Hercules Agrochemicals Company and J.T. Hays, Hercules Incorporated Research Center

"You are what you eat." This acclamation (and admonition) to humankind has in recent years become the battle cry of nutritionists in their war against purveyors of "junk food." Turfgrass agronomists have not yet felt a compulsion to proclaim this axiom as a rallying cry for turf nutrition — but the urge may be getting stronger.

Knowledge of turf nutritional needs continues to expand as old theories and ideas are replaced by new ones. Special correlations between nutrient elements and disease incidence and/or weed infestations have recently been determined, and future discoveries of this nature are certain. In the decade of the '70's, annual nitrogen rates were lowered from previous recommendations, while phosphates took a back seat to potassium in nearly all areas of the United States. And, in the last year or so, the almost unheard of practice of late fall and winter application of fertilizer on dormant turf has gained recognition as a potentially sound management program. "Potentially" is to say that the practice is still experimental with scientific data limited to a few locations.

Nutrient requirements. Turfgrass, like all plants and crops, requires all the essential elements. However, the vast majority of nutritional problems in turfgrass involve only nitrogen (N), phosphorus (P), and potassium (K). In acid or alkaline soils, lime or gypsum may be used to adjust soil pH. Sulfur deficiencies are becoming more common and may require correction. Micronutrient problems on turfgrasses are rare: iron deficiency may be caused by high pH or by an excess of phosphorus, which may also depress zinc uptake.

Nitrogen is the critical element for turfgrass. The amount of nitrogen available will determine the rate of growth and will greatly influence turf quality. The continuing need for nitrogen over the entire growing season and its susceptibility to losses make requirements higher than for other elements. General recommendations for home lawns are: three to six pounds of nitrogen for 1,000 square feet per year for cool-season grasses such as Kentucky bluegrass; six to 10 pounds of nitrogen per 1,000 square feet per year for warm-season grasses such as bermudagrass. Hybrid bermudagrass and dichondra will respond to higher amounts of nitrogen while St. Augustinegrass will normally require a lower rate.

Phosphorus, although necessary for many vital growth processes, is required in much smaller amounts than nitrogen. Much of the phosphorus applied in fertilizer is rapidly immobilized in the soil and becomes available only over an extended period of time. An application of one pound of phosphorus per 1,000 square feet per year will be adequate for most situations. In many areas, residual soil phosphate will make regular application necessary.

Next to nitrogen, potassium is used in largest quantities by all turfgrasses. It is important as a regulator of plant growth processes and confers resistance to environmental stresses and to disease. The recommended rate for potassium in turf is about half that for nitrogen, about two pounds per 1,000 square feet per year.

On the basis of these requirements, we can generalize that a nutrient ratio (N-P-K) of 4-1-2 (On an annual basis) is optimum for turfgrass.

Professional lawn care operators must be keenly aware of the nutritional needs of their customers' lawns if they wish to retain and expand their business. A visit to the local Soil Conservation Service district office will be very worthwhile since published SCS soil survey data will reveal a great amount of information on local soils, including their inherent nutritional status, texture and pH trends.

Representative soil and plant tissue testing is the best way an operator can determine what nutrient deficiencies and excesses exist in his area. The county extension service or a private laboratory can advise on the sampling techniques and quantities needed, and will interpret results of the analyses. Testing is recommended every three to four years for each general locale, however, it may frequently assist in diagnosing specific problems in sickly lawns when they are encountered.

Nutrient sources. The common sources of the major nutrients are given in Table 1.

Numerous commercial fertilizers are also available which contain two or more of the major nutrients. This group includes granulated mixed fertilizers (e.g. 18-5-9), dry blended mixed fertilizers (e.g. water-soluble 34-5-10) natural organics (Milorganite), and solutions (e.g. 10-34-10).

The nitrogen sources fall into two classes: fast-release (urea and ammonium salts) and controlled-release (ureaform, IBDU and sulfur-coated urea). The controlled-release fertilizers offer greater safety, reduced losses and sustained feeding between applications.

Another important characteristic of fertilizers is their potential for foliar burn as indicated by the salt index. For example, the ammonium salts and potassium chloride have high salt indexes, potassium sulfate is intermediate, and the controlled-release materials are low.

Ionic reactions. Many factors are important in the utilization of plant nutrients. These factors combine soil physical and chemical characteristics and microbiological activity. Plant nutrients become available only when they are dissolved in the soil solution. Fertilizer salts dissociate into positive and negative ions before they are absorbed and taken into the roots.

Example: ammonium nitrate, NH_4NO_3, dissolves in the soil solution to form NH_4+ and NO_3-. These positively and negatively charged ions are attracted to oppositely charged particles (colloids) of clay and organic matter and to oppositely charged particles on the root hairs of growing plants.

This process is involved in absorption of nutrients. Due to their chemical structure, clay particles and decomposed soil organic matter (humus) carry a net negative charge. Positively charged ions (cations) in the soil solution are attracted to the surface of clays or humus materials, and can exchange positions with other ions, e.g. hydrogen (H+) on the root hairs and adjacent soil colloidal surfaces. The ability of a soil to adsorb cations is known as the cation exchange capacity (C.E.C.). The higher the C.E.C., the more fertile the soil is considered to be, because it retains nutrient cations.

A few nutrient elements — nitrogen, phosphorus and sulfur, exist in the soil solution as negative charged oxide ions (anions), and are absorbed directly into the root cells in this form (some nitrogen is taken into the roots as the positive charged ammonium ion NH_4+).

Potassium, calcium, magnesium and the micro-nutrient metals iron, manganese, zinc and copper are positively charged cations adsorbed on the soil and organic matter colloidal surfaces. Through the process of cation exchange, these ions move through the soil solution and become available to the roots. Boron and are diffused into the root cells from the soil solution as negatively charged H_2BO_3- or HBO and MoO.

The solubility of the inorganic salts containing plant nutrients determines in large part their availability. Generally, nutrient elements occur in abundance in most soils — far in excess of actual needs of the plant. However, they exist in forms so slowly soluble that, without supplemental fertilizer applications, the needs of growing turf cannot be met.

Mineralization of organic matter. Nitrogen, phosphorus, sulfur, carbon, hydrogen and oxygen are basic components of soil organic matter. Through a process known as mineralization, small amounts of these elements are released each year by the action of microorganisms.

Some nutrients are structural elements which are released into the soil solution by weathering; these include phosphorus, potassium, calcium, and magnesium. Micronutrient elements exist as metal-organic complexes and also as components of insoluble phosphates, particularly in the case of iron. The combination of microbial activity and weathering releases these elements slowly into the soil solution. Micronutrients such as iron, copper, zinc, boron, manganese and molybdenum may be released in suffificient quantity by these processes. These elements may even be present in irrigation water in quantities to satisfy plant needs.

Table 1. The common sources of the major nutrients.

Product	Chemical Formula	% Nutrient Content N	P_2O_5	K_2O	S
Urea	$CO(NH_2)_2$	46	0	0	0
Ammonium Nitrate	NH_4NO_3	34	0	0	0
Ammonium Sulfate	$(NH_4)_2SO_4$	21	0	0	24
Monoammonium Phosphate	$NH_4H_2PO_4$	13	52	0	0
Diammonium Phosphate	$(NH_4)_2HPO_4$	18	46	0	0
Potassium Chloride	KC1	0	0	60	0
Potassium Sulfate	K_2SO_4	0	0	53	18
Ureaform	$(-urea-CH_2-urea-)_n$	38	0	0	0
IBDU	urea-CH(-C_3H_7)-urea	31	0	0	0
Sulfur-Coated Urea		32-37	0	0	15-20
Urea-Formaldehyde Solution	Free urea + urea-CH_2OH	30	0	0	0

Nitrogen fertilization. In any discussion of turfgrass nutrition, nitrogen will remain the nutrient of primary concern. It is the principal component of amino acids and proteins, which comprise much of the protoplasm of plant tissue. It is used in the formation of chlorophyll, essential for photosynthesis.

Nitrogen affects growth and density, disease resistance, tolerance to temperature and moisture stress and plant color. The most obvious sign of nitrogen deficiency is yellowing of the leaf blades. Turf has a continuing need for nitrogen, particularly during its rapid growth periods. These occur in the fall for cool-season grasses and in the spring for warm-season grasses.

Urea (46% N) is the soluble nitrogen source most frequently applied to home lawns. Urea is rapidly converted to ammonia (NH_3) on the soil surface by the action of the enzyme urease. Under alkaline conditions or in the absence of sufficient moisture, this reaction can lead to loss of ammonia by volatilization. In the presence of moisture, ammonia forms ammonium hydroxide which disassociates into NH_4+ ions in the soil solution. In the temperatures above 60 degrees F. in well-drained soils, soil bacteria convert the ammonium nitrogen to nitrate (NO_3-) quite rapidly; conversion may be complete at 75 degress F. in two weeks.

Nitrate nitrogen is extremely soluble, and because of its negative charge is not absorbed on the negatively charged soil colloids. As it moves freely in the soil solution, the portion not taken up by the plant is leached beyond the root system. Since turfgrass roots readily take up nitrate nitrogen, the plant can easily be overstimulated beyond levels needed for healthy growth — by other soluble sources as well as urea.

Care must, therefore, be taken that soluble nitrogen sources are not applied in too large amounts. Application of more than one pound of nitrogen per 1,000 square feet (or even less under summer conditions) not only runs the risk of foliar burn, as previously mentioned, but forces top growth at the expense of root development.

Root growth practically ceases when luxury consumption of nitrogen occurs. It should be remembered that the objective of good turf culture is not a high yield of clippings, but rather maintenance of an adequately dense turf with acceptable color. When application of soluble nitrogen leads to a flush of rapid growth, the grass must still be mowed to the desired height, but removal of more than 40 percent of the top grass stops root growth.

A gradual, moderate rate of growth thus becomes an important objective. In this connection, it should be noted that factors other than nitrogen can be important in maintaining good color. Color responses to sulfur and iron have ferquently been reported. Lawn care operators should be aware of responses to these nutrients in their area. If color can be maintained with minimum levels of nitrogen, the result will generally be a healthier turf.

Slow-release nitrogen sources allow a more gradual conversion to the available nitrate form, and can markedly improve on the feast and famine syndrome associated with use of soluble products.

Slow-release nitrogen. Nitroform ureaform (38%N) is a synthetic organic fertilizer composed of low molecular weight methyleneureas containing 27% water-insoluble nitrogen (71% of the total nitrogen). The soluble fraction consists of short-chain polymers which are easily converted by soil organisms to ammonium and nitrate forms. The insoluble portions contain intermediate molecular weight polymers which are soluble in hot water and longer chains which are insoluble in hot water.

As the solubility decreases, each succeeding fraction is more resistant to microbial decomposition, but nevertheless is eventually converted to available nitrogen. The cold-water and hot-water soluble fractions are released over a period of weeks, but the hot-water insoluble fraction is slower and may release some of its nitrogen in the following growing season. The net result is a fertilizer which provides continuous, sustained nitrogen feeding.

Nitroform ureaform is available in both powder form (Powder Blue) and granular form (Blue Chip). The rate of release is significantly increased by use of the powder form.

A good nitrogen management program can be developed for any turfgrass by combining and/or alternating Nitroform nitrogen with soluble sources. Many years of experience in using ureaform on sports turf and home lawns have shown that when half of the annual nitrogen is from ureaform and half from soluble sources such as urea, peak demands can be met and sustained feeding provided during the summer months.

Powder Blue particles are fine enough to be sprayed as a suspension containing 2 to 3 pounds of powder per five gallons of water. Mechanical agitation or a good sparge line recirculating agitation system is necessary for large tanks. A simple by-pass system may be all that is needed for small tanks of less than 100 gallons. Certain hydroseeding type sprayers, such as units manufactured by Finn Equipment Co., Cincinnati, Ohio, can suspend and spray granular Nitroform. Nitroform is not corrosive on equipment. Suspending agents such as Flozine, manufactured by Loveland Industries, Loveland, Colo., can assist in resuspending Powder Blue after settling overnight. Nitroform is marketed by Boots Hercules Agrochemicals Co., Wilmington, Del.

Other slow-release nitrogen sources include IBDU (31%N) and sulfur-coated urea (32% N and 37% N). IBDU is isobutylidene diurea manufactured in Japan and marketed in the United States by Estech General Chemical Corp., Winter Haven, Fla., through the company's Par Ex Professional Products Division. IBDU hydrolyzes directly to urea in the presence of moisture. The rate of release is governed by the particle size, with coarse IBDU converting over a longer period. It is most adaptable to dry application, however, fine IBDU can be applied in certain sprayers, e.g. units manufactured by Finn, where favorable suspensions can be maintained. Under moist conditions, IBDU may release its nitrogen somewhat faster than ureaform over a growing season.

Sulfur-coated ureas (SCU) containing 37% N are manufactured in the United States by the Tennessee Valley Authority and by Agricultural Industries Manufacturing, a subsidiary of Lakeshore Equipment & Supply Co., Elyria, Ohio. A Canadian producer, Canadian Industries, Ltd., makes more spherical SCU prills containing 32% N and also markets in the United States. By means of pinholes, fissures, and actual cracks, urea diffuses through the sulfur coating. The rate of release of commercial SCU's is indicated by the dissolution rate, that is the amount of urea diffusing through the coating over a seven-day period in warm water (100 degrees F.).

This dissolution rate is 25 to 35 percent for commercial SCU's. TVA data show that the release rate is faster in soil and fastest in warm soil (65 to 95 degrees F.). Experiments have shown that handling, storage and application methods may damage the sulfur coating, causing decrease in controlled-release properties. However, the economy of SCU nitrogen over other slow-release sources offers some advantages. SCU is not suitable for liquid applications.

A recent newcomer to the nitrogen scene is Formolene-30 (30% N), a liquid nitrogen fertilizer manufactured by Ashland Chemical Co., Columbus, Ohio. Formolene-30 consists of water-soluble methylolurea (not polymerized to water-insoluble N) plus free urea amounting to about 50 percent of the total N. According to Ashland, Formolene-30 provides nitrogen of low burn potential with a somewhat longer response period than straight urea.

Phosphate fertilization. As mentioned previously, agronomists agree that most turfgrass, unless grown for seed, requires very little additional phosphorus. The residual phosphates are dissolved slowly in the soil solution, this apparently being adequate for most varieties. Phosphorus is necessary for formation of energy-producing compounds (ATP, adenosine triphosphate) and is part of the genetic code (RNA, ribonucleic acid).

Adequate levels promote rooting and tillering. Deficiencies may appear as narrow curled leaves. They may be dark green with some purple color evident. The surest way to determine the need for phosphorus is by leaf tissue analysis. If the P content is less than 0.15 percent, an application of about one-half pound of P_2O_5 per 1,000 square feet will correct the deficiency. This may suffice for more than one season except in sandy soils of warm turf areas.

Potassium fertilization. Potassium regulates enzyme and vitamin formation, protein synthesis, transpiration, translocation and respiration. Potassium influences the development of cell walls, and thus helps establish defenses to heat, cold and winter kill. High K levels tend to reduce the incidence of several diseases, including dollar spot, *Fusarium* blight, brown patch and red thread.

A tissue test showing less than one percent K indicates that deficiency exists. Potassium deficiencies are first indicated by drooping leaves which feel soft to the touch. In severe cases, a dead leaf tip is preceded by thinning leaf blades, showing blotches of green and yellow developing from the outer edge toward the midrib.

Fertilizer costs. When analyzing the economics of nitrogen fertilizers, it is much easier for the lawn care operator to think in terms of cost per pound of N. The lower cost of fast-release N sources must be weighed against their disadvantages. All costs quoted are only approximations in this period of escalating freight rates and fertilizer prices, and will vary with volume purchased, delivery rates and supplier prices. Nevertheless, some comparisons can be made:

The cost of urea is between 22 and 26 cents per pound of N; the cost of SCU is between 42 and 46 cents per pound of N; the cost of Formolene-30 is between 55 and 58 cents per pound of N (50 percent free urea); cost of Nitroform is between 65 and 75 cents per pound of N for Blue Chip and between 68 and 80 cents per pound of N for Powder Blue; and the cost of IBDU is between 65 and 75 cents per pound of N.

Similar costs of phosphorus and potassium nutrient sources are:

Diammonium phosphate (18% N, 46% P_2O_5) is $255 per ton, or about 19 cents per pound for the P_2O_5 and 22 cents per pound for the nitrogen; potassium chloride (61% K_2O) is 8.5 cents per pound for the K_2O.

Potassium sulfate (51% K_2O) is $140 per ton, or about 13.7 cents per pound for K_2O. Phosphate prices are steadily increasing, with the cost per pound of P_2O_5 expected to approach the cost per pound of urea.

A blended water-soluble NPK (34-5-10) is currently available at $305 per ton in the Chicago area through Knox Fertilizer Co., Knox, Indiana.

Keep eye on cancellation agreement when designing maintenance contract

John Smith, of Smith Lawn Maintenance, services a large condominium complex from March to September. He mows, trims hedges, fertilizes and generally pours a significant amount of time and money into his account.

The service director pays a monthly fee spaced out over a 12-month period. He cancels after September and John Smith is left with a loss just when he expected to begin getting a return on his investment he made during the summer. That return on investment would be the money he would be making through the slow winter months when the complex did not require large amounts of labor and materials to keep it up to snuff.

Does he have any recourse against the cancelling account? Not much, if he doesn't have a strong cancellation agreement.

This is a very sobering situation that has happened to more than one mowing/maintenance lawn care businessman, including Larry Shelton, of Classic Landscapes, Ltd., Raleigh, N.C. Fortunately, Shelton worked the problem out, but he also took a long, hard look at his cancellation agreement.

Prior to developing a new cancellation agreement, Classic Landscapes had a standard 30-day cancellation agreement, meaning that either party could cancel with 30 days notice. This type of agreement is pretty standard within the landscape maintenance industry.

"What happened is that we had a client cancel us after we had worked on their property from March through October," he said. "They wanted to do the work themselves and start up their program in the winter time." Shelton's comments arose during a session at the annual Maintenance Symposium sponsored by the Associated Landscape Contractors of America. The symposium was held recently in Milwaukee. For further information about these excellent symposiums or about ALCA itself, contact: John Shaw, executive director, ALCA, 1750 Old Meadow Rd., McLean, VA 22102, 703-821-8611.

"We had a lot to lose and we finally came to the realization that we had no recourse in the matter of trying to get some money back from them," Shelton said. "So we talked with them and we agreed to work out the balance of our contract by helping them set up a program for themselves. The only way we could protect ourselves for the remainder of our contract and not lose any money would be to help them start up their own program. So that's what we did.

"We had a lot to lose and we finally came to the realization that we had no recourse in the matter of trying to get some money back from them," says Larry Shelton of Classic Landscapes, Inc., Raleigh, N.C. of a landscape maintenance account that cancelled during peak season. "So we talked with them and agreed to work out the balance of our contract by helping them set up a program for themselves."

"We got out of a sticky situation with no scars," he added, "but the potential was there to run us out of the business at the time."

If Shelton learned anything from the experience, it was that his company had to rework its cancellation agreement to protect itself in the future.

Shelton said that the cancellation agreement states that the contract can be voided by either party by giving the other party 30 days written notice, delivered by registered mail. However, should the contract be cancelled by the owner, it is necessary to negotiate a pro-rated cancellation fee, dependent on the time of the cancellation, since a lot of Shelton's work, — and that of many mowing/maintenance businessmen — is concentrated in a short period of time.

Shelton added that they have not had any problems since they initiated the new agreement and have encountered little resistance from customers questioning the contract. He thinks one reason he has had few complaints is that his contracts avoid legal jargon.

"Basically, all our contracts do is spell out the specifics of the contract, a cancellation agreement, payment terms, and any statements of insurance," he said.

Shelton said he would figure out any pro-rated fee by adding up the amount of money his company had tied up in that account from the day the contract started to the day it cancelled. Then he would subtract the amount of money already paid on the contract, and then make the two figures balance out.

"We are not trying to gouge anybody," he said. "All we are asking is that we be paid for the work that we've actually performed. It just protects us from working more than we've actually gotten paid for, depending on the time of the year.

"Because we picked up a contract in March and worked it until October and they cancelled it during our heavy work season," he said.

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Developing your assistant

The do's and don'ts of recruiting, training, motivating, and compensating potential middle managers

by Dan Moreland
Assistant Editor

Developing foremen, branch managers, and other middle management personnel who can effectively operate a business in the boss' absence is only one half of the troublesome management problem currently confronting the lawn care industry. The other half of the problem, and probably the most crucial to the success of any business, is finding promising people who can develop into effective decision-makers.

RECRUITMENT

Recruiting quality people, for whatever position, is a major industry problem not only because urban-based lawn care operators must often compete with capital-rich corporations for employes, but because salaries and benefit packages are often depressed as a result of the seasonality of the lawn care business.

Mike Cust, president of Cust Maintenance Co., Oxon Hill, Md., said, "Let's face it, a guy can leave me and go to work with the federal government and start at $17,500 a year. Most of the lawn care companies in the Washington D.C. area are also relatively small family-owned businesses so it's fairly apparent to a young man that the top job is held by the owner and therefore his development is limited."

However, whatever their pitfalls, small businesses do offer advantages many larger companies do not, according to Joseph A. Robinson, author of a Small Business Administration pamphlet entitled *How to find a likely successor*. These advantages include:

- The opportunity to become the top man within a reasonable period of time. (Although in family-owned businesses it may take longer)
- Direct responsibility for new people as soon as they can handle it.
- Intimate contact with the boss, his problems, and decisions.
- Small business can also offer immediate recognition and rewards for good performance.

A strong recruitment program is the key to finding competent foremen and other middle management personnel. A number of sources are available to attract quality people including:

- Advertisements in trade journals.
- Classified ads in local newspapers. A word of warning: Describe the job in precise terms so you don't get unwanted calls.
- Friends and relatives of employes.
- Employment agencies.
- Universities and local colleges with strong business or turfgrass programs.
- Men and women recently discharged from the armed services.
- Your competitor's employes.
- Career day meetings.
- Placement centers at universities and city colleges.
- Local social service organizations.
- Professional recruiting firms.

Remember, the more diverse the method of recruitment, the better chance you have of attracting quality middle management personnel. But it isn't going to be easy. "Historically, it's been difficult to find people with the level of experience required to be successful in the lawn care industry," Jerry Faulring, president of Hydro Lawn, Gaithersburg, Md., said.

"I want a guy to come to work with us who wants to be a manager in three years. Now, they all say they do, but you can tell in an interview session whether a person is shopping for the highest price." **Marty Erbaugh, Lawnmark Associates, Peninsula, Ohio.**

"It's not like a lawyer or a doctor who has proven himself someplace else," he said. "But I suppose this is changing as the industry matures and people gain experience at other companies."

Before selecting potential middle managers a number of steps should be followed, according to a Small Business Administration pamphlet entitled *Human Relations in Small Business*.

- Analyze the job.
- Determine the abilities needed for success.
- Find out what personal factors (age, education, etc.) are needed.
- Write a complete job description.
- Recruit widely and wisely.
- Interview objectively.
- Have an associate also interview the applicant.
- Review the important biographical items.
- Test the applicant.
- Check all references, at least by telephone.
- Put all the information together and review it carefully before you make a decision.

Even by following the aforementioned list of recruitment procedures, there is still a chance that you may mistakenly hire a poor worker. The system isn't infallible. David J. Frank, owner of David J. Frank Landscape Contracting Co., Germantown, Wis., said, "You can get a good application, you can get good trade references, but it's still hard to determine that individual's capacity for the job." So a good rule of thumb is to go with your personal perceptions of the individual. After all, you're going to be the one working with him.

For instance, Marty Erbaugh, president of Lawnmark Associates, Peninsula, Ohio, is interested in middle managers who are looking towards a career in the lawn care industry. "I want a guy to come to work with us who wants to be a manager in three years," he said. "Now, they all say they do, but you can tell in an interview session whether a person is shopping for the highest price."

DEVELOPMENT

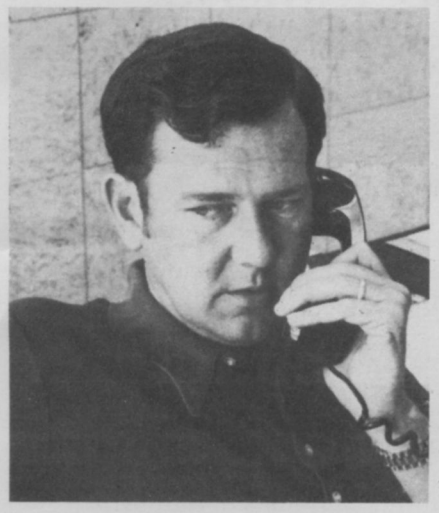
An important part of developing assistants concerns training. According to Richard P. Calhoon, author of *Managing Personnel*, "Eighty percent of all turnover takes place in the first three months of employment." He attributes this high employe turnover rate to "feelings of isolation from their work group and social groups at work; discouragement in learning new tasks; and maladjustment to physical surroundings." Therefore, it is the manager's job to make the training and orientation process as smooth as possible for the new employe so he can adjust more readily to his new responsibilities.

When developing management personnel, a number of training methods are available. The majority of lawn care operators contacted by LAWN CARE INDUSTRY agree that the most effective method of development is on-the-job training. After all, no matter what the educational background of a potential assistant, little has been accomplished if he can't perform the job.

Bob Baier, president of Plant Control Corp., Irvine, Calif,, said, "Most of our training is on-the-job so our new employes can actually observe a lot of things just by being near our other workers."

A second training method is called coaching, where the employe receives personal assistance from more experienced

INSIDE THE INDUSTRY



"Let's face it, a guy can leave me and go to work with the federal government and start at $17,500 a year." **Mike Cust, Cust Maintenance Co., Oxon Hill, Md.**

"We have financial evaluation sessions at the end of each fiscal year." **Marty Erbaugh, Lawnmark Associates, Peninsula, Ohio.**

"I sit down personally with each employe on a quarterly basis . . . We also sit down with our key people on a lot more frequent basis and have informal rap sessions with them to find out how they feel about their jobs and whether they are having any problems." **David J. Frank, David J. Frank Landscape Contracting Co., Germantown, Wis.**

"If we're going to be successful it means people are going to have the opportunity to expand their careers with the company." **Jerry Faulring, Hydro Lawn, Gaithersburg, Md.**

employes. This is essentially the concept used by Cust, of Cust Maintenance Co. "We try to let our new people work with different foremen," he said. "Each of our foremen have different strengths so we will try to put them with one for awhile and then move them to another so they can pick up the strong points from each of them."

The coaching process can be improved in a variety of ways, according to Herbert J. Chruden and Arthur W. Sherman, Jr., authors of *Personnel Management*. These include:

- By setting the right example.
- By building on the new employe's strengths.
- By delegating responsibility.
- By insisting on completed assignments.
- By letting him "pinch hit" for sick employes.
- By seeking out his opinions.
- By letting him know how he's doing.
- By using specific examples when coaching.
- By broadening his viewpoint and work experience.

The key to good coaching is delegating work responsibilities. "The ability to take responsibility is the first test of a manager, but the courage to give responsibility to others is the hallmark of successful executive command," according to the author of *Managing Personnel*. "Delegation of responsibility is the only way to check on the effectiveness of training, to determine the initiative, job knowledge, and actual competence of subordinates."

Erbaugh, of Lawnmark Associates, said it is important for potential managers to have "defined areas of real responsibility," as opposed to being a button-pusher for his supervisor. He added that delegating responsibility is a very important factor in a company's ability to retain quality personnel.

"The first year a 24-year-old kid is a branch manager for you he thinks it's the greatest thing since sliced bread," he said, "but by the third year the job starts to get old, especially if he really doesn't feel as though he's had a major contribution in the decision-making process."

A third method of developing middle managers concerns promoting within the company hierarchy. "We have a designed progression of steps for our people," Erbaugh said.

"We really define their promotability on the basis of customer relations, new customer development, and level of productivity. And then based on that criteria they are promoted to the position of assistant manager in one of our offices.

"Then based on the company's perception of his ability to progress into the manager's chair, we will make the promotion from that point."

A fourth method of development is job rotation. Job rotation enables new employes to understand a diverse number of lawn care tasks ranging from basic lawn care to pruning and chemical applications. However, Faulring, of Hydro Lawn, and others contacted by LAWN CARE INDUSTRY, said there is limited value to job rotation.

"We simply don't rotate people," Faulring said. "I don't think we're big enough to allow for that yet, but we do allow for all levels of management to participate quite extensively in the corporate decision-making process. This way they are very well exposed to all facets of the operation without rotating jobs."

A final on-the-job training method concerns participation in staff meetings. "These meetings not only enable participants to become more familiar with problems and events that are occurring outside of their immediate area, but also expose them to the ideas and thinking of other managers," according to the authors of *Personnel Management*.

Erbaugh is sold on this very practical training method. "We have financial evaluation sessions at the end of each fiscal year," he said, "and in those sessions we try to make our managers aware of the financial variables that go into running a business. By the end of three years they are

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Boss, I'm quitting so I can start my own lawn care business

Jim, a dependable employe who has been with your company about two years, walks into your office and says, "Boss, I've decided to quit so I can start my own lawn care business." A typical scene at most lawn care companies? Probably not. But if your a manager at any of the industry's more prominent companies, this scene is probably all to familiar.

So what can be done about preventing the departure of quality employes? Very little, other than creating a healthy work environment, according to Jerry Faulring, president of Hydro Lawn, Gaithersburg, Md.

"If a guy has got the drive to go out and start his own business and I can't create an environment here that offsets that drive; then I should welcome him to become a competitor," he said. "What I'm saying is that I've got a tremendous obligation to make sure that my high caliber people stay with me and up to now we haven't had anybody that was really good walk away from us."

Marty Erbaugh, president of Lawnmark Associates, Peninsula, Ohio, agrees. "The employe has got to feel that his career is better served with you than on his own or he's going to be dissatisfied with his job or he's going to leave. Our whole company is a perfect example of what can happen when that doesn't happen. We were previously with Davey (Lawnscape, Kent, Ohio)."

Mike Cust, president of Cust Maintenance Co., Oxon Hill, Md., views the departure of employes who later succeed in the lawn care field as a compliment. "We've had people leave who have gone out on their own and done very well," he said. "To me that is just a compliment if they can leave and do it on their own."

Still others view it as a fact-of-life in the lawn care business. David J. Frank, owner of David J. Frank Landscape Contracting, Inc., said, "I think what a practical business owner has got to look at is his compensation program and see what he can do to make his business a more pleasant place to work.

"He has also got to keep the lines of communication open with his people and even then it's not going to work in all cases," he said. "A turnover of key men in the ranks is not a very pleasant thing for a business manager or owner to take because it's one of the major stumbling blocks in building a sizeable business."

ASSISTANTS *from page 25*

pretty much aware of what those financial variables are."

A number of off-the-job training tools are also available for training potential assistants. These can serve as adjuncts to on-the-job training methods and should not be belittled in their importance. The more popular methods are trade journals, correspondence courses, and involvement in educational and professional organizations.

MOTIVATION

Motivating employes to perform quality work is a constant problem in all types of business because there is no single factor which motivates every worker. Each individual is motivated by different factors or combinations of factors. The key for any manager is to press the right motivational buttons for each employe.

A number of factors motivate employes, but the most often mentioned by both employes and managers are pay, company identification, competition, promotions, bonuses and financial incentives, recognition, and a feeling of belonging.

Many lawn care operators agree that one of the keys to motivation concerns promotability and the belief by the potential assistant that he has a future with your company. Baier, of Plant Control Corp., said,

Bob Baier, president of Plant Control Corp., Irvine, Calif., said he likes to promote from within his business because it "helps the total morale of the company."

"We've created an atmosphere where people know they are not locked into doing one specific job the rest of the time they are with our company and that's important.

"We kind of learned that the hard way when we lost some key people who we wouldn't allow to grow professionally. But we now know that if we don't offer our people a chance to grow they will find opportunities someplace else."

Cust, of Cust Maintenance Co., also lost some promising people because they saw a limited future with his company. "We got bottleknecked last year because we put on a couple more people than we probably should have, assuming that we would lose some (through normal attrition)," he said. "But it looks like they all would have stayed if they had seen any room for advancement." The key to both motivating and developing management personnel, according to Cust, is the promise of career development in the future. "Your assistant has got to know where he is going to be six months to a year from now," he said. "The guy that is qualified to be an assistant foreman is obviously thinking about a career and he needs to know that there is something down the road for him."

Promoting from within to reinforce this feeling of career advancement is also an important component of motivation. "We've always tried to maintain a real strong team-type atmosphere at Hydro Lawn," Faulring said.

"If we're going to be successful it means people are going to have the opportunity to expand their careers within the company. It's not just a carrot or an inducement. It's an opportunity for someone to develop their skills."

Baier agrees. "We like to promote from within," he said. "We feel it helps the total morale of the company. I think in any industry a family feeling within your company is critical in making a viable entity out of your business."

Frank, of David J. Frank Landscaping, Inc., utilizes quarterly reviews to illustrate his company's concern for its employes. "I sit down personally with each employe on a quarterly basis and we have a formal schedule we go through where we review his performance," he said. "And one of the most important parts of the session is when I ask him what I or the company can do to help him perform his job better.

Marty Erbaugh, of Lawnmark Associates, said, "The first year a 24-year-old kid is a branch manager for you he thinks it's the greatest thing since sliced bread, but by the third year the job starts to get old, especially if he really doesn't feel as though he's had a major contribution in the decision-making process."

"We also sit down with our key people on a lot more frequent basis and have informal rap sessions with them to find out how they feel about their jobs and whether they are having any problems."

COMPENSATION

In order to attract and keep quality employes management must compensate them, whether that compensation takes the form of bonuses, benefit packages, profit sharing plans, or production incentives. Whatever compensation plan a manager selects, it should be enforced according to the quality of work performed. It's important that good workers be compensated more generously than poor performers. After all, it's the good worker's behavior the manager wants to reinforce.

One lawn care operator who compensates his workers with bonuses is Faulring, of Hydro Lawn. "Our employes get permanent annual raises based on production incentives. (Actual production, sales, preventing cancellations, academic achievement, etc.)

Faulring also utilizes profit sharing, which is an annuity rewarded to employes based on the profits earned by a company throughout the year. "For the man out treating lawns his bonus is based on the level of profitability he individually created for the company," he said.

"And then as you move up into different levels of management the profit sharing is based on a variety of factors. Like the branch manager would share in the profit of the branch and the assistant branch manager would share in the profit of those immediately under him," he added. "So it's a multi-level program and there isn't anybody who works for us that doesn't participate in the program."

The proper development of middle management personnel is a necessary function of the lawn care operator. His company is only as good as his employes and without competent assistants and middle managers, his chances for success in the 1980's will be limited.

Tips for improving the morale of key supervisory personnel

Improving the morale of key supervisory personnel is an important function of any administrator. Supervisors, like all personnel, have emotional needs which must be fulfilled to perform their jobs efficiently. Dr. Marin M. Bruce, author of a Small Business Administration pamphlet entitled *Human Relations in Small Business* has some suggestions for improving the morale of middle managers and other supervisory personnel.

- As a matter of routine, work together with your key men, taking them consistently into your confidence; get them to work with you rather than just for you.
- Among supervisors, encourage mutual cooperation where needed, as well as individualism in its place.
- Obtain agreement of the management group on your company's goals, and educate them in the company's goals.
- Make sure your managerial "team" is informed of you plans for both the short-range and the long-range future.
- In delegating authority, make lines of responsibility and lines of authority crystal-clear.
- Give supervisors clear-cut decisions; direct them clearly.
- See that the symbols of management's status-like office facilities-are provided.
- Provide equitable compensation.

The March installment of Inside the Industry will also be personnel related. A "workshop" describing specific personnel problems and the solutions will be featured.

TURF

Identification and control of common turfgrass weeds

by Dr. Al Turgeon

The following is an updated and revised version of an article which initially appeared in the February 1979 issue of LAWN CARE INDUSTRY magazine. The article produced substantial reader interest and therefore we have decided to run it again. Reprints are available from Bob Earley, 9800 Detroit Avenue, Cleveland, OH 44102, at a cost of $2 each.

A weed is any plant growing where it is not wanted. When it occurs as part of a turfgrass community, its definition can be expanded to: an undesirable plant because of its disruptive effect on the aesthetic appearance, stabilizing capacity, or overall utility of a turf.

Thistles are perennials or biennials with spiny and serrated leaves. A rosette-type of growth typically occurs under mowing. The numerous and sharp spines make these weeds particularly objectionable in turf.

A particular plant species may be a weed in some turfgrass communities or a desirable turgrass in others. Examples of "potential" weeds include tall fescue, creeping bentgrass and bermudagrass.

Specific weeds are often good indicators of unfavorable environmental conditions for turfgrasses. Large infestations of knotweed frequently occur where severe soil compaction limits turfgrass growth. Ground ivy often invades under trees where insufficient sunlight results in the decline of Kentucky bluegrass and other shade-intolerant turfgrasses. The presence of red sorrel is usually indicative of acid soil conditions.

Knotweed is a low-growing annual that first appears in early spring. Its appearance is variable, depending upon the stage of maturity. Young plants have long, slender dark leaves that occur alternately along the knotty stem. Mature plants have smaller, dull green leaves and inconspicuous white flowers. It grows well on heavily trafficked, compacted soils.

Weed incidence in turf reflects both environmental conditions, and growth characteristics of the turfgrass genotypes comprising the plant community. These two dimensions of a plant ecosystem are highly interactive. Where a particular turfgrass is marginally adapted, successful culture is dependent upon careful programming of fertilization, pesticide application and other cultural variables to sustain the turf and avoid large infestations of weeds. In contrast, an especially well-adapted turfgrass requires less precise care.

Usually, the commercial lawn care operator has little control over genotypic and edaphic (soil) conditions at the lawn site; he must work with the turf as it exists, or refuse to take it on unless the lawn owner agrees to undertake measures to correct basic problems.

Basic lawn problems. A lawn is a complex system of densely growing plants in intimate association with a continually changing environment. While climate and soil are the principal environmental components influencing natural plant communities, lawns are also affected by an array of cultural practices, and the manner in which the lawn is used by the lawn owner and others. Culture and use are parts of the *biotic* turfgrass environment. The turfgrass community and all components of its environment are referred to collectively as the turfgrass ecosystem.

Purslane is a fleshy annual weed with smooth reddish stems. It may be particularly troublesome with new lawn seedings.

Lawn problems arise when the turfgrass community is not well-adapted to its environment, or when some environmental factor evolves or is changed in such a way that it adversely affects turfgrass. An example of a major environmental change is the development of a substantial thatch layer in turf. At the time of establishment, the young turfgrass community has its roots distributed in the existing soil. With a net accumulation of organic debris at the soil surface, thatch can develop with a resultant distribution of at least part of the root system in the thatch layer.

Thatchy turf is more disease-prone, and less tolerant of heat, cold and drouth stresses — conditions often associated with weed invasion. Where thatch exists, pesticides may be less effective or more phytotoxic than where it has been controlled. Whenever the turfgrass community loses sufficient competitive vigor to resist weed invasion, weed species adapted to prevailing conditions often invade. Other adverse environmental conditions include: soil compaction; low or high soil pH;

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poor drainage; restricted air flow; excessive heat, cold, drouth and shade; and toxic residues in the soil.

Adverse cultural influences include: excessive rates of nitrogen and other nutrients, close mowing, unfavorable irrigation practices, improper use of pesticides, selection of poorly adapted turfgrasses, and poor site preparation and planting technique during lawn establishment.

The principal cultural variables controlled by commercial lawn care operators are: fertilization and pesticide application. Some operators also perform cultivation operations for reducing thatch and mitigating the effects of soil compaction. Others include lawn establishment as part of their operations. For those operators involved in only chemical application, consideration should be given to working closely with landscapers to implement corrective measures on highly problem-prone lawns.

Carpetweed is an annual with smooth, tongue-like leaves. Stems branch in all directions, forming flat, circular mats of growth.

Wild onion and wild garlic are perennial weeds with slender, cylindrical leaves. Wild garlic leaves are hollow; those of wild onion are not.

Dandelion is a perennial that reproduces by parachute-like seeds.

Fertilization. Fertilizer materials, especially nitrogen, are essential for sustaining turfgrass growth. A fertilization program should be conducted to insure that essential plant nutrients are not limiting for a particular turfgrass. Of equal importance is the necessity to avoid excessive applications of nutrients, particularly nitrogen. Experiences in the Midwest have shown that high rates of soluble nitrogen applied to Kentucky bluegrass in spring are often associated with severe incidences of helminthosporium melting-out, stripe smut, and fusarium blight diseases.

Depending upon the season of these disease occurrences, heavy infestation by crabgrass, quackgrass, annual bluegrass and a variety of broadleaf weeds and other grasses is a typical aftermath. Thus, dark green, lush growth resulting from liberal use of nitrogen, while aesthetically appealing, can be a prelude to numerous disease and subsequent weed problems. Slowly available forms of nitrogen, including ureaformaldehyde (UF), IBDU, and sulfur-coated urea (SCU) provide less-dramatic initial responses than do soluble forms; however, season-long turfgrass quality and growth may be more favorable where these materials constitute a substantial portion of the total nitrogen applied to the turf.

Fertilizer materials, especially nitrogen, are essential for sustaining turfgrass growth. A fertilization program should be conducted to insure that essential plant nutrients are not limiting for a particular turfgrass. Of equal importance is the necessity to avoid excessive applications of nutrients, particularly nitrogen.

Much confusion still exists over what constitutes optimum levels of phosphorus (P) and potassium (K) in lawn fertilization programs. A generally accepted guide is to apply P at 10 percent and K at 50 percent of total applied nitrogen. Where soil testing is practical, results may be helpful in programming P and K applications, as well as applications of lime for reducing excessive soil acidity. Commercial preparations of micronutrients are sometimes offered as cures for lawn nutritional problems. Certainly, where a specific nutrient is limiting plant growth, its application can result in dramatic responses; however, medium- to fine-textured soils at near-neutral pH's usually contain sufficient concentrations of micronutrients to satisfy turfgrass requirements.

Pesticides for controlling diseases and injurious insects and other animal pests are important in a weed control program since any disruption of an otherwise dense turfgrass cover caused by pest activity in turf results in potential weed infestation sites.

Thus, pest problems should be controlled at an early stage of development or, if possible, prevented. Usually, pest control methods which can be employed by commercial lawn care operators center around use of pesticides. Of course, proper application of pesticides is neces-

sary for both pest control and prevention of pesticide-induced turfgrass injury. Information provided on the pesticide label and from local agricultural extension offices should be reviewed prior to incorporating

Fall panicum is a late-germinating annua. grass with short, purplish sheaths. The seedhead is an open and spreading panicle.

specific pesticides into a lawn care program. As a further safety measure, it is wise to acquire direct experience with any new pesticide, or other chemical, on small plots before acceptance for general use.

Herbicides. Lawn weed control may be defined as any practice designed to either: prevent weed emergence in turf, or effect a shift away from undesirable vegetation and toward desired turfgrasses.

Although herbicides are important tools for controlling lawn weeds, repeated occurrence of weeds may reflect underlying problems which are not correctable with herbicides. Nevertheless, the proper use of herbicides can successfully convert a heavily weed-infested turf into one which is weed-free.

Herbicides vary in chemical structure and method of use; however, nearly all modern herbicides are organic chemicals which break down in the soil or in the plant within several weeks or months. Their breakdown products, called metabolites, are usually smaller organic or inorganic chemicals that, in many cases, are similar to chemicals which naturally occur in biological systems. Herbicides are usually placed into categories reflecting timing of application, site of application, type of action and selectivity.

Timing of application. Some herbicides are applied prior to the emergence of target weed species (preemergence herbi-

Bermudagrass is a serious weed in bluegrass lawns because of its vigorous and dense growth, although it is commonly grown in the South.

cides); once the target weeds have emerged, these herbicides are usually ineffective for controlling them. The specific date at which a preemergence herbicide should be applied thus depends upon the period in which weed germination takes place.

In Illinois, for example, crabgrass typically germinates during May and June; therefore, a preemergence herbicide should be applied by late April in order to insure control. As one proceeds south, crabgrass germination usually occurs earlier during the growing season, requiring earlier application of the herbicide. Postemergence herbicides are applied after emergence of the weed; applying them before anticipated or actual emergence usually will not result in control.

Most annual grasses can be controlled with either preemergence or postemergence herbicides; however, preemergence herbicides are usually preferred because they are often effective with a single application and they are less likely to injure the turfgrass. Broadleaf weeds and perennial grasses are usually treated with postemergence herbicides.

Site of application. Herbicides are applied to the foliage where

Quackgrass is a perennial grass that spreads by underground stems called rhizomes. It may be identified in the lawn by its dull green color and its rapid foliar growth.

Nutsedge is a perennial sedge that reproduces by seed, rhizomes and small, hard tubers called nutlets. It is identified by its triangular stems and yellow-green color. The nutlets may persist in the soil for several years, insuring regeneration of the plants.

Plantains are perennials that reproduce by seed. The leaves form a basal rosette with finger-like flower stalks protruding upward.

Buckhorn is a perennial with lance-like leaves and bullet-like seeds on long, slender stems.

they are absorbed, or to soil underlying the grass shoots where they are absorbed by roots or immature organs of germinating seeds. Postemergence herbicides are usually foliar-applied, while preemergence herbicides are soil-applied. This distinction is of practical importance since a foliar-applied herbicide which is washed off of the foliage by irrigation or rainfall shortly after application may not be effective. Conversely, a soil-applied herbicide which is retained on the

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foliage for an extended period may break down before reaching the soil (or thatch) where it must be to be effective.

Black medic or yellow trefoil is an annual, biennial, or perennial that closely resembles white clover. It is distinguished by its yellow flowers and the arrangement of its leaflets on the stem: the middle leaflet is borne of a short petiole while the lateral leaflets are close to the stem.

Postemergence herbicides are of two types: contact and systemic. *Contact* herbicides control those portions of the weed plant to which they come into contact. For annual weeds, contact herbicides may be quite effective. Perennial weeds may recover following treatment with a contact herbicide because of new growth from below-ground regenerative organs *Systemic* herbicides are translocated within the plant following absorption and are, therefore, more effective than contact herbicides for controlling perennial weeds.

Most herbicides used for controlling annual grasses and broadleaf weeds are *selective*. When applied in accordance with directions on the herbicide container, they control target weeds without injuring desired turfgrasses. Currently, there are no selective herbicides for controlling most perennial grasses; therefore, *nonselective* herbicides must be used for controlling these weeds. Since nonselective herbicides will kill or injure all plants in the lawn, they should be applied only to the target weed as a directed spray in order to minimize damage to the lawn.

Most broadleaf weeds are susceptible to control by at least one of the following herbicides: 2,4-D, mecoprop or dicamba. All are selective, systemic, foliar-applied, postemergence herbicides. Applications should be made only on calm days (no wind) in order to avoid herbicide drift and possible damage to adjacent plantings of flowers, fruit and vegetable gardens, and ornamental trees and shrubs. For best control, the turfgrasses and weeds should be actively growing at the time of treatment.

Chicory has a taproot that is large and fleshy. A rosette of leaves resembling dandelion leaves form at the base. Bright blue flowers are borne on rigid stalks that resist mowing.

Herbicides for controlling summer annual grasses include the preemergence herbicides (UCPA, benefin, bensulide and siduron) and the organic arsenicals (MSMA, DSMA, MAMA) applied postemergence two or three times at seven-to-10-day intervals. The triazine herbicides (atrazine, simazine) can be used for several grasses and broadleaf weeds in some warm-season turfgrasses, but cool-season turfgrasses are intolerant of these herbicides. Thus, the triazines are selective herbicides in some lawns and nonselective in others.

With few exceptions, perennial grasses cannot be controlled selectively in lawns. Thus, a nonselective herbicide such as glyphosate, may be used for spot-treating isolated patches or clumps of weedy perennial grasses.

Commercially available herbicides are safe when used properly; this means in *strict accordance* with directions printed on the herbicide container. When used correctly, herbicides can help in sustaining weed-free lawns.

Prostrate spurge is a low-growing annual that generally appears in mid-season. The small leaves are opposite and frequently have a red blotch in the center. The stem oozes a milky sap when broken.

Mouse-ear chickweed is a perennial that reproduces mainly by seed but also by creeping stems. It is identified by its small, fuzzy, dark green leaves and dense growth habit.

Common chickweed is a creeping winter annual with small, pale green leaves. Its hairy stems branch and take root, enabling the plant to spread over large areas and completely crowd out turfgrasses. White star-like flowers appear during cool seasons.

White clover is a creeping perennial that competes aggressively with established turfgrasses, especially under moist conditions and low soil fertility. It is identified by its three short-stalked leaflets and globular, white flowers.

Nimblewill forms patches resembling bentgrass.

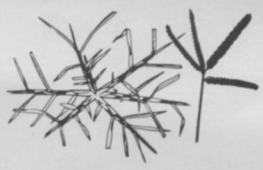
Red sorrel or sheep sorrel is a clump-type weed with arrow-shaped leaves. It often appears on acid soils low in fertility.

Ground ivy or creeping charlie is a creeping perennial that forms in dense patches in turf. Its bright green leaves are round with scalloped edges. Its flowers are bluish-purple and the stems are four-sided. It grows well in shady areas where soils are poorly drained.

Curled dock is a perennial that reproduces by seed. It has a fleshy taproot and large, smooth leaves that are crinkled on the edges.

Henbit is an annual that reproduces by seed. The leaves resemble those of ground ivy but occur opposite along the stem.

Crabgrasses are late-germinating annuals that reproduce by seed. The seedheads appear as several finger-like projections at the terminals of the seed stalks. The spreading growth of crabgrass tends to crowd out desirable grasses in the lawn. Like other summer annuals, crabgrass is killed by the first frost, leaving unsightly dead patches in the turf.



Goosegrass or silver crabgrass is similar to crabgrass except that the center of the plant is a silvery color and the seedheads are zipper-like in appearance.

Yellow woodsorrel is a pale green annual or perennial that reproduces by seed. It has heart-shaped leaves, and its flowers are yellow with five petals.

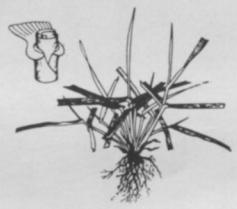
Annual bluegrass is frequently observed in dense patches of light green color.

Roundleaved mallow is an annual or biennial that reproduces by seed. It has a long taproot and round leaves with five distinct lobes. Its white flowers first appear in late spring and bloom continuously through the season.

Yarrow is a fern-like perennial weed that spreads by rhizomes. Under close mowing it forms a dense mat and is quite wear-resistant and drouth-tolerant.

Yellow foxtail is identified by the presence of long hairs on the upper surface of the leaf blade near the base and by the yellow cylindrical seedheads.

Bentgrass is a perennial grass that spreads by above-ground stems called stolons. It forms puffy, dense patches that may completely take over the lawn. Provided it receives close, frequent mowing and meticulous care, bentgrass will make a very attractive lawn; otherwise, it is regarded as a serious lawn weed.



Tall fescue is a coarse-textured perennial grass growing in unsightly clumps in the lawn. In pure stands, however, it may be an acceptable turf because of its good wear resistance and low maintenance requirement.

Table 1. Chemical Control of Broadleaf Weeds in Lawns

	2,4-D	Mecoprop	Dicamba
(S = susceptible; I = intermediate control; R = resistant)			
Black medic	R	I	S
Carpetweed	S	I	S
Chickweed,			
common	R	S-I	S
mouse-ear	R	S-I	S
Chicory	S	S	S
Daisy, oxeye	I	I	I
Dandelion	S	S-I	S
Dock, curled	I	I-R	S
Ground ivy	I-R	I	S-I
Hawkweed	S-I	R	S-I
Henbit	I	I	S
Knotweed	R	I	S
Lambsquarters	S	S	S
Mallow, roundleaf	I-R	I	S-I
Plantain,			
broadleaf	S	I-R	R
buckhorn	S	I-R	R
Purslane	I	R	S
Red sorrel	R	R	S
Speedwell,			
creeping	R	R	R
purslane	I	I	I
Spurge, prostrate	I-R	I	S-I
Thistles	S-I	I	S
White clover	I	S	S
Wild carrot	S	S-I	S
Wild onion	I	R	S-I
Woodsorrel, yellow	I	I	I
Yarrow	I	I-R	S

Table 2. Tolerance of Various Turfgrasses to Herbicides

	- Turfgrass Species -								
	- cool-season - types				- warm-season - types				
Herbicide	Bluegrass	Bentgrass	Fescues	Ryegrass	Bermudagrass	Zoysiagrass	St. Augustine	Centipedegrass	Bahiagrass
Atrazine	N	N	N	N	N	S	S	I	N
Benefin	S	I	S	S	S	S	S	S	S
Bensulide	S	S	S	S	I	I	S	S	S
2,4-D	S	N	S	S	S	S	N	I	S
DCPA	S	N	N	S	S	S	S	S	S
Dicamba	S	I	I	O	I	I	I	I	S
Mecoprop	S	S	S	S	S	S	I	S	S
Organic arsenicals	I	I	N	S	S	S	N	N	N
Siduron	S	I	S	S	N	S	S	S	S
Simazine	N	N	N	N	N	S	S	S	N

S = safe for use
I = may be injurious
N = not suggested for use
O = unknown

What a lawn service can provide

by Jerry Faulring, president, Hydro Lawn, Gaithersburg, Md.

The lawn care industry is now at a point in time when we should be reviewing what we have accomplished in the past 10 to 20 years and discovering if the established precedents will be valid for the next period of industry growth.

The production and maintenance of quality turf to satisfy aesthetic consumer demands in a profit/loss environment is considerably different from maintaining roadsides, parks, golf courses and athletic fields in a budgetary environment. The implementation of agronomic technology is dissimilar in quality turf production at a residential site compared to a golf club, for example, due to financial constraints.

For example, the homeowner is not in a position to go out and borrow money to restructure the soil profile and share the cost with many over a period of years such as would be the case in building a golf course. As I see it, one of our greatest challenges is to develop and implement the necessary technology to satisfy consumer requirements at low cost. We are almost never confronted with construction considerations. We are almost always asked to provide quality turf at an existing site that was created to satisfy considerations very unrelated to future turf management practices.

". . . one of our greatest challenges is to develop and implement the necessary technology to satisfy consumer requirements at low cost."

The yearly cycle. If I were to call you, a lawn care businessman, on different dates throughout the year to survey your response to what a lawn service can provide, I'd probably hear something like this:

•March 30: You'd say lawns are looking great and you feel great about his business. The phone has been ringing off the wall by potential customers.

•June 15: You'd be having a lot of reservations. You just paid off the preemergence bill and in walks your secretary with a box full of messages, same complaint, crabgrass.

•August 25: Thinking about selling out, you are. Lawns crackle under foot and brown patch has just invaded your market area. To make things worse, it is 7 a.m., the temperature is 80 degrees F. and you find out that national network television has just printed a report that the lawn care industry is to blame for many of the miscarriages in the United States, not to mention that the industry is killing off its staffs one-by-one.

•October 15: You are feeling pretty good. The rains are coming, the lawns are healing, the weeds are dead and the crunch is over.

•Thanksgiving: You just got your first note from a customer saying something to the effect of "keep up the good work". Another dismal winter approaches and you swear on a bible that you'll have all the answers by next spring.

Sound familiar? Probably so. These are universal circumstances we are all up against. Our feelings and emotions have historically engaged the agronomic considerations of lawn care. If we take the position that some of our failures result because technology just does not exist to answer all the questions, we are left to cope with the issues from a non-agronomic point of view. That approach may be viewed by some as excuse-oreinted, but I think it is realistic.

Customer expectations. So, just what can a lawn care company provide? To simply state our purpose or goal, we are engaged primarily in the activity of providing a scheduled program of lawn treatments (either chemical or mechanical) to enhance the health and visual quality of the lawn for the purpose of enhancing the overall landscape setting.

This commitment to perform a schedule of treatments or mechanical activities too explores two different schools of thought. First, what can we realistically provide, and second, what should we provide to the consumer whether he be an association of homeowners, a commercial office building manager or the detached residential homeowner?

Before I go any further, I'd like to explore what it is that causes the consumer to have the level of expectation that he does. It has been my experience that expectations are somewhat different from what we can realistically provide.

Why is it that the majority of potential customers we encounter have unrealistic and unachievable expectations? Why do they in many cases assume

that their problems are over when we walk through the door? Some of us have promoted what is impossible to deliver. If, for example, we print a picture of an absolutely perfect lawn on the cover of a brochure and proceed to sell our company under that cover, how can the consumer not assume that we can provide what the picture represents?

Some of our customers probably grew up on a Michigan peat bog where the lawns just grow great. Some think that we should be able to do at least as well with their rocks and clay as has been done on their golf course greens. Remembering that a picture is worth a thousand words, how many bad lawns have you ever seen in *Better Homes and Gardens* ? So we've got a problem. Before we even go out to look at the lawn, the homeowner is sitting back assuming that if he spends $150 he will get at least the type of lawn he saw at the lush estates filmed in *The Great Gatsby*.

"The production and maintenance of quality turf to satisfy aesthetic consumer demands in a profit/loss environment is considerably different from maintaining roadsides, parks, golf courses, and athletic fields in a budgetary environment."

These images, so well-fixed in the market's minds, are one of our greatest challenges to overcome. Of course, the consumer knows that Mr. Jones across the street has got a yeard full of crabgrass, but it is human nature to assume we can individually succeed in getting just what we want.

The point here is that we must make a strong and successful effort to understand why the market thinks as it does and then cause the market to understand just how far we can go in satisfying those *Better Homes and Gardens* images. I point this issue of consumer expectations out at this time because it is integral to exploring the balance of the issues in answering the question of what a lawn care company can and should provide.

Missed opportunities. Agronomically, we have the technology to provide green grass free of weeds. Depending on our company strategies, even timely fertilizations can be a problem. A volume-oriented operation is very involved in compromises between what is correct and what can be realistically achieved.

If one service vehicle, for example, is responsible for 500 to 600 lawns, it is obvious that ideal treatment timing cannot be achieved. Target applications of insecticides to achieve maximum benefit is impossible.

On the other hand, the company that elects to service fewer accounts per service vehicle can usually afford the luxury of better timing. But, prices must be higher and that company may not have the resources to provide additional services and programs expected by the consumer. This information should be presented to the consumer in terms of what the results may be for his lawn care investment prior to his contracting for services.

In terms of what services a company can provide, I believe that we as an industry are currently in error for the overall strategies we have developed. I feel that many of us have actually specialized too far to the extent that we are not serving the full scope of the consumer's needs and expectations. We are missing an opportunity to increase our sales volume without increasing our client list and at the same time serve the market better.

"If one service vehicle, for example, is responsible for 500 to 600 lawns, it is obvious that ideal treatment timing cannot be achieved."

My company recently did quite an extensive survey of our customers to determine our weaknesses, to learn how we could better serve our customers' needs and to get a better grasp of what psychological considerations of the consumer we should be concerned with. Regarding the issue of additional services beyond the scope of traditional chemical lawn care, here is what we learned:

49 percent said they would pay extra for mechanical thatch removal; 32 percent said they want us to provide chemical pest control for their ornamental tress and shrubs; 36 percent want root-zone fertilization of their trees and ornamental plantings; and 14 percent said they want a mowing service.

Additionally, our customers have always expected such services as non-selective weed control, fungicide applications on an as-needed cuartive basis and overseeding. Certainly we have encouraged some of these consumer attitudes through our advertising. Seeding is an interesting service in that many companies don't get involved with it at all and many companies who used to overseed have dropped that service. Seeding has always posed numerous problems for us,

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but 56 percent of respondents to our survey indicated that they felt the availability of our seeding services was a very important part of our overall approach.

Doubled sales volume. With a little quick math, if you correlate some of those market attitudes we learned about in our survey, it is very conceivable that a strictly chemical care company could double its sales volume without adding any new customers. Again with regard to our survey, 32 percent of the respondents cited as one reason for employing Hydro Lawn was due to the choice or variety of services we offer.

Incidentally, only 36 percent were influenced by low price. We have become a very price-competitive industry and yet 64 percent of my customers indicated that price was not their number one concern. Although not directly asked on our survey, it is my impression that although price definitely influences buying decisions, price is not as important as overall results.

"A volume-oriented business is very involved in compromises between what is correct and what can be realistically achieved."

The point is that many companies can provide more supportive-type services than they are presently engaged in. I do not propose that everyone should run out and set up a full-service landscape management company. A certain level of specialization has numerous and distinct advantages.

What I would propose is that you consider what services would be valid offerings to complement your present program in terms of both financial gain for yourself and in terms of what you should legitimately be offering to perform for your customers.

A lawn that has a one-and-a-half-inch layer of thatch needs some attention- Rather than passing the buck and making excuses as to why the lawn is not performing, we should be helping the customer with disposing of such problems.

I think that if you give it some consideration, you will concur that from the physical service side of our business, we may have an obligation to position our type and variety of services to meet a greater variety of consumer needs.

Industry image. The next area that I think we should be concerned about and which is extremely important to our present and future success explores the business activity of public relations and image. I believe this to be an integral part of discussing what a lawn service can provide even though it involves strictly non-agronomic matters.

"A lawn that has a one-and-a-half inch layer of thatch needs some attention. Rather than passing the buck and making excuses as to why the lawn is not performing, we should be helping the customer with disposing of such problems."

As we try to understand the importance of serving the market's non-agronomic needs, we should make an effort to appreciate how the industry is currently perceived by the market and to learn if that perception is different from what we would like it to be. I believe it is. As the industry seeks to find a position of security and stability, the manner in which we are perceived by the market will have great bearing on how effectively we can perform the agronomic objectives.

For example, if we convey the concept that we can solve all problems, and then in reality the market realizes that we can't, the market will quickly become disillusioned and refrain from buying ourservices. It should be a primary objective to convey what is realistic and that we can be an effective service industry or the market will either shift to alternative methods of obtaining the desired goal or else not do anything at all about the management of their landscapes.

In the second case, an overall attitude of market neglect will certainly depress our future level of success. An excellent point to be made here is that our industry is now bringing quality lawns to people who have never had them before. The children of our current customers are growing up in an environment that includes professional lawn care. Subconsciously, these youngsters will come to think of professional lawn care as a necessary purchase when they buy their own homes.

If we do a good job today, they will have no negative impressions to prevent them from buying our services in the future. On the other hand, if they don't grow up with the impression that we are the doctors of their lawns and landscapes, they won't auto-

matically consider us. This consideration does not necessarily involve just individual company actions. We must collectively create a positive awareness and need in the market for both our current and future success.

In developing this theme, I see several ways in which we can better serve the market and cause a very positive market perception of us. These points go beyond the scope of just causing lawns to be green and weed free.

Consumer education. There are a number of considerations here. First, we should expend an effort to properly communicate what reasonable expectations may be. Each lawn site has specific inherent deficiencies that should be explained before we start any work. Then we should describe exactly what our policies are and what we'll do when the variety of known potential problems arise.

The consumer should be explicitly advised as to what his responsibilities will be. We should solicit each customer to provide us with observations during the periods when we don't see his lawn. Simple, easily understood communication of what we do to the lawn and why it is essential to secure cooperation from the customer. Most clients like to be advised of what to expect from either a specific treatment or from upcoming seasonal periods. Customers do not like surprises.

"It is imperative that we staff and equip our operations to be very responsive to routine and extraordinary customer and lawn needs. For example, the capability to cope with disease and insect problems on a timely basis can mean the difference between success and failure."

At Hydro Lawn we have implemented a variety of educational efforts that have been well-received. First, when we see a lawn for the first time we complete a fairly comprehensive survey that covers 14 areas of interest including such things as weed, insect and disease analysis, several management habits of the customer and topographical considerations. We also have a two-page statement of policies, terms and conditions of the company-client relationship.

We have a recorded message that is changed weekly to provide up-to-the-minute information on all aspects of turf management. Additionally, we have about 25 special fact sheets that cover very specific problems such as weeds, insects and diseases, which permit a fairly in-depth presentation of the facts concerning the particular issue of concern. We have prepared a very substantial booklet that briefly discusses many issues such as thatch, mowing, watering and diseases.

I feel very confident that the cumulative effect of all these efforts is to cause our clients to be very aware that turf management is a complex issue and that we need their cooperation to effectively manage their lawns. Incidentally, our survey confirmed that all these efforts are being well-received and appreciated.

For example, we periodically have produced a very professionally illustrated and written newsletter containing articles concerning both lawn care and general gardening. Almost 90 percent of the survey respondents said it is worthwhile reading, informative and interesting. Many of us feel that the consumer is not interested in learning more about the science of turf management. My customers overwhelmingly disagree.

Train your staff. The trend in recent years has been very favorable regarding this effort. According to LAWN CARE INDUSTRY magazine, only five percent of the companies responding to one of their surveys indicated that no staff training program was being implemented.

"Our staffs should be able to expertly interpret the variety of circumstances they'll see and be able to give sound advise to their customers. This is a very excellent mechanism for us to cause a desirable market perception of us . . ."

This is so important because the people working on the lawns have the most frequent contact with lawn and customer. Our staffs should be able to expertly interpret the variety of circumstances they'll see and be able to give sound advice to their customers. This is a very excellent mechanism for us to cause a desirable market perception of us in addition to just getting better results from our program objectives.

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LAWN SERVICE *from page 35*

Provide follow-up services. It is imperative that we staff and equip our operations to be very responsive to routine and extraordinary customer and lawn needs. For example, the capability to cope with disease and insect problems on a timely basis can mean the difference between success and failure.

The Hydro Lawn strategy in this area has always been to actually perform remedial treatments rather than simply coach the customer on what he can do. It is possible for the homeowner to apply a fungicide, but the important issue is whether or not he'll do it and do it on a timely basis. Ultimately, such special problems must be accomodated or both the customer and the company will lose.

Research. It is not practical to assume we'll learn everything we need to know from university and industry research. The level of your participation is very dependent on your corporate resources, but even a very small program to test materials and techniques can yield some extremely valuable lessons. An understanding of your local market soil chemistry and soil types is very useful in developing a good program of treatments.

"It is not practical to assume we'll learn everything we need to know from university and industry research. The level of your participation is very dependent on your corporate resources, but even a very small program to test materials and techniques can yield some extremely valuable lessons. An understanding of your local market soil chemistry and soil types is very useful in developing a good program of treatments."

Many of us have learned some hard lessons about products that are advocated with substantiation of research. Using your customer's lawn as a test plot for basic research is very unsophisticated and can be disastrous.

The overall objective here is to build market confidence in us. They surely have confidence in us when their lawns are looking great. But when seasonal climatical factors or circumstances such as soil types cause the lawn to decline, we must cause the market to fully appreciate the constraints beyond our control that affect how well their expectations are satisfied.

In summary, the answer to what a lawn service can provide is a complex issue that needs considerably more attention than we have given it in the past. The implications here are very important for those who want to make a long-term success of satisfying the aesthetic consumer need for quality turf. *Faulring is president of the Professional Lawn Care Association of America*

MARKETING

Equipment shipments to decline five percent

A five percent decline in selected lawn and garden equipment shipments is forecasted for the 1980 model year, according to a recent survey of 21 companies by the Outdoor Power Equipment Institute.

With the exception of rotary tiller shipments, which are expected to remain relatively flat, the projections indicate a decline in shipments of walk-behind mowers, lawn tractors/riding mowers, and garden tractors.

"Shipments of walk-behind power mowers are projected at 5.6 million units, a five percent decline from 1979's estimated 5.9 million units."

Shipments of walk-behind power mowers are projected at 5.6 million units, a five percent decline from 1979's estimated 5.9 million units. Lawn tractors/riding mowers are expected to decline by 12 percent to an estimated 786,000 units, while a ten percent decline to 228,000 units is predicted for garden tractors. Rotary tiller shipments are expected to increase slightly from 1979's estimated 571,300 units to 572,500 units in 1980.

As for the major economic indicators relevant to the lawn and garden industry, the consumer price index is projected to increase ten percent in 1980, while the gross national product is forecasted to increase 1.9 percent. Further, housing starts are projected at 1.5 million, the unemployment rate at seven percent, and producer prices for finished goods at 10.5 percent.

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Fighting elm disease with insecticides in Minnesota

A recent Special Local Need label has cleared the way for treatment of healthy elm trees in Minnesota to control native elm bark beetles, the primary insect vectors of Dutch elm disease there. The beetle control program, using Dursban insecticide is viewed as a potentially significant "second step" to sanitation programs in slowing the spread of Dutch elm disease fungus, *Ceratocystis ulmi*.

"A good sanitation program, including debarking of all elm firelogs, is still the top priority,"

Sanitation programs are the key to limiting elm bark beetle reproduction. In addition to cutting down and removing diseased and dying trees, debarking of elm logs and firewood is essential.

Bill Phillipsen, extension entomologist at the University of Minnesota, said. "We're reaching the point, though, where cost and logistics in epidemic areas are making it very difficult to keep up with diseased tree removal and downed log disposal.

"In the Minneapolis-St. Paul-Bloomington area alone, estimates on diseased elms in 1979 range up around 77,000 trees. With present costs for labor and equipment, the price tag for removeal and disposal will run in the neighborhood of $30 million. We find we're in the same "catch-up" situation with Dutch elm disease that other communities faced in the lower Midwest and East about 10 to 20 years ago."

Research on Dursban insecticide has been conducted in several communities during the past several months by Phillipsen and associates Mark Ascerno and Val Landwehr, under funding from the Minnesota Department of Agriculture Shade Tree Program. The product earlier was registered and has been used successfully in native elm bark beetle control programs in Canada. A U.S. federal label is pending, reports Dow Chemical, manufacturers of the insecticide.

Dutch elm disease was first reported in Minnesota in 1961. As is typical of many infestations around the country, the disease had relatively little impact on elm populations for 12-14 years. Then the disease multiplied rapidly.

"In the last five years, we've lost more than 20 times the number of elms killed in the first 14 years. The rate will continue to escalate unless comprehensive management programs are implemented," Phillipsen said.

"Costs for tree removal are essentially unavoidable. If communities do nothing to slow down the spread of Dutch elm disease, they will still have to remove dead and dying trees to keep them from falling across power lines, into houses, over traffic routes and so forth. We're looking at practical ways to disperse these removal costs over several years."

Both European and native elm bark beetles leave distinctive "tracks" to mark their former presence under the bark of dead elm trees or downed logs, including firewood. These egg-laying galleries provide a valuable clue to which insect reproduced here. If the main channel runs parallel to the grain of the tree, it's the European elm bark beetle; if the channel is perpendicualr to the wood grain, it's the native elm bark beetle.

From a total elm population of about five million trees, the Twin Cities seven-county metropolitan area still have 4.5 million that are disease-free, according to Phillipsen. If the disease is allowed to progress at its normal logarithmic rate, virtually all elms in that area will be destroyed over the next ten years.

With today's cost of tree removal averaging nearly $400 each, the expense would add up to a staggering $1.8 billion. This does not take into account the aesthetic impact on communities, depreciation in home values due to loss of the majestic shade tree, or damage losses attributed to falling limbs and trees.

Two insects serve as elm fungus disease carriers the smaller European and the native elm bark beetle. Both reproduce during the summer months in downed elm logs or diseased trees, which points up the importance of sanitation programs to deprive both insects of egg-laying sites, as well as to reduce the natural reservoir of disease fungus.

In some parts of the country, European elm bark beetles are the prevalent species. In Minnesota, however, native beetles far outnumber the European.

"In the northern two-thirds of Minnesota, the native beetle is the main and, in many instances, the exclusive carrier of Dutch elm disease," Phillipsen said. "In the southern third, the native is an important carrier along with the European beetle."

Insect studies indicate that only two or three percent of the overwintering European beetles are likely to be carrying the disease fungus. "In our studies, about 30 percent of the overwintering native beetles carried the fungus. It only takes one beetle to infest a tree."

Both insects do most of their damage in the spring when they

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emerge from overwintering sites. Natives emerge first, starting around mid-April or early May, and fly into larger branches of healthy elms to feed. Trees are particularly vulnerable at this time, when new growth is being added and rapid transmission of the fungus can occur.

European beetles emerge about a month later and feed on smaller twigs and branches. Disease fungus introduced at this time usually spreads more slowly through the tree. If disease symptoms like leaf wilt and brown discoloration in twig cross-section are detected early enough, it may be possible to save most of the tree by cutting out the infected branches.

A key to stopping native beetles was discovered in a "weak link" in its life cycle, which makes it much more susceptible to insecticide treatment than is the European. Native beetles overwinter as adults in the bark along the lower trunk of healthy elms. European beetles seek out downed trees and logs, overwintering in the larval form.

"By treating the bases of healthy elms with Dursban, we've destroyed over 97 percent of the native beetles overwintering there," Phillipsen said. "In addition to its effectiveness, another important advantage is that it doesn't repel the insects. The beetles do not avoid treated elms even when there are untreated trees nearby."

Two formulations of the chlorpyrifos-based insecticide are registered for use in Minnesota Dursban 2E and Dursban 4E. Application rate is .5 percent active ingredient solution with water, sprayed to wet (not runoff) the basal two to two-and-a-half meters (six to eight feet) of standing healthy elm trees.

The entomologists do not recommend that this management technique be left to individual homeowners, because effective control of beetle populations must be handled on a community-wide basis. At present, trained municipal employes and licensed pest control operators represent most of the qualified applicators. The Minnesota Special Local Need 24c label must be in the possession of the user at time of application.

"The best time for application is late August to mid-September," Phillipsen added. "This would be just before native beetles start their search for overwintering sites. Extra care should be devoted to the basal six inches of the tree, including root flare. Young elms (up to eight inches diameter) and thin-barked elms are especially vulnerable to the beetles."

Fall treatment is preferred because beetles can introduce the fungus directly into healthy trees as they make their overwintering tunnels. The "bottoms up" disease symptoms are similar to those associated with root graft transfer of Dutch elm disease from infected to healthy elms. Spring treatments also can be effective by destroying beetles as they emerge to begin their feeding and reproductive cycle. The research team has monitored Dursban insecticide effectiveness for more than nine months, so a repeat treatment in the fall should not be needed where spring applications are made.

"Tree spray programs we've outlined will normally be conducted early enough in the spring and late enough in the fall that they won't conflict with most of the ongoing sanitation pro-

to page 44

COST CUTTINGS

Smaller spray trucks? He says no

The December issue of LAWN CARE INDUSTRY carried an article predicting that because of increasing fuel costs and other reasons, many lawn care companies would be using smaller spray tank trucks in the future. A number of manufacturers were quoted in the article.

Richard D. Steinau, president of Greenlon, Inc., Cincinnati, has this response to those comments:

"In response to your article about lawn care in the '80's and specifically to the section on smaller trucks, I may be able to save my fellow lawn care company owners 'one ton' of money.

"Several years ago, Greenlon had a similar notion that switching to one ton trucks would show a savings in gasoline and increase our maneuverability. Buyer, beware.

"We bought eight units and were deliriously happy over our good fortune. At first we saved on gasoline. Then the clutches started going out. After the clutches it was the brakes. After the brakes it was the transmission. Get the picture. 'They carried too much weight,' the dealers are yelling in the background. Wrong. As suggested in the article, we were carrying 800-gallon tanks, but could only fill them to 700 gallons because the one ton truck could not take the weight.

"What I'm trying to say is don't get taken in by the high-flying salesperson. They will tell you it can handle the load. Our trucks had heavy-duty everything, including five extra leaf springs for the rear load and it still was a mistake.

"Epilogue: We just purchased five two ton vehicles."

MEETINGS

California association plans landscape show

The first annual California Landscape Contractors Association Landscape Industry Show has been scheduled for April 3-4, at the Long Beach Convention Center, Long Beach, Calif.

The show will feature the latest in equipment and plant materials for landscape and irrigation contractors, landscape maintenance contractors, nurserymen, and landscape architects.

Office computers and communication systems will also be featured, along with presentations by banking representatives, vehicle fleet experts, and numerous business consultants specializing in the industry. Admission to the show is free.

For information about exhibit space contact the show office at 714-979-2522 or the association's Sacramento headquarters, 1419 21st Street, Sacramento, CA 95184, 916-448-2522.

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PRODUCTS

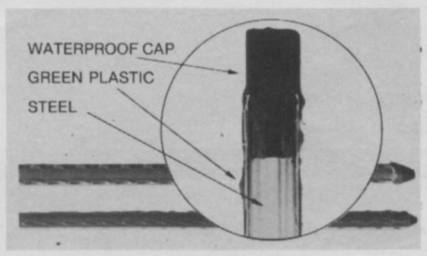
Hustler tilt trailer

A tilt trailer ideal for hauling lawn and garden equipment is offered by Hustler Corporation. The trailer features a solid ribbed steel deck with a 1,500 pound axle capacity. Standard features include front and side rails, spare tire rack, oversized Goodyear tires, removable fenders, and heavy-duty chains.

Circle 205 on free information card

Plastic-coated plant stakes last longer

Stan-Tall plant stakes, from The Leitz Co., feature permanent waterproof caps which prevent corrosion. Further, the plastic-coated steel plant stakes will not harbor wood-loving insects, are unaffected by agricultural chemicals, and will last ten times longer than other types of stakes,



according to the manufacturer. The stakes are available in six lengths from 36 inches to 109 inches and in three diameters.

Circle 203 on free information card

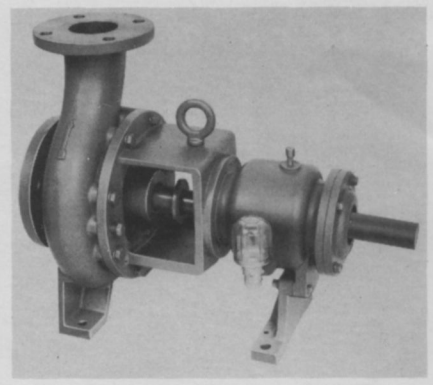
Tractor-mounted mower features 23-foot reach

The Brigand, a hydraulically-powered, tractor-mounted mower by Bomford & Evershed, Ltd., features an exceptional reach of 23-feet, seven inches. Further, for close-in trimming its three-tpaered section arms can be retracted close to the tractor wheel.

Circle 206 on free information card

Self-priming straight and centrifugal pumps

MP Pumps Division of Tecumseh Products Co. announces its new Series 600 self-priming and straight centrifugal pumps. The pumps feature back pull-out design with jack screws for easy maintenance. In addition, both grease lubricated and oil



lubricated bearings are offered with heavyduty bearing block rated up to 75 horsepower. The Series 600 is offered in cast iron, ductile iron, and stainless steel construction.

Circle 208 on free information card

Circle 137 on free information card

Three-in-one garden utility cart

Tote Machine, from Great Outdoors, is three products in one including a large-capacity garden cart, two-wheeled dolly, and plastic lawn and garden bag holder. With its polyethylene body in place, the Tote Machine becomes a large-capacity garden cart capable of carrying up to 150 pounds of material. Further, its 16-inch bicycle wheels make it possible for the cart to be pushed or pulled with little effort.

By undoing a quick-release catch the body is easily removed, converting the cart into a two-wheeled dolly that can be used for carrying heavy items. With the body still removed, a leaf ring can be fitted onto the dolly over which a standard plastic lawn and garden bag can be fitted for collecting leaves, grass clippings, and other refuse. Tote Machine weighs 50 pounds. A heavy-duty model capable of carrying 300 pounds of material is also available.

Circle 201 on free information card

Pop-up sprinklers

Weather-matic's complete line of K-series pop-up, impact-drive sprinklers feature a patented arm spring adjustment which allows the operator to fine tune

rotational speed and/or compensate for unusually low or high operating pressures. The only tools required are a phillips and a flat-blade screwdriver.

Circle 207 on free information card

Circle 118 on free information card

Planning calendars

Time planning calendars, from Cook's Systems, are helpful in preparing long-range planning on a daily basis. The calendars are printed in two colors on heavy cover stock for durability and easy reading. They also feature large writing areas and tinted guide lines.

Circle 211 on free information card

Circle 105 on free information card

21-horsepower engine

The Kohler Company introduces a 21-horsepower, four-cycle engine which features long-life cast iron cylinder barrels on a weight-saving aluminum crankcase. Breaker points,

condenser, spark plugs, oil fill, dipstick, air cleaner, and carburetor are all readily accesible for ease of service.

Circle 214 on free information card

Gas-powered trimmer

Weed Eater, Inc.'s XR Series of gasoline-powered trimmer/edgers are available in three models, the XR-50, XR-70, and XR-90. Each model is powered by a twocycle, 26.2cc engine positioned at the top of the unit for precise balance and handling.

Both the XR-50 and XR-70 feature the "Tap-N-Go" cutting head which feeds out additional nylon cutting line when tapped on the ground. The XR-90 has a twin-line cutting head which can be replaced with a metal blade for brush cutting. Each model in the XR line comes with 40 feet of heavy-duty cutting line and solid state ignition.

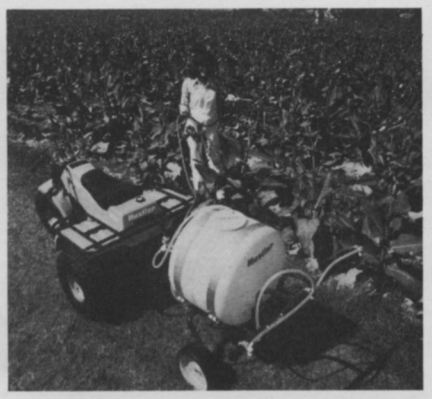
Circle 210 on free information card

Easy-clean spreaders

Gandy Company offers easy-to-clean 20- and 24-inch hand spreaders. Both models feature stainless steel bottoms and slides, along with an internal

rotor which assures a constant flow of material. Further, all units can be completely disassembled for thorough cleaning without the use of special tools.

Circle 209 on free information card



Trailer spray system

A trailer tank spray system featuring a 25-gallon polyethylene tank and a 12-volt, pressure-regulated electric pump is offered by Hustler Corporation. Lightweight, aluminum handgun provides spot-spraying capabilities and an adjustable three-foot boom provides broadcast spraying capabilities.

Circle 204 on free information card

Insecticide implants for ornamental trees

Acecap systemic insecticide implants, from Creative Sales, Inc. are tiny capsules which can be implanted into trees to protect them against a variety of insect pests. The implants,containing orthene insecticide, eliminates the need for measuring and mixing chemicals. Once implanted, the orthene translocates throughout the tree providing long residual control.

Circle 215 on free information card

Blower utility vacuum

The Green Machine Model 600 Yard Blower provides a 100-mile-per-hour jet of air for rapid cleaining of both turf and hard surfaces. A separate attachment is available to convert the blower into a versatile utility vacuum.

Circle 213 on free information card

Data processing system for lawn care industry

CALC-A-LAWN, a data processing system designed specifically for the lawn care industry, is available from Mini Systems Group, Inc. Modular programs which have been developed as part of the comprehensive CALC-A-LAWN package includes estimates processing, accounts receivable, routing, customer and route analysis, pricing, customer labels, spring reminders, automatic pricing, and annual invoice runs.

Circle 202 on free information card

Hydraulic mower

Hydr-Mower, from Kut-Kwick Corp., is the most maneuverable hydraulic riding mower in the 60-inch range, according to the manufacturer. The mower features a 23horsepower, cast iron engine, two seven-gallon tanks, and separate hand levers

to allow "0" turning radius. Further, the unit is capable of cutiing on slopes of up to 25 degrees.

Circle 212 on free information card

LAWN CARE INDUSTRY ORGANIZES

PURPOSES OF THE ASSOCIATION

- To provide and disseminate information to the industry regarding laws and regulations affecting the industry and to promote the enforcement of same
- To provide industry statistics
- To exchange knowledge among the members for the improvement of the industry
- To collect and disseminate information regarding lawn care for the betterment of public interest
- To recommend standards of nomenclature for the improvement of the industry
- To sponsor and promulgate research related to lawn care among other persons or institutions
- To provide information to the public regarding lawn care by sponsoring or participating in seminars, conferences and congresses related to education in the lawn care fields
- To promote the lawn care industry in all other lawful ways.

MEMBER ACTIVITIES AND SERVICES

1. **NATIONAL CONVENTION**
   An annual event for the professional exchange of new ideas, innovations and operating know-how. Also a forum for Lawn Care industry suppliers to sell and demonstrate their wares.
2. **NEWSLETTER**
   A periodic publication distributed to dues-paying members to keep them abreast of the latest thinking and activities affecting their business and industry and what other Lawn Care professionals are doing about it. The proposed Newletter will include regulatory and consumer market trends, technical, economic, legislative and industry news as it happens.
3. **SEMINARS**
   Conferences, clinics and workshops will be conducted in sessions aimed at continuing management education for today's business climate and conditions relating to the Lawn Care profession.
4. **TRAINING PROGRAMS**
   Specially designed courses for sales, service and supervisory employees of member firms to project a strong overview of the Lawn Care profession and to teach, with case histories wherever possible, the common fundamentals of business practices, customer relations, regulatory and legal aspects, cost control and the importance of economics to business success.
5. **RESEARCH AND DEVELOPMENT**
   Industry-funded projects will be initiated relating to advancement of Lawn Care technologies, analysis of new or unique methods, preparation of generic and industry-wide information for general dissemination, conduct of studies relating to supplies, safety, equipment, transportation and other general market data.
6. **CONSUMER EDUCATION**
   A generic (non-proprietary) approach to inform potential customers of the advantages of Lawn Care and the importance of putting the proper care of lawns in the hands of dedicated, trained, skilled professionals.
7. **STATISTICS**
   Surveys to enable each PLCAA company to compare its performance against the average performance of all member companies and to compare business performance factors, such as: sales volume, profit, investment, inventory levels, growth, etc. The Association will gather proprietary data from participating members for statistical analysis and prepare generalized data for dissemination to participating members while protecting the confidential information of each participant.
8. **SAFETY PROGRAM**
   The establishment of safety standards that, effectively followed by an industry, can better prepare that industry to contend with the multiplicity of national government regulatory groups and state and municipal codes that might seriously inhibit a business activity. Self-regulation and standards create a strong position on safety comprehension. Safety education films can also be produced for use in employee training, presentation to regulatory groups, management or customers as required.
9. **ENVIRONMENTAL PERSPECTIVE**
   A basic concern of all Lawn Care professionals is proper understanding of environmental factors relating to services performed and the responsibility to protect the environment.

   This important aspect of consumer and governmental awareness of environmental treatment will be carefully monitored and an alert system will be maintained.
10. **DIRECTORY**
    A listing of each member of the Association in good standing, the PLCAA statement of objectives, code of ethics, active committees, members' management personnel and association representatives. Current officers, directors and active projects will also be listed to facilitate participation.
11. **INSURANCE**
    An extremely important service to members is the availability of insurance programs tailored to the specific needs of the average PLCAA member. A package of selective coverage is planned to include health and medical plans, accident, death, liability, comprehensive business insurance and risk management.
12. **LEGISLATION**
    A significant factor in today's business climate is the constant presence of state and national legislation that could seriously affect the operation of Lawn Care professionals through laws and regulations controlling industrial material and processes for example. Reports to member companies in these areas will provide advance notice of pending legislation which will enable PLCAA members to respond.
13. **GOVERNMENT RELATIONS**
    In a broader concept, federal government activities relating to labor, standards, safety, liability, consumer interests, finance, trade, revenue, environment, imports and exports and other areas of special interest will be monitored. Appropriate agencies will be contacted when necessary. PLCAA, as spokesman for the entire industry, can present your interests with greater force and effectiveness than can an individual company.
14. **STANDARDS**
    Establishment of acceptable and common technical and safety standards will allow the Lawn Care profession to look upon criteria for their own performance and to have specifications that are tangible and demonstrable to both critics and allies.
15. **TRADE PRACTICES**
    Development and recommendation of industry objectives and encouragement of practices that will reflect favorably on the industry as a whole constitute an important Association function. Special problems in trade matters can then be addressed and solutions recommended within the framework of industry objectives and policies.
16. **ASSOCIATION LIAISON**
    The exchange of information and industry viewpoints with related Associations in industry, arts and sciences will significantly expand the influence and prestige of PLCAA as well as give PLCAA members a broader insight into their own industry.
17. **INDUSTRIAL RELATIONS**
    Motivation of employees, the proper utilization of human resources, standard operating procedures, labor relations, training and job descriptions will be explored under this activity.

MEMBERSHIP APPLICATION

INSTRUCTIONS

Please read qualifications and answer all questions on this application. Membership in the PLCAA may be held in the name of the company only. Send together with your check for the $50 application fee.

I, (WE), HEREBY APPLY FOR MEMBERSHIP IN THE PROFESSIONAL LAWN CARE ASSOCIATION OF AMERICA, AS FOLLOWS:

☐ **REGULAR MEMBER — $200 per year**
Application for Regular Membership in the PLCAA may be made by any person, firm or corporation active in the chemical lawn care business for at least six months prior to this application.

☐ **AFFILIATE MEMBER — $100 per year**
Application for Affiliate Membership in the PLCAA may be made by an operating branch or division of a Regular Member or business-related entity/individual designated by a Regular Member entitled to all rights of membership other than voting.

☐ **ASSOCIATE MEMBER — $500 per year**
Application for Associate Membership in the PLCAA may be made by any person, firm, corporation or other association engaged in business or research activities, related to, but not directly engaged in lawn care management, i.e. chemical suppliers, manufacturing and equipment suppliers, distributors and manufacturer's representatives.

Name of Company _____

Street _____ Phone (____) _____

City _____ State _____ Zip _____

Name and title of individual(s) who will represent your company to PLCAA:

_____ _____
Name Title Name Title

_____ _____
Name Title Name Title

In making application for the class of membership indicated above, I certify that the applicant is qualified in accordance with the requirements for membership as defined above. I further certify that all information submitted in this application is true and, if accepted as a member _____ (Name of Applicant Company) agrees to abide by the Articles of Incorporation, By-laws, and Code of Ethics of the Professional Lawn Care Association of America.

A check in the amount of $50 is enclosed. I understand the application fee is not refundable if the company is not accepted as a member. If accepted, I will be billed for annual dues.

(Fiscal year of association extends from July 1 through June 30. Dues are payable a full year in advance, but credit will be made on the following year if a portion of current fiscal year has passed when joining.)

Date _____ Signature _____ Title _____

Please complete the reverse side of this application and return with your check to:
Professional Lawn Care Association of America, 435 N. Michigan Avenue, Suite 1717 Chicago, IL 60611.

BACKGROUND DATA

1. Date applicant company started: _____

2. Applicant company is primarily involved in:

   Chemical lawn care and maintenance services
   - ☐ Chemical application only
   - ☐ Mowing and other maintenance services
   - ☐ Other (specify: _____)

   Application
   - ☐ Liquid
   - ☐ Granular
   - ☐ Both

3. Are you licensed? ☐ YES ☐ NO

4. Applicant company is an:
   - ☐ Independent
   - ☐ Partnership
   - ☐ Corporation
   - ☐ Chain
   - ☐ Franchise
   - ☐ Other (specify: _____)

5. Applicant's type of business:
   - ☐ Manufacturer
   - ☐ Dealer
   - ☐ Distributorship
   - ☐ Lawn Care Service
   - ☐ Other (specify: _____)

6. Is applicant company's business location:
   - ☐ Headquarters
   - ☐ Branch Office

CONVENTION PLANS

1. Will you attend a national PLCAA meeting?
   ☐ YES ☐ NO
2. What time of year would you prefer the meeting to be held?
   ☐ Winter ☐ Summer ☐ Other

FOUNDER'S DESIGNATION

Please send the necessary information for this membership to receive "Founder" member status. ☐ YES ☐ NO

TOOLS, TIPS & TECHNIQUES

Handling lawns in shade

Rather than putting new seed or sod into shaded areas of lawns each year, it is important for the lawn care businessman to recognize when he has shade problems on turf and handle them with good management, Dr. Keith Karnok of Ohio State University said.

Speaking to a packed room of close to 700 lawn care businessmen at the recent Ohio Turfgrass Conference in Cincinnati, he discussed management practices such as using shade-tolerant turfgrass varieties in blends, keeping trees pruned to reduce the canopy over the turfgrass area, raising the cutting height, avoiding excessive nitrogen, irrigating infrequently but deeply, keeping traffic off shaded areas and fungicide use.

"How widespread a problem is shaded turfgrass?" Dr. Karnok asked. "It has been documented that 25 percent of all of our turf has to be maintained under some degree of shade."

He said the most obvious characteristic of a shaded area is the reduction of light intensity. What many lawn care businessmen do not realize is that shade also creates a reduction in light quality. "Light intensity is important," he said, "but in some cases liqht quality can be more important."

Other problems faced in shaded areas are restricted wind movement and stratified areas of relative humidity. This allows the turfgrass plant to stay wet longer, and the bottom line is that the turf is more disease-prone.

Depending on the species the lawn care businessman is trying to maintain, there are a variety of problems that can show up in shade conditions, he said. Kentucky bluegrasses are very susceptible to powdery mildew. Fine fescues, considered by many to be the "shade grass of the North", are susceptible to leaf spot disease.

"Also, in shaded areas, there is a reduction in the photosynthesis process, the food-making process of the plant," Dr. Karnok told the audience. "This lowers the reserve carbohydrate level in the turfgrass plant. This causes the plant to suffer, and it can't produce new tillers and rhizomes, it is not storing food in shoots and roots as it would be doing in full sun."

Another problem lawn care businessmen have to face in shaded areas is the effect of the tree on turfgrass growth. Litter, branches and leaves that fall can inhibit seed germination and turfgrass growth. Also, tree roots definitely compete with the turfgrass plant for nutrient and water uptake.

"There is also a good indication that roots and leaves of certain trees emit chemical compounds that can inhibit growth of turfgrass seedlings and plants," he said. "This is called aleopathy, and it has been an area neglected too long." He said work is being done to determine under which trees turf cannot be grown.

He said it is important to use the correct turfgrass variety in shaded areas. Suggested varieties, according to Dr. Karnok, are, for Kentucky bluegrasses, Nugget, Warren's A-34, A-6 and A-7, Birka, Bristol, Glade and Touchdown. He also suggested Biljart fine fescue and Pennlawn red fescue (especially in dry situations). In addition to this, *Poa trivialis*, rough stock bluegrasses such as Sabre and Polis, perform very well in shaded conditions. He said ryegrasses look good initially in shaded areas, but over the long haul are not going to do the job.

His seed recommendations for a dry, shaded area are: About 20 to 30 percent of the seed mixture should be a blend of three or four varieties of improved, shade-tolerant Kentucky bluegrass, and about 70 to 80 percent of fine-leafed fescue such as Pennlawn. This should be seeded at a rate of about three to five pounds per 1,000 square feet.

Depending on the species the lawn care businessman is trying to maintain, there are a variety of problems that can show up in shade conditions, according to Dr. Keith Karnok, of Ohio State University. Kentucky bluegrasses are very susceptible to powdery mildew and fine fescues are susceptible to leaf spot disease.

For a wet, shaded area: About 10 to 20 percent of an improved bluegrass blend, 50 percent fine fescue, and the remainder should be *Poa trivialis*. This should be seeded at two to three pounds per 1,000 square feet.

Other management practices Dr. Karnok recommends for shaded lawn areas:

Raise the cutting height to 2-½ to 3 inches, allowing more leaf material to intercept light.

Avoid excessive nitrogen. The plant is already stressed, and if the tissue is made any more succulent, any more susceptible to disease, "you are going to lose it," he said.

Irrigate infrequently, but deeply. "You want to keep the leaf surface as free of moisture as you can," he said. "The disease pathogens love moisture."

He also recommended keeping traffic off of the area, and fungicide use if necessary. "But when you use fungicides," he said, "you are going to increase costs drastically."

As a final note, Dr. Karnok said that in some shaded areas, the lawn care businessman is going to have to consider going to a groundcover.

"English ivy and pachysandra will do very well, and in a short period of time you will have complete cover," he said. "Whether you like it or not, sometimes you are going to have to go that route for your customer. It is better than bare soil."

DUTCH ELM *from page 38*

jects," Phillipsen said. "From this standpoint, communities will be able to utilize their available manpower and equipment without a lot of additional expense.

Essentially all U.S. elms are susceptible to Dutch elm disease. In northern states, approximately 95 percent are American (white) elms, with the remainder made up of red elm and rock elm species. A few foreign species, including the Chinese and Siberian elms, are fairly resistant to Dutch elm disease. Some have suggested importing these to replace native elms that have been lost to Dutch elm disease.

"We're not recommending this because they would serve as reservoir hosts for the disease, making it even more difficult to slow the destruction of our native elms," Phillipsen said. "They have other drawbacks, too. They're fast-growing, but brittle, so they tend to lose their branches. And they don't have the shape and structure of the American elm."

Dutch elm disease was first reported in Minnesota in 1961. As is typical of many infestations around the country, the disease had relatively little impace on elm populations for 12-14 years.

What about insect pheromone projects? "The pheromone-trap method may show some promise in wild areas with only European beetle populations, but we haven't discovered a similar sex attractant that works with native beetles," Phillipsen said. "We consider pheromone traps, at this point, to be a valuable monitoring tool for European beetle infestations.

"As for a large-scale program based on pheromone use, there are disadvantages. By attracting a large number of beetles to a certain area, again a reservoir of fungus and beetles will probably build up. And there's the problem of isolating the treatment area. The best results obtained in recent tests indicate at least three to 13 percent of the beetles will still escape this method."

A great deal of research also has been focused on methods of combatting the Dutch elm disease fungus itself, instead of concentrating on the insect carriers. Are any of these being utilized on a significant basis?

"A variety of both chemical and biological agents have been tested as tree inoculants, usually under strictly controlled environmental conditions," Phillipsen said. "In a few instances, they've given good results. So far, however, there is nothing that has proved consistently effective in controlling the disease fungus in field applications.

"Probably the greatest drawback, though, is cost. Most of these methods require specialized equipment and take more time. We feel our efforts should be directed primarily at aggressive sanitation programs to stop the disease carriers. And, since the native elm bark beetle essentially bypasses sanitation programs in its overwintering habits, we believe the insecticide spray method can prove to be a valuable augment to sanitation."

PESTICIDES *from page 10*

- Special care should be exercised when applying pesticides. Herbicides are probably less dangerous to the applicator because large droplet size and lower pressures are normally used. However, insecticides are usually more likely to be applied with higher pressures and smaller droplet sizes. This leads to a greater likelihood of spray material blowing or drifting. Consequently, the operator must check wind conditions, as well as the proximity of other humans and animals. Highly toxic pesticides should not be used on windy days and usually not immediately before a rain because drift and runoff could cause disastrous effects. If fine mists are being created, full protective clothing and equipment should be used. Boots and leg protection are necessary for all ground applications.

- No pesticide should be applied until the application equipment has been calibrated. Any change in operating pressure, nozzle size, forward speed, height of boom, concentration of the pesticide, or mix ratio will require recalibration of the equipment.

- All people working with pesticides should develop the following habits: 1.)Never smoke or handle any food before washing hands. 2.)Do not place food near pesticides or in areas where pesticides are stored or mixed. 3.)Follow the 3-30 rule when mixing pesticides. That is, rinse the pesticide container three times and allow it to drain 30 seconds between rinses. 4.) Change clothes daily and do not wear any clothes that have been exposed to pesticides until they have beenlaundered. Contaminated clothing should be handled and washed separately from other clothing.

- Equipment used for mixing or applying pesticides should be thoroughly washed and decontaminated after use or before repairs are made. This is especially true when applying toxic substances.

Ohio turf show: 'Man-of-the-Year' honored; scholarship winner selected

Dr. David P. Martin (right), former OSU agronomist, was honored as "Man-of-the-Year" for his service to the Ohio turfgrass industry and OTF. President Bill Hill (left) made the presentation.

President Bill Hill (right) accepted the past president's plaque for incoming president Ron Giffen. The plaque was presented to Hill in appreciation of his "outstanding service" as president in 1979.

James DeLong (right), a student at Ohio State University, won the OTF "Dick Duke Memorial Scholarship" as an outstanding student in the turfgrass curriculum. Bob Robinson (left), director of Agronomy for Chemlawn, made the presentation.

Dr. Phil Larsen (left), turfgrass pathologist at Ohio State University, was honored by OTF with their Professional Excellence Award for outstanding contributions to turf disease control. Gene Probasco (right), of Lakeshore Equipment & Supply Co., Elyria, Ohio, made the presentation.

The first posthumous Professional Excellence Award was given by OTF in honor of the late Roy Schrage. Schrage is remembered for his longtime efforts in golf course construction and maintenance with Century Toro in southern Ohio. Past OTF President John Fitzgerald (right) accepted the plaque for the Schrage family from OTF trustee Gene Burress.

BEHIND THIS ISSUE

Let's talk about growth in the lawn care industry. I kind of like to play with numbers, and here are some of my favorite ones for you.

Last month in INSIDE THE INDUSTRY, we published a list of 62 chemical lawn care companies grossing in the vicinity of a million dollars or more each year. We published the same type of list in our November 1978 issue. I pulled out the figures for six of the largest chemical lawn care companies from both of our surveys and compared their figures between the two surveys. The six companies were: ChemLawn Corp., Columbus, Ohio; Lawn Doctor, Inc., Matawan, N.J.; Lawn Medic, Inc., Bergen, N.Y.; R.W. Collins, Inc., Satellite Beach, Fla.; Hydro Lawn, Gaithersburg, Md.; and Easy Lawn Co., Piqua, Ohio.

These six companies certainly are not typical of the total chemical lawn care industry, but their growth in the last year can give some kind of indication where the chemical lawn care industry is going.

Collectively, these six companies grossed $88.4 million in 1978 on service to 723,000 customers. This comes down to an average yearly sale of $122.32 per customer. One year later, these same six companies were grossing about $116.3 million on service to 882,400 customers. These figures compute to an average increase of 31 percent in gross sales, along with a 22 percent increase in customers. The average yearly sale this past year was $131.24 per customer, an increase of $8.92, or 7.2 percent. Again, these figures are only for six of the largest chemical lawn care companies, but the percentages seem to hold up with what our other LAWN CARE INDUSTRY surveys have been showing about the growth of the lawn care industry.

And speaking of growth, we are again proud to say that this 48-tabloid-page issue is LAWN CARE INDUSTRY's largest in our relatively short three-year history. We are also carrying the most advertising that we ever have, and the most-ever advertisers — 42 in all. And you can be sure they are drooling over the kind of business you guys are doing.

Rob Earley

WAGES from page 1

compensation program where 60 percent of the starting employe's wages will be fixed and 40 percent will vary with their performance," he said. "This way the strong performer should be able to earn in the range of $13,000 to $14,000; the average performer between $11,000 and $12,000; and the less adequate performer between $10,000 and $11,000.

"The net effectivenss of the program is we will have to pay out more money than last year to the tune of about eight percent," he added.

David J. Frank, owner of David J. Frank Landscape Contracting, Inc., plans to increase his employe's wages about 15 percent, more than any other lawn care operator contacted by LAWN CARE INDUSTRY.

Frank said it is "almost an insult" to reward quality employes with a cost-of-living increase. "If you give somebody a cost-of-living increase he's earning exactly what he did the year before. If you want to reward someone for doing a good job he deserves more.

"So what we hope to do is put together a benefit package that will be meaningful to the employes, in addition to giving them a cost-of-living increase."

One of the primary reasons for the wage increases, according to Bob Baier, president of Plant Control Corp., Irvine, Calif., is people tend to accept inflation as a fact of life. "People tend to accept inflation too readily," he said, "and a by-product of that is wages have to go up."

However, not everyone is increasing wages in 1980. Mike Cust, president of Cust Maintenance Co., Oxon Hill, Md., described 1980 as a "freeze year. We carry seven key people all year round and all these people have been told that we have a wage freeze for 1980," he said.

Cust also plans to reduce his starting salaries from $4 an hour to $3.25 an hour in 1980. "My people know I have a problem so they're going to do what they can for me," he said. "It will make it hard on them, but if it looks like we can raise wages later we will."

ADVERTISERS INDEX

CLASSIFIED

When answering ads where box number only is given, please address as follows: Box number, % LAWN CARE INDUSTRY, Dorothy Lowe, Box 6951, Cleveland, Ohio 44101.
Rates: 35¢ a word for line ads, 65¢ a word for display ads. Box numbers add $1 for mailing. All classified ads must be received by the publisher before the 10th of the month preceding publication and be accompanied by cash or money order covering full payment.
Mail ad copy to Dorothy Lowe, LAWN CARE INDUSTRY, Box 6951, Cleveland, Ohio 44101.

FOR SALE

FOR SALE: Tree/lawn sprayer components, all new; 1-Bean 20-20 500 psi pump, 1-Kohler cast iron 12 h.p. electric start, 1-275 gallon s.s. tank. $1500. w/used hose and guns. P.O. Box 548, N. Kingstown, RI 02852. 401 294-6397.

MISCELLANEOUS

KELWAY SOIL pH TESTER, used by professionals everywhere. Direct reading, longlasting, portable, lightweight, no power source. Model HB-2 reads moisture too. Available through local distributors or contact Kel Instruments Co., Inc., Dept. L, P.O. Box 1869, Clifton, N.J. 07015. 201 471-3954.

KNOW pH INSTANTLY. Patented electronic tester, portable, handheld. For soil, liquieds, etc. $22.00 postpaid. Details free. A & H Marketing, Dept. L5, 8325 Dru Ave., S.E., Albuquerque, NM. 87108. Phone 505 266-4821.

USED EQUIPMENT

STAINLESS STEEL COMBINE that rolls, aerates, applies seed plus liquid and granular chemicals. Call 301 987-5901.

FOR SALE: 1200 gallon liquid lawn feeder, tank, hose reel, hose and nozzle, 800 gallon Finn lawn feeder, tank, hose reel and nozzle. 219 747-3298 or 747-1370.

FOR SALE: 10-1977 Chevy one-ton trucks, 750 gallon spray tanks, R & M 3L4 pump, electric hose reels, spray hose, ready to spray. Phone 513 845-0631.

LOCKE 75 reel mower with sulkie, used one season, excellent condition. Completely serviced, $1,000.00. DuBrow's Nurseries, 251 W. Northfield Road, Livingston, N.J. 07039. 201 992-0598.

HELP WANTED

BRANCH MANAGER needed for fastest growing landscape treatment firm in California! Service, sales, accounting experience. Send resume and salary requirements. The Green Scene, 5842 Tampa Avenue, Tarzana, California 91356.

LAWNMARK is presently accepting applications for both full and part time Service Rep. positions for Milwaukee, Akron, Cleveland and Rochester. Excellent compensation, benefits and upward mobility potential. Send resume to: Personnel Dept., Lawnmark Hdqtrs., P.O. Box 634, Hudson, OH 44236.

TURF SPECIALIST/MANAGER TRAINEE positions open at expanding chemical lawn and shrub care company in fast growing Houston, Texas. Tremendous opportunity for those having experience with national or regional lawn care companies, or knowledge of turfgrass and ornamental plants. The right people will have unlimited advancement potential. Send complete resume including education, experience and salary history to: Environmental Lawn Care, 7544 Harwin, Houston, Texas 77036 or call collect 713 784-1750.

EVERGREEN CHEMICAL LAWN CARE of Troy, Michigan is now accepting applications for Lawn Technicians. Positions are available immediately. Send resume or call collect: 1061 Badder, Troy, Michigan 48084. 313 588-3512.

MANAGE YOUR OWN OFFICE — Evergreen Chemical Lawn Care Corp. is opening new offices, Michigan and Indiana area, management personnel needed. Involved in the sales, production and management duties. Experience in the Chemical Lawn Care Industry necessary. Top salary, benefits, bonus and ownership opportunities with a rapidly expanding company. Send resume or call collect: 1061 Badder, Troy, Mich. 48084. 313 588-3512.

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